Retail Advisory Group

Research project: effects of low fixed charges

Next steps to address Board feedback and comments in the independent expert review report

12 October 2015

Note: This paper has been prepared for the purposes of the Retail Advisory Group. Content should not be interpreted as representing the views or policy of the Electricity Authority.

1 Recommendations

1.1.1 It is recommended that the Retail Advisory Group (RAG):

a) **note** the Authority Chief Executive's letter to the RAG Chair (Appendix A) providing feedback on the RAG's draft discussion paper on the competition, reliability and efficiency effects of the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 (Regulations)

b) **note** the report on the independent expert review (review report) of the draft discussion paper (Appendix B)

c) **note** NZIER's response to the review report (Appendix C)

d) **direct** the Secretariat to make amendments to the draft discussion paper and bring the revised version to the RAG's 9 December meeting for consideration.

2 The Authority Board has provided feedback on the RAG discussion paper on the effects of low fixed charges

2.1.1 At its 13 May 2015 meeting, the RAG considered a draft discussion paper reporting on the results of the Research project: Effects of low fixed charges. The Authority had requested the RAG to undertake this project to investigate the competition, reliability and efficiency-related effects of the Regulations. The RAG decided to give the draft discussion paper to the Board for comment (after certain amendments were made).

2.1.2 The Board considered the RAG's draft discussion paper (attached at Appendix D for reference) at its 26 June meeting. The Board had some comments on the paper, but also decided to obtain an independent expert review of the paper before providing feedback to the RAG. The RAG was updated by the Authority's Chief Executive on the Board decision and process at the RAG's 8 July 2015 meeting.

3 An independent expert review has been completed

3.1.1 The Authority commissioned Adrian Kemp, a partner with consulting economists Houston Kemp, to review the RAG's draft discussion paper. Mr Kemp's experience includes advising the Australian Energy Market Commission on distribution pricing and emerging technologies.

3.1.2 In addition to the matters discussed in the review report, Houston Kemp also carried out a detailed review of the tables and figures in the draft discussion paper, focusing on chapters 6 and 7, and in particular the analysis presented in sections 6.3 (cross-subsidisation), and 7.2 (expected impact of LFC tariff on investment in solar photovoltaics). This review involved cross checking the individual figures, tables and numbers in these sections against the material in a number of working spreadsheets. The review found that the figures and tables in the draft discussion paper are accurate. The only exception was a minor error in one chart.[1]

[1] The chart is Figure 10, which shows rates of return on investment in solar panels over time. Figure 10 had not been updated with the latest model results. Updating the chart results in a very small downward shift in the rate of return curve for the "no LFC" consumer.

4 The Board has suggested some changes to the paper

4.1.1 The Board's feedback is outlined in a letter from the Chief Executive to the RAG Chair. The feedback, including the feedback derived from the review report, raises a number of issues relating to aspects of the analysis and reasoning employed in the RAG's draft discussion paper, including its analytical approach, terminology, discussion, and conclusions.

4.1.2 The Secretariat considers that the feedback can be addressed by revisions to the draft discussion paper. Many of the issues can be addressed by adding further explanation to the draft discussion paper or by making the language more precise and the discussion clearer. The proposed revisions would make the draft discussion paper more robust and improve its clarity. In this respect, the review of the paper (by both the Board and HoustonKemp) has been a helpful and constructive exercise.

4.1.3 The Board's feedback is set out below (grouped under the same headings used in the Chief Executive's letter), with each item of feedback as a separate sub-heading. Below each item are some additional discussion to put the feedback in context and to explain its implications, and the Secretariat's recommended amendments.

4.2 To what extent do the LFC Regulations determine prevailing pricing structures?

The RAG should consider whether the LFC Regulations are the reason for the prevailing distribution pricing structure

4.2.1 This feedback relates to a conclusion of the review report which relates to the link between the Regulations and existing distribution pricing structures.

