



Research project: effects of low fixed charges

Project Brief

~~3~~ September 2013

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Work programme project number: D2
Date: ~~3~~ September 2013
Version: 1. ~~2~~

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Document information

This project brief describes the background and reasons for the project and defines the purpose and objectives and expected benefits of the project. A project plan will be prepared to provide more details about the approach to the project, including describing project risks and mitigation measures and interactions with other projects.

Approvals

Project Brief

Project Sponsor

Signature

Date

Project Manager

Signature

Date

Version control panel

Date	Version	Author	Comments and/or description of changes
22/07/13	1.0	Craig Evans	
14/08/13	1.1	Craig Evans	Revised to reflect feedback at 7 August 2013 Authority Board meeting
<u>03/09/13</u>	<u>1.2</u>	<u>Karen Smith</u>	<u>Revised to reflect discussions at 21 August 2013 RAG meeting</u>

Contents

Document information	A
Approvals	A
Version control panel	A
1. Introduction and purpose – why we are doing this project	5
1.1 Purpose	5
1.2 Background	5
Description of LFC regulations	5
2. Project definition – what the project will achieve	6
2.1 Project objectives	6
2.2 Benefits sought	7
2.3 Business rationale and measurable impacts	7
2.4 Scope	8
2.5 Indicative project deliverables	9
Appendix A Background information	10
Description of LFC regulations	10
The impact of LFC tariffs	11
Concerns with the LFC regulations	14
Targeting	14
Low fixed tariff options add costs and are not cost reflective	15
LFC regulations may stifle retail competition and pricing innovation	15
LFC regulations ineffective at encouraging energy efficiency	17

1. Introduction and purpose – why we are doing this project

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1.1 Purpose

1.1.1 The purpose of this project is to examine the effects on efficiency and competition of the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 (LFC Regulations) and to identify better means of achieving the objectives of the LFC Regulations.

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1.1.2 This project would be undertaken under section 16(1)(g) of the Electricity Industry Act 2010 which states that a function of the Authority includes to undertake inquiries into any matter relating to the electricity industry.

1.2 Background

1.2.1 The LFC Regulations were introduced in 2004 to require retailers to offer a low fixed charge tariff option or options for delivered electricity to domestic consumers at their principal place of residence and to require distributors to assist retailers to deliver the low fixed charge options.

1.2.2 The objectives of the LFC Regulations are to assist low-use consumers and to encourage energy conservation. The Minister of Energy explained in June 2005 that the LFC Regulations were designed to help low power users and low income earners, including pensioners, to save on their power bills.¹ A subsequent Ministerial statement in 2007 noted that low-use consumers in many areas had previously faced unreasonably high fixed daily charges for their limited or low electricity usage and that the LFC Regulations provided low-use consumers with a tariff option that was more equitable for low-energy users, and compatible with the Government's energy efficiency objectives.²

1.2.3 The Ministry of Business Innovation and Enterprise (MBIE) is responsible for administration and amendment of the LFC regulations. The Authority is responsible for monitoring compliance, investigating alleged breaches, and if necessary, taking enforcement action on the LFC regulations. The Authority is not able to implement Code amendments or market facilitation measures that override the LFC regulations.

Description of LFC regulations

1.2.4 The LFC regulations require retailers to offer a LFC tariff option to domestic consumers using less than 8,000kWh per year or less than 9,000kWh per year for consumers residing south of Christchurch (excluding the West Coast). A LFC tariff must comprise:

¹ <http://www.scoop.co.nz/stories/PA0506/S00268/cheaper-electricity-bills-from-new-regulation.htm>

² <http://www.parliament.nz/en-NZ/PB/Debates/Debates/4/5/8/>

- (a) a fixed component that is capped at \$0.30/day excluding GST
- (b) a variable component that is set so that average consumers pay no more per year on a LFC tariff option than on any alternative tariff option.