4.2.2 The review report notes that the Regulations may not necessarily cause the effects noted in the draft discussion paper since they do not require distributors to set higher consumption charges,[2] and alternative responses are possible:[3]

> *There is no basis for concluding that the LFC-tariff regulations create a strong incentive to apply the current charging structure. In my opinion, the current tariff structures are a discretionary choice of distributors and it would be possible to be consistent with the regulations and charge the same consumption charge to all customers, with differences in bills for an average customer being made up with alternative tariff components, for example, maximum demand charges;*

4.2.3 Paragraph 3.4.1 of the draft discussion paper already recognises that the Regulations allow flexibility in the form of variable charges. This is the Board's view. It is not shared by everyone; for example, NZIER's response to the review report adopts a contrary position in the section "On the Regulations not causing high consumption charges".

4.2.4 However, the point that the Regulations allow flexibility in the form of variable charges is not taken into account in the draft discussion paper's quantitative analysis. Chapter 3 of the draft discussion paper clearly identifies that the Regulations are flexible and that alternative responses are possible. Nevertheless, the quantitative analysis of the efficiency effects of the Regulations is

[2] In this paper the term "consumption charge" is narrowly defined as c/kWh charges. The broader term "variable charge" is defined to include any charge that varies based on some aspect of consumer behaviour. It can include variable capacity charges and maximum demand charges, as well as c/kWh charges.

[3] Review report, page 6.

based on the assumption that the Regulations cause a higher consumption charge, which leads to efficiency effects including substantial investment in solar panels. The draft discussion paper's conclusions also emphasise these efficiency effects.

4.2.5 In considering this issue, it is relevant to note that for a long time the typical distribution pricing structure has involved a two-part price and substantial revenue has been recovered through consumption charges. In this context it is not surprising that distributors have largely responded to the Regulations by offering prices with high consumption charges. Another reason for the prevailing pricing structure is it has not, until recently, been cost effective to have metering technology capable of recording peak demand at the household level.

4.2.6 The Board's feedback indicates that the quantitative analysis and conclusions of the draft discussion paper should not be based exclusively on an assumption that the Regulations cause distributors to raise consumption charges. It follows that the draft discussion paper should recognise that the Regulations influence distributors' pricing and lead to a response by distributors (to compensate for the revenue reduction resulting from the low daily charge). The draft discussion paper should then investigate what forms that response could potentially take. The response could be either a higher consumption charge (which would cause the efficiency effects explored in the draft discussion paper) or some other response, such as a peak demand or capacity charge (if the distributor uses those charges) which may also have efficiency implications.

4.2.7 The Board's feedback indicates that the draft discussion paper then needs to consider the potential efficiency effects of such alternative responses. It may be that alternative responses will also lead to inefficient investment. For example, the Regulations might encourage a distributor that was already using a demand charge to raise its demand charge to a level that inefficiently deterred use of its network. This might lead to inefficient investment in an alternative to electricity (such as gas heating) in order to avoid the demand charge. One option would be to carry out further analysis to explore this scenario and quantify potential efficiency effects. However, this may not be necessary, considering the hypothetical nature of the scenario. It may be sufficient for the draft discussion paper to note that the scenario exists and discuss it briefly.

4.3 Efficient distribution pricing

Is it efficient to allow for alternative ways to recover residual costs?

4.3.1 This feedback relates to a finding of the review report in which it takes issue with the draft discussion paper's assumption that variable costs should be recovered through variable charges, and fixed costs recovered through fixed charges:[4]

> *Chapter 5 incorrectly concludes that efficient pricing principles means that a variable charge should be linked to activities that create costs, with a fixed charge recovering any remaining revenue requirements, and by implication this applies to each customer group. In practice, efficiency requires charging on those parameters that cause future costs, based on the change in those future costs, with any remaining costs being recovered in the least distorting manner, which can include markups on consumption charges;*

4.3.2 It can be efficient to recover fixed costs through mark-ups on variable charges, although this depends critically on the extent to which price increases will affect consumers' usage and investment decisions. Use of markups will create distortions to the extent that consumer demand

[4] Review report, page 6.

responds to the price which is marked up, and to the extent that investment decisions are affected. There is good evidence to suggest that consumer demand does respond to consumption charges. NZIER's response to the review report includes evidence to this effect (in Figure 2). It is also likely that consumer investment decisions (eg in solar panels) are affected by consumption charges. It follows that it is unlikely that it would be efficient to set consumption charges which involve large markups over long run marginal cost (LRMC).