1.2.5 The LFC regulations establish a pricing mechanism that is intended to provide cost savings to domestic consumers using less than the 8000/9000kWh threshold. The retailer can increase the variable component to offset the lower fixed component but only by an amount that means the LFC customer would face the same charge for 8000/9000kWh on either the LFC tariff or other tariff. However, these cost savings are obtained by reducing the sales margin the retailer can expect from selling to the LFC consumer. A retailer operating in a workably competitive market could be expected to recoup this lost margin by:

- (a) ensuring that standard pricing at the 8,000/9,000kWh threshold is higher than it might otherwise be
- (b) increasing fixed or variable charges on standard plans for customers using more than 8,000/9,000kWh a year.

1.2.6 Further background information on the LFC regulations is available in appendix A.

2. Project definition – what the project will achieve

2.1 Project objectives

2.1.1 The objectives of this project are to examine:

- (a) the effects on competition and efficiency of the LFC regulations to determine the implications of the existing arrangements for industry participants and consumers

(b) the extent to which:

- (i) the LFC regulations promote energy conservation objectives
- (ii) other existing initiatives or mechanisms promote energy conservation objectives
- (iii) there is a role for the electricity industry to promote energy conservation objectives,

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(c) the extent to which:

- (i) the LFC regulations promote social objectives³
- (ii) other existing initiatives or mechanisms promote social objectives
- (iii) there is a role for the electricity industry to promote social objectives.

2.2 Benefits sought

2.2.1 The desired results from this project are to provide the Authority Board with:

- (a) a detailed analysis of LFC regulations and an assessment of whether they are the most efficient approach for achieving the long-term benefit of consumers
- (b) a recommendation to continue or amend or remove the LFC regulations
- (c) proposals for alternative means of promoting energy conservation and addressing poverty concerns.

2.2.2 The desired impact of the recommendations and proposals of this project is to identify a set of arrangements for consideration by the Authority Board that deliver:

- (a) demonstrable competition in the electricity market by increasing the ability for retailers to offer products that reflect consumer expectations of price/service bundle
- (b) demonstrable competition in the electricity market by identifying initiatives the industry can adopt to efficiently address poverty concerns
- (c) efficient price signals, for example by providing consumers with price information so they can decide to conserve electricity when this is efficient
- (d) increased retail competition by reducing barriers to entry and expansion in the retail sector, for example by removing barriers to innovation and reducing compliance costs.

2.3 Business rationale and measurable impacts

2.3.1 This is a research project to examine the effects on competition and efficiency of the LFC regulations.

2.3.2 The costs and benefits of the approaches to address poverty (by assisting low-income consumers) and encourage energy conservation will be considered as part of the project.

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the costs and benefits of the LFC regulations and practicable alternatives for promoting energy conservation and addressing poverty that are for the long-term benefit of consumers.

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³ The project will focus on measures to address poverty (low-income consumers) rather than to assist low-use consumers, as there is not a direct correlation between low-use and low-income consumers.

2.3.3 The focus of the project is to promote competition in and efficient operation of the electricity industry for the long-term benefit of consumers. The project aligns with the Authority’s strategic directions for market development to reduce barriers to entry, exit and expansion, to increase consumer participation and to provide efficient price signals.

Competition	Reliability	Efficiency
The project will consider the competition effects of the LFC regulations		The project will consider the efficiency effects of the LFC regulations
The project will consider alternative measures (including non-electricity sector measures) for addressing poverty and encouraging energy conservation without limiting competition		The project will consider alternative measures (including non-electricity sector measures) for addressing poverty and encouraging energy conservation without limiting efficiency

Reduce barriers	Facilitating consumer participation	Provide efficient price signals	Appropriate flexibility and resilience
√	√	√	

2.4 Scope

2.4.1 The scope of this project is to examine the effects of the LFC regulations on competition, efficiency, energy conservation and poverty and to examine alternative means for achieving the different objectives of the LFC regulations.