4.3.3 The draft discussion paper adopts a simplified approach in this area, which does not explore all of the issues discussed in the preceding paragraph. This approach was adopted to ensure that the analysis was not overly complex, and that the reader's attention was focussed on the most important points (such as the effects of a high consumption charge).

4.3.4 However, the Board's feedback indicates that the discussion in the draft paper could be revised to give more balance, by allowing the possibility of markups on variable charges and discussing the role of demand elasticity as well as investment effects in price-setting.

There are potentially a variety of efficient tariff structures

4.3.5 This feedback relates to a related finding of the review report with respect to Chapter 6 of the draft discussion paper (which deals with distortions to consumers' use of the network). The review report notes that it is misleading to identify a single efficient level of the fixed charge (as the assumed counterfactual):[5]

> *The analysis in Chapter 6 is problematic as it focuses on the concept of there being an 'efficient fixed charge', which is inconsistent with the economic theory underpinning network tariff structures;*

4.3.6 This point, which is similar to the previous finding, is also correct. There is no single efficient level for the fixed charge, as fixed costs can be efficiently recovered in various ways, depending on consumers' sensitivity to various prices. Again, the practical implications of this point may not be significant since consumer demand does respond to variable charges.

4.3.7 The main implication of this feedback is for the way the counterfactual is described in the draft discussion paper. The Board's feedback indicates that the language in the paper should be revised to avoid implying that the assumed counterfactual is an ideal efficient tariff combination. It is sufficient for the purposes of the analysis that the tariff structure assumed in the counterfactual is more efficient than prevailing tariff structures. The paper could also provide evidence of the efficiency of the counterfactual, as appropriate.

What is the role of menus of prices in uncovering consumers' preferences / willingness to pay

4.3.8 This feedback relates to the review report's finding that the draft discussion paper does not examine the differential price elasticities of demand of different groups of consumers and the implications for the efficiency of pricing.

4.3.9 This degree of complexity was not envisaged in the original project scope for the draft discussion paper.

[5] Review report, page 6.

4.3.10 The Board's feedback indicates that these points could be addressed through adding discussion of the role of demand elasticities and the role of menus of prices in uncovering consumers' preferences / willingness to pay.

Incremental cost is the starting point for efficient levels of use-based charges

4.3.11 This feedback relates to the review report's finding that the draft discussion paper does not explicitly examine the extent to which current distribution prices represent a markup on LRMC.

4.3.12 The analysis in the draft discussion paper does use LRMC, but the explanation was not seen as sufficiently clear. The paper could benefit from clarifying this discussion.

4.3.13 The Board's feedback indicates that these points could be addressed by including more explicit discussion of incremental costs as the starting point for efficient levels of use-based charges. The RAG could consider including a table of tariff examples.

Issues with using long run average incremental cost pricing

4.3.14 This feedback relates to the discussion of efficient distribution tariffs (section 5.2 of the draft discussion paper), and also the discussion of LRMC in a footnote on page 28 of the paper.

4.3.15 The Board's feedback indicates that some additional context is required in these sections, to outline the issues associated with using a long-run average incremental cost approach to calculating LRMC.

The electricity sector is more capital intensive than other sectors

4.3.16 The draft discussion paper already clearly outlines inefficiencies flowing from charging largely on a consumption basis in the electricity industry. However, the audience may be aware that there are other industries in which usage-based charging appears to be acceptable practice (eg fuel retailing).

4.3.17 The Board's feedback indicates that this point could be addressed by outlining the differences between the electricity industry and other industries which account for this discrepancy in the efficiency of pricing. For example, the paper could demonstrate:

a) the extent to which the electricity industry is capital-intensive compared to other industries

b) that usage prices are reasonably efficient provided the fixed costs of production are not large relative to market demand.

What is the role of capacity charges in distribution pricing?