2.4.2 The following table outlines the processes and areas that are covered by project:

Included in the Scope: (We will do this)	Excluded from Scope: (We won't do this)
Examine the effects of the LFC regulations on competition and efficiency in the electricity industry	Consider the effects of the LFC regulations on competition and efficiency in other industries
Examine the effects of the LFC regulations on the energy conservation and social objectives that the LFC regulations were designed to address	
Examine existing initiatives or mechanisms for promoting the energy conservation and social objectives	

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Included in the Scope: (We will do this)	Excluded from Scope: (We won't do this)
<u>Consider the role of the electricity industry in promoting the energy conservation and social objectives.</u>	<u>Consider options that are inconsistent with the Authority's statutory objective.</u>
<u>Consider whether the Authority should continue or amend or remove the LFC regulations.</u>	<u>Consider options that involve amendments to instruments other than the LFC regulations, Act or Code.</u>

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2.5 Indicative project deliverables

- 2.5.1 The Authority's 2013/14 work programme indicates that this project will begin in 2013/14 and be completed in 2014/15 or after.
- 2.5.2 The Authority proposes to assign this project to the RAG. The RAG will lead this project, but will engage with industry, consumers, MBIE, Ministry of Social Development, EGCC, EECA other relevant agencies. The approach to the project and outputs of each stage will be confirmed during the scoping stage. A key consideration in determining timeframes and milestones for this project is the RAG work plan and relationships with other projects.

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ID	Stages and deliverables	Start date	Completion date
	<u>Scoping</u>	1 July 2013	<u>30 September 2013</u>
	Deliverable Project brief and approach	Project brief and approach agreed by Board and the RAG	
	<u>Stage 1 – Effects on competition and efficiency</u>	<u>1 October 2013</u>	<u>June 2014</u>
	Deliverable RAG discussion paper(s)		
	<u>Stage 2 – Effects on energy conservation and social objectives</u>	<u>July 2014</u>	<u>Early 2015</u>
	Deliverable <u>RAG discussion paper(s)</u> RAG recommendation to Authority Board		

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Appendix A Background information

Description of LFC regulations

The Electricity (Low Fixed Charge Tariff Options for Domestic Consumers) Regulations 2004 (LFC regulations) were introduced in 2004 and oblige retailers to offer consumers a tariff which with a set fixed charge and higher variable energy charge. The fixed charge portion of the tariff is capped at \$0.30/day excluding GST compared to a typical charge of circa \$1/day plus.

Currently the LFC regulations require:

- Domestic consumers using less than 8,000kWh per year to pay less on a LFC tariff option than on any other tariff option. The usage level of 8,000kWh per annum was originally set to approximate average consumption in New Zealand. (From 1 April 2009, this increased for consumers using less than 9,000kWh per year for consumers in the lower South Island consisting of Christchurch and below, excluding the West Coast in recognition of higher electricity usage because of the colder climate).
- Average consumers to pay no more per year on a low fixed charge tariff option than on any alternative tariff option. An example of how the LFC prices are derived is set out in Clause 9 of the LFC regulations using example customers: Mrs A and Mr B⁴. For Mrs A the key information and LFC calculation is shown in the following table.

Average customer plans	Mrs A	Same annual electricity cost
Standard fixed	65 cents per day	\$1,577
Standard variable	16.75 cents per day	
LFC regulated fixed	30 cents per day	\$1,577
LFC variable	18.34 cents per day	

- LFC tariff options to be advertised in the same manner as other tariffs
- Retailers to inform domestic consumers at least annually whether it may be beneficial for them to switch to a LFC tariff option
- LFC tariff options to be available only for homes where consumers usually reside

⁴ The LFC regulations state that: If Mrs A has an uncontrolled supply of electricity. Mr B has an electricity supply comprising both controlled hot water and uncontrolled other supply. Mrs A and Mr B are both average consumers. The alternative tariff option for Mrs A is 65 cents per day plus a variable charge of 16.75 cents per kWh of electricity used. So a compliant low fixed charge tariff option for Mrs A would be 30 cents per day plus a variable charge of 18.34 cents per kWh of electricity used. For both tariff options, the cost per year for Mrs A would be \$1,577. The alternative tariff option for Mr B is 65 cents per day plus variable charges of 16.75 cents per kWh of electricity used for the uncontrolled supply and 14.87 cents per kWh of electricity used for the controlled hot water. So a compliant low fixed charge tariff option for Mr B would be 30c per day plus variable charges of 18.34 cents per kWh of electricity used for the uncontrolled supply and 16.46 per kWh of electricity used for the controlled hot water (see assumptions in regulation 9(4)). For both tariff options, the cost per year for Mr B would be \$1,517.