4.3.18 The draft discussion paper focuses on pricing structures that involve fixed charges and consumption charges. It does not consider alternative pricing structures that involve other kinds of charges.

4.3.19 The Board's feedback indicates that the paper should address the role of capacity charges in distribution pricing (eg charges based on contracted capacity, ie fixed installed kVA).

4.4 Estimates of degree of cross-subsidy

Explain that growth-related values would have been used to calculate LRMC if available and explain that the method used in the paper can be regarded as a proxy value, and is likely to produce conservative results

4.4.1 This feedback relates to the review report's finding that the method of calculating LRMC used in the draft discussion paper is not correct since it uses total planned capex and opex rather than only growth-related capex and opex.

4.4.2 The feedback is correct. However, data on growth-related capex and opex is not readily available. The estimate of LRMC can be regarded as a conservative proxy value.

4.4.3 The Board's feedback indicates that these points could be addressed by explaining that growth-related values would have been used if available. Explain that the method used in the paper can be regarded as a proxy value, and is likely to produce conservative results.

Definition of cross-subsidy

4.4.4 This feedback relates to the review report's finding that the draft discussion paper's use of the term cross-subsidy is not consistent with the correct economic definition (which requires a price above standalone cost or below incremental cost).

4.4.5 The draft discussion paper uses the term cross-subsidy in the sense that it would naturally be understood by a journalist or a member of the public. NZIER expresses the opinion that the review takes a view of cross-subsidy which is too narrow for the RAG's purposes.

4.4.6 The Board's feedback indicates that these points could be addressed by clarifying that the draft discussion paper uses a layman's definition of cross-subsidy and footnoting the economic definition. Alternatively, the paper could simply avoid use of the term.

4.5 Investment inefficiency effects

Additional explanation of the logic underpinning the assumption that higher returns to solar PV investment lead to incrementally higher investment in solar PV

4.5.1 This feedback relates to the review report's main finding on Chapter 7 of the RAG report (which covers inefficient investment effects). The review report takes issue with the draft discussion paper's modelling of the rate of uptake of solar panels:[6]

> *the analysis in Chapter 7 is based on the incorrect logic that higher returns to solar PV investment leads to incrementally higher investment in solar PV and so could be improved by directly referencing a number of non-financial considerations that might imply that using higher investment for higher returns is an appropriate proxy;*

4.5.2 This feedback is premised on economic theory that predicts consumers will make an investment in solar panels when the rate of return is positive (taking into account both the cost of capital and any operating costs). This premise leads to binary results: when the rate of return on investment reached a certain point, all consumers would invest. However, the uptake model in the draft discussion paper assumes that the rate of uptake of solar panels will increase (continuously) as the rate of return on investment increases.

[6] Review report, page 6.

4.5.3 The draft discussion paper's modelling assumption is reasonable in this respect. The uptake model is based on the assumption that many factors can influence the decision to invest. Some factors (such as solar panel cost) are readily observable and can be modelled. Other factors (such as a desire to be self-sufficient) are not directly observable, so are difficult to model.[7] And as the NZIER response to the review report points out, we only have information about typical households and average environmental conditions. The continuous uptake model is an attempt to capture these heterogeneous factors. It recognises that:

a) some consumers will choose to invest relatively early, when the installation cost of solar panels is still relatively high

b) other consumers will require the installation cost to fall to a much lower level before they will invest.

4.5.4 That said, the Board's feedback indicates that it would improve the robustness of the draft discussion paper if it included an explanation of the above thinking behind the uptake assumptions.

Additional estimates of investment inefficiency that are based on the assumption that all consumers would be charged the standard tariff (as opposed to an estimated efficient tariff) in the scenario with no Regulations

4.5.5 The calculation of the investment inefficiency in the draft discussion paper is predicated on an estimated efficient fixed and variable charge (from paragraph 6.2.1 of the draft discussion paper). However, retailers have daily charges that are lower than the estimated efficient level.

4.5.6 The Board's feedback indicates that it would usefully improve the credibility of the RAG paper to also provide estimates of investment inefficiency that are based on the assumption that all consumers would be charged the standard tariff (as opposed to the low fixed charge tariff) if the Regulations didn't exist. This would be another scenario, additional to the existing counterfactual scenario.

Are there any effects of the Regulations on investment in light emitting diode (LED) lighting?

4.5.7 Investment by local authorities in LED lighting, particularly street lighting, has recently attracted media interest. The Regulations – and alternative distribution pricing structures which are contemplated in the draft discussion paper – may have effects on these investments.

4.5.8 The Board's feedback indicates that these points could be addressed by including a discussion of these potential impacts.

4.6 Competition effects

More clarity about the conclusion that the Regulations are unlikely to impact competition, and clearly identify which concerns are not real barriers to competition

4.6.1 This feedback relates to the review report's finding that in the section on competition effects, the draft discussion paper considers factors that are unlikely to impact on competition:[8]

[7] Further, the rate of return on investment in solar panels will vary amongst individual households, even those in the same region, due to factors such as local climate, shade and roof orientation. These factors are complex and out of scope for this exercise.

[8] Review report, page 6.

the conclusions in Chapter 8 are incorrect as a matter of economic principle, as it takes into account factors that from an in-principle perspective are unlikely to have any impact on retail competition.

4.6.2 For example, the draft discussion paper states that potential detrimental effects on competition can arise from compliance costs and from the constraints on tariff structure imposed by the Regulations. However, the review report finds that compliance costs are unlikely to impact on retail competition, as they apply to all retailers and are not large enough to create barriers to entry. The review report also finds that constraints on tariff structure are unlikely to affect retail competition because they apply to all retailers and do not prevent retailers from competing in other ways (such as reducing retail costs).

4.6.3 The draft discussion paper takes concerns about competition seriously and investigates them. However, the concerns are discussed in a qualified way. For example, the draft discussion paper notes that if compliance costs were high and economies of scale were a factor, fewer retailers would be able to operate in the market. This statement is carefully expressed and consistent with the review report. Further, it is relevant to note that the draft discussion paper concludes that almost all of the factors examined have only small effects on competition, and that there is no empirical evidence of reduced competitive pressure arising from the Regulations.

4.6.4 That said, the Board's feedback indicates that the paper could be made more robust if it clearly identifies where concerns are not real barriers (eg, because the compliance costs are small in magnitude). Further, the conclusion that the Regulations have no material effect on competition should be more clearly stated.

4.7 Other feedback

Consider a short paper summarising the paper

4.7.1 The Board considered that the draft discussion paper might be inaccessible to a lay audience, due to the length of the paper and complexity of the issues discussed.

4.7.2 The Board's feedback indicates that this point could be addressed by creating a more brief and readable summary for a lay audience, in the event that the paper goes out for public consultation.

5 Process and next steps

5.1.1 The Secretariat proposes to revise the discussion paper in line with the above feedback, and create a summary paper (if the RAG considers this necessary), and bring both papers back to the RAG meeting on 9 December.

5.1.2 If the revised draft discussion paper and summary paper are acceptable to the RAG, the next step after that is for the Secretariat to provide it to the Authority Board for feedback or as its final recommendations.

5.1.3 Subject to the RAG decision about its approach, and Board feedback, the paper might then be released in March 2016 for a 12 week consultation period.

5.1.4 The project timeline is described in Table 1.

Table 1: Project timeline

Stages and Deliverables	Start date	Completion date

Revise RAG discussion paper	Oct 2015	Nov 2015
RAG approves discussion paper	Dec 2015	Dec 2015
Authority Board provides feedback on the discussion paper	Feb 2016	Feb 2016
Authority informs Minister so there are 'no surprises'	Feb 2016	Feb 2016
Consultation period – 12 weeks	March 2016	May 2016
RAG discusses feedback post consultation period and the next steps	May 2016	June 2016
RAG approval to provide the recommendations paper to the Authority Board	May 2016	June 2016
RAG findings presented to Authority Board	July 2016	July 2016

Appendix A Letter from Authority Chief Executive to RAG Chair

Appendix B HoustonKemp review report

Appendix C NZIER's response to the review report

Appendix D Research project: effects of low fixed charges – draft discussion paper