- Retailers to make LFC tariffs genuinely available (subject to usual credit-worthiness tests), irrespective of the usage and/or meter configuration of the consumer
- Tariffs with tiers below 8,000kWh per year (e.g. high c/kWh for the first 2,000kWh per annum) to be banned so that LFC offers give genuine advantages to small consumers
- Distribution companies to offer LFC distributor tariff options (to retailers or direct to consumers) at a maximum of 15 cents per day.

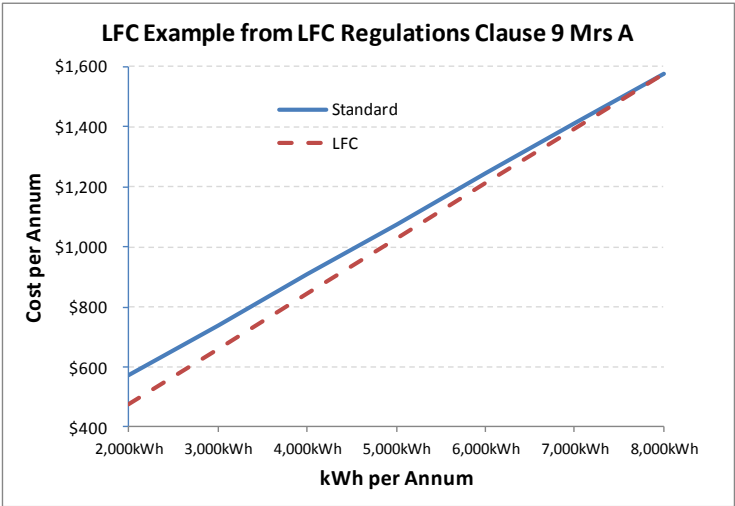
Compliance with the LFC policy is measured both before and after any rebates or discounts. Any rebates or discounts must apply consistently to consumers regardless of whether they are on a LFC option or not.

The impact of LFC tariffs

Industry participants and consumer representatives have raised concerns about the impact of the design of the LFC regulation. The key concerns are:

- (a) the potential for cross-subsidies from low-use consumers (including high income individuals) to high-use consumers (including large, low income families). There is not necessarily a direct correlation between low-use and low-income and there is evidence suggesting that high income individuals are more likely to qualify for the LFC tariff option
- (b) barriers to retail competition (entry and expansion) from additional complication and costs of retail pricing and customer billing. This increases retailer's cost to serve (higher costs for consumers) and makes market entry into retailing more difficult (less retail competition). The LFC regulations also create a material compliance burden on retailers and distributors
- (c) could crowd out the innovative tariff plans that are emerging as advanced metering infrastructure (AMI) is rolled out in NZ
- (d) are not effective in encouraging energy efficiency. Savings from reducing use on a LFC tariff are not significantly more than savings for the same reduction on a standard tariff, so the price effect on energy efficiency is likely to be negligible.

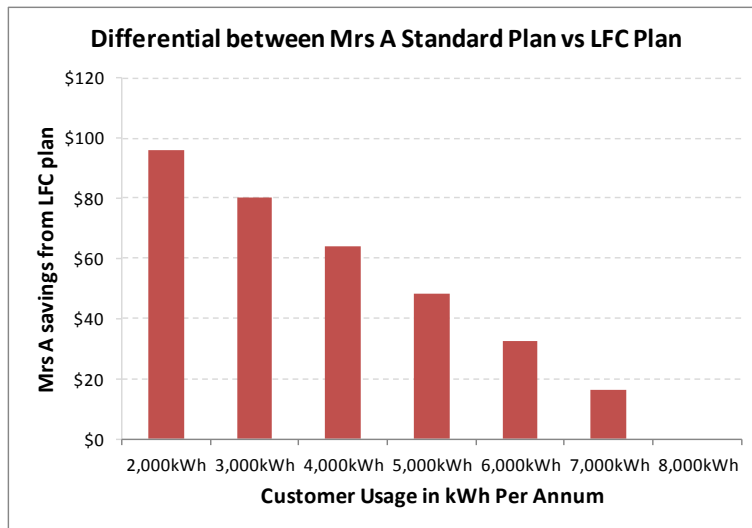
LFC tariffs will provide a cost saving to domestic consumers using less than 8,000kWh per year (less than 9,000kWh per year for consumers in the lower South Island) to varying degrees depending on variable pricing and usage. The options available to an example customer, in this case we take Mrs A from Clause 9 of the LFC regulations, are shown below. At levels of usage below 8,000kWh Mrs A can make savings by moving onto a LFC plan.



There is also a theoretical potential for the steeper decline in the LFC price to drive some LFC customers to conserve energy, though this effect is likely to be minor and depend on each customer's demand elasticities and access to substitutes.

The pricing mechanism implicit in the LFC regulations, derives from the combination of the 30 cents per day limit on the fixed charge and the 8000kWh per annum trigger consumption level. The retailer can increase the variable charge to make up for the lower fixed charge but only by an amount that leaves Mrs A facing the same charge of \$1,577 for 8,000kWh on either the standard or the LFC plan. However, if Mrs A uses less electricity than 8000kWh on a LFC plan, the variable rate she can be charged is the variable rate she would face if she were to consume 8,000kWh. Thus the LFC variable rate is fixed on the pivot average consumption level of 8,000kWh per annum.

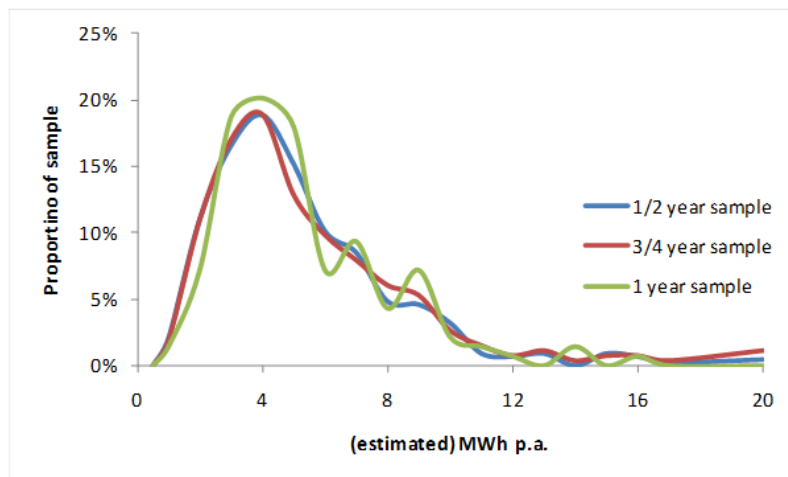
This pricing mechanism therefore means that as Mrs A uses less electricity, the LFC regulations provider her with greater savings. The amount of those savings across a range of annual usage that qualifies her for LFC is shown below.



However, the problem is that this reduces the annual sales margin that an electricity retailer can expect from sales to Mrs A. As a consequence the retailer could be expected to adjust its unit prices to restore a sales margin consistent with a workably competitive market by:

- ensuring that standard pricing at the pivot point of 8,000kWh is higher than it might otherwise be, and/or
- increasing fixed or variable charges on standard plans for users above 8,000kWh per annum.

Furthermore, based on evidence from other markets, it is possible that annual customer usage in New Zealand is not normally distributed. If so, this means the bulk of customers may have annual consumption well below 8,000kWh. Customer usage tends to be skewed to the left with the median customer well below the average. This is clear in the diagram below.



This graph is taken from a sample of Victorian electricity consuming households and represents an estimate of the annual volume distributions with different time lengths of volume measurement. It shows a strongly skewed distribution with a maximum of about 4-5 MWh per annum and a long tail which is two or three times the median volume. New Zealand customer usage volumes are likely to exhibit a similar skew although it is possible that NZ usage could be higher across the board given NZ's colder climate.

This effect means that the impact of the LFC regulations is greater than may first appear because substantially more than half the customer base has access to LFC tariffs, without any change to their consumption. However, to the extent retailer's margins are reduced, they may have a greater incentive to ensure that standard pricing at the pivot point of 8,000kWh is higher than it might otherwise be and/or increase fixed or variable charges on standard plans for users above 8,000kWh per annum.

Concerns with the LFC regulations

The following discussion provides further detail on the key criticisms of the LFC regulations. The validity of these criticisms needs to be tested.

Targeting

A key criticism is that the LFC regulations are a poorly-targeted social policy measure as high income individuals can qualify of the LFC tariff. Furthermore relatively higher-income individuals with low use of electricity are cross-subsidised by users such as large, low-income families that consume more electricity than the LFC limits. Even elderly customers could be missing out because they are home more often than other customers thereby using relatively more electricity.

Retailers will seek to recover their costs and are naturally likely to over recover, relative to a market without LFC regulations, from customers who are not on the LFC plans. A recent paper by AGL "Reconciling energy prices and social policy" shows clearly that electricity

consumption and income are not well correlated. There are high income low electricity users and low income high users. This situation is likely to be the case in NZ as well.⁵

People using alternative forms of energy such as gas or solar, with higher upfront set up costs, will naturally use less electricity and are therefore likely to gain from the LFC regulations. This is despite these people being likely to have higher incomes on average because they've had the resources to cover the costs of the upfront investment. On this basis the LFC regulations fail to meet the objective of assisting low income or elderly customers. The LFC regulations could encourage take up of alternative energy because they provide a saving if customers move their usage from above the 8,000kWh pivot point to below it. However, this effect is likely to be marginal as a saving from moving onto a LFC plan is not certain and many other factors drive customers' investments in alternative energy sources. To the extent that the LFC regulations do encourage investments in energy alternatives, there is some risk that these investments are not optimal as their economic and environmental benefits do not outweigh the costs of the LFC subsidy that drove them.

Low fixed tariff options add costs and are not cost reflective

On the supply side, 30c per day is unlikely to match the fixed nature of most costs of supply, which distorts price signals for retailers as they seek to price their plans to earn an acceptable overall return. Retail pricing in workably competitive markets does not always follow underlying costs, especially in the short term. Prices can vary from underlying costs for all sorts of reasons, for example efficient price discrimination, special offers etc. However, the LFC regulations are very unlikely to reflect the actual long run costs incurred by retailers or distribution companies and therefore cause allocative, productive and dynamic inefficiency in the retail electricity market.

The LFC regulations are also criticised on the basis that they add considerable complexity and cost to retail pricing plans and customer bills. They also increase transaction costs when customers' usage changes and they move over the 8000kWh/9000kWh boundary or if customers don't fit neatly within business or residential classifications. According to generator/retailers, LFC plans also drive additional calls into call centres increasing call numbers and call length.

When an entrant into the retail market sets up its systems and devises its retail price plans the LFC regulations will add cost and complexity to the process. But once these systems are in place the incremental costs driven by the LFC regulations will fall back. However, they are still relevant when systems are renewed or refreshed as the LFC regulations require all standard plans to have their matching LFC counterpart.

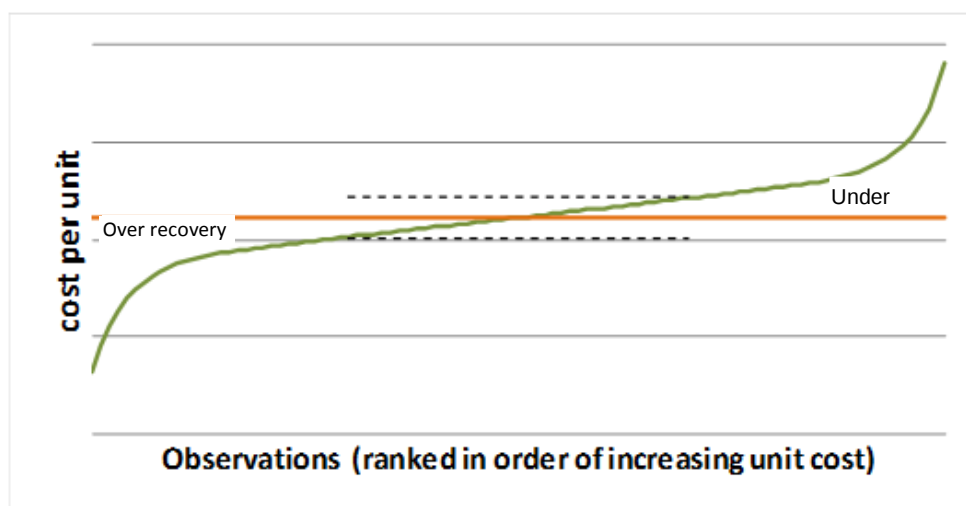
LFC regulations may stifle retail competition and pricing innovation

A potentially more serious problem is if the LFC regulations crowd out other more valuable plans, for example plans that focus instead on incentivising customers to better manage electricity consumption and conserve energy. This is because Advanced Metering

⁵ <http://www.aqlblog.com.au/wp-content/uploads/2013/04/No-37-Reconciling-energy-and-social-policy-FINAL.pdf>

Infrastructure (AMI) will give retailers the option to tailor plans to more niche customer segments by removing another systemic cross subsidy from the electricity market.

The following diagram of a cost curve is indicative of the potential for AMI to engender retail price competition. The curve reflects differences in the unit cost of delivered energy depending on annual energy usage profiles at each connection point. The cost curve arises because both network and wholesale electricity costs vary substantially depending on the time of consumption. The per customer costs of goods sold (CoGS) appears as a green line, based on interval meter data, compared to the residential deemed (or average) cost seen in orange. Customers are ranked on cost of supply going from left, the lowest, to right, the highest cost⁶.



The potential for retail competition to target customers with better value plans is clear for those customers whose individual CoGs is low and who therefore are being charged above CoGs on their current deemed profile based plans (This is represented by the “Over recovery” area between the green line and the orange line on the left in the diagram). These customers are cross subsidising customers whose true CoGs is much higher than the rate they are charged shown above as “Under recovery”. These customers are not getting an appropriate price signal to match their usage.

The LFC regulations will hinder the extent to which retailers can target value offers at those who are currently disadvantaged by deemed average pricing as all niche tariffs that might be developed by retailers would need their matching LFC counterparts therefore doubling the number of plans in the market.

⁶ Source: Figure 3 of Smart meter consumer impact: initial analysis, Sell, Orme and Prins, February 2009. The vertical scale has been removed as values are changing over time. The supply cost curve was drawn from a representative set of customers in the Ausgrid supply area in NSW. The CoGS includes wholesale energy costs plus network (distribution and transmission costs).

This effect could combine with retailer caution about the competition that could result from a strong take up of AMI plans. Retailers may be cautious of the transaction costs of vigorous competition of this sort. If the LFC regulations are slowing the introduction of more cost reflective retail pricing, they will be lowering the gains that could otherwise accrue to consumers.

LFC regulations make AMI competition of this sort more difficult and costly. If there is retailer nervousness about AMI competition, the LFC regulations could be dulling innovation and the development of new AMI based plans.

Monitoring of the LFC regulations requires retailers to check whether their plans are compliant with the LFC regulations. As set out in the regulations, clause 22, this introduces a 15 day delay in the implementation of new pricing plans which would dull competition by slowing down the pace of retail activity compared to what might otherwise be the case.

LFC regulations ineffective at encouraging energy efficiency

It is also argued that the LFC regulations are of doubtful value for incentivising energy efficiency as more efficient price signals could be sent via retailer and distributor developed AMI plans than via the slight price signals sent by the LFC regulations. Savings from reducing use on a LFC tariff are not significantly more than savings for the same reduction on a standard tariff, so the price effect on energy efficiency is likely to be negligible. Empirical evidence supports the view that little or no energy efficiency effect has resulted from the LFC regulations. TrustPower in its submission on the Electricity (Disconnections and Low Fixed Charges) Amendment Bill 2008 provided data showing that LFC customers had not changed their consumption behaviour as a result of being on the LFC plan⁷.

Distribution companies have been critical of the LFC regulations arguing that they are an active deterrent to them promoting alternatives to grid delivered electricity because the regulations reduce their revenue flows when customers lower their electricity use by taking up energy alternatives. Increases in customers using alternatives and becoming eligible for LFC pricing puts pressure on the distribution companies to increase the cross subsidy from standard customers to LFC beneficiaries.

⁷ See TrustPower Submission on the Electricity (Disconnections and Low Fixed Charges) Amendment Bill 2008

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