Retail data project: access to consumption data

Consultation Paper

Submissions close: 5:00pm Tuesday 26 August 2014

15 July 2014

Executive summary

The Electricity Authority (Authority) proposes to amend Part 11 of the Electricity Industry Participation Code 2010 (Code). The amendment will establish a framework for giving consumers (and their agents) better access to consumption data, particularly the half-hourly consumption data collected by smart meters. The Authority is seeking feedback on the proposed amendments.

Workably competitive markets require both consumers and suppliers to effectively engage in the competitive process. Consumers and suppliers engage by deciding what to buy or sell. Competition in markets is impaired when either party does not have the necessary information to engage in the process.

Consumers engage in the buying process by making well-informed and well-reasoned decisions which reward the suppliers that best satisfy their needs.

Increasing consumer engagement in the market provides a route to developing and improving workable competition. This is the reason for the Authority's strategic direction to facilitate consumer participation in the market.

Consumers will make more efficient investment decisions and more efficient consumption decisions if they have better access to their consumption data, particularly interval consumption data. This will enhance the ability of consumers to engage in the buying process, which in turn will drive retailers to innovate and seek efficiency gains to meet the needs of consumers.

The widespread roll-out of smart meters means retailers, through metering equipment providers, measure and record significantly more detailed interval data. The amount of interval data collected means that there is a role for third party providers to act as consumers' agents to collate, analyse and present the data to consumers in a manner that they can easily understand, along with suggested usage and investment options.

The Authority considered arrangements of access to interval consumption data in the Part 10 project (a review of metering arrangements). In particular, the Authority considered that the Privacy Act 1993 gives consumers rights of access to consumption data to the extent that it is personal information.

However, in practice only a small number of consumers exercise these rights to access information and there is no standard format or process for providing the information.

Retailers have naturally poor incentives to make it easier for consumers to assess the benefits of switching to other retailers by providing access to consumption data. Therefore the Authority considers that regulatory intervention is necessary to ensure that consumers will receive the full scope of the potential benefits from access to consumption data.

The Authority proposes a framework to increase access to consumption data

The Authority proposes to amend the Code to allow greater access to consumption data for all consumers. This will boost competition and operational efficiency.

The key elements of the proposed framework are:

- consumers' will have rights to access their interval data, and may provide this data to third parties
- retailers will be required to store and provide interval data to consumers on request
- the development of standards and protocols for participants to exchange information
- the proposed framework complies with privacy laws.

The Authority has assessed the expected implementation and development costs of the proposal as $425,000 (present value). The proposal could result in dynamic inefficiency costs by discouraging retailers from further investment in smart metering technology. However, the Authority does not consider that this cost would be significant because other parties, such as distributors, would seize the opportunity to provide smart metering services.

The Authority has assessed the static efficiency benefits of improving access to retail data (including consumption data) as $1.2 million to greater than $4.7 million (present value). The dynamic efficiency benefits of the proposal has not been quantified but is expected to be many multiples of these static efficiency benefits.

Glossary of abbreviations and terms

Accumulation data	Cumulative volume data captured by non-half hourly (NHH) legacy meters or NHH registers in AMI
Act	Electricity Industry Act 2010
AMI	Advanced meter infrastructure, including smart meters
Authority	Electricity Authority
Code	Electricity Industry Participation Code 2010
Consumption data	Measurements of the volume of energy/electricity used by a consumer. Consumption data may be accumulation or interval data
Data custodian	An agent responsible for the collection and storage of consumer consumption data
EIEP	Electricity Information Exchange Protocol
GIC	Gas Industry Company Limited
ICP	individual connection point
IHD	in-home display
Interval data	Half-hourly read (HHR) volume data collected by AMI
SME	Small or medium enterprise
MEP	Meter equipment provider
NHH	Non-half-hourly read

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1. What you need to know to make a submission

1.1 This consultation is part of the retail data project

1.1.1 The Electricity Authority (Authority) is examining arrangements for improving consumers' access to retail data (the retail data project).

1.1.2 Retail data includes customer data,[1] consumption data and tariff data. The Authority considers that improved access to retail data will provide long-term benefits to consumers primarily by promoting competition in the retail market and by promoting more efficient operation of the electricity industry.[2]

1.1.3 The Authority is considering options to provide improved access to retail data:

(a) access to consumption data– this part investigates options for consumers to get improved access to, and use of, the consumption data now available through smart metering technology.

(b) access to tariff data – this part investigates options for consumers to better identify which electricity supply offers are available that best suit their individual circumstances

1.1.4 Improved access to retail data should provide consumers with better information that will enable them to engage more effectively in the market. Consumers that engage effectively will expect more from retailers and other energy services providers. This puts pressure on suppliers to be more efficient and provide more innovative services than their rivals. Better information should also allow consumers to more easily make efficient electricity-related decisions.

1.2 This consultation paper is about access to consumption data

1.2.1 This paper focuses on access to consumption data. The purpose of this paper is to seek feedback on:

(a) the problems arising from limited access by consumers to their own consumption data, such as reduced retail competition

[1] Customer data includes location, meter type and meter configuration.

[2] The Authority's statutory objective is to promote competition in, reliable supply by, and the efficient operation of the electricity industry for the long-term benefit of consumers. Refer Electricity Industry Act 2010 section 15.

(b) the Authority's proposal to improve access to consumption data, which includes amending the Electricity Industry Participation Code 2010 (Code)

(c) the options considered, including an assessment of the costs and benefits of each.

1.2.2 The proposed Code amendment is in Appendix B.

1.2.3 Section 39(1)(c) of the Electricity Industry Act 2010 (Act) requires the Authority to consult on any proposed amendment to the Code and the regulatory statement. Section 39(2) of the Act provides that the regulatory statement must include a statement of the objectives of the proposed amendment, an evaluation of the costs and benefits of the proposed amendment, and an evaluation of alternative means of achieving the objectives of the proposed amendment. The regulatory statement is set out in section five of this paper.

1.3 How to make a submission

1.3.1 The Authority's would prefer to receive submissions in electronic format (Microsoft Word). It is not necessary to send hard copies of submissions, unless you cannot do so electronically. Submissions in electronic form should be emailed to submissions@ea.govt.nz with Consultation Paper—access to consumption data in the subject line.

1.3.2 The Authority is likely to make your submission available to the public on the Authority's website. If you have attached any supporting documents, you should indicate this in a covering letter and clearly indicate any confidential information. However, all information provided to the Authority is subject to the Official Information Act 1982.

1.3.3 If possible, provide your submission in the format shown in Appendix A.

1.3.4 If you do not wish to send your submission electronically, post one hard copy of the submission to either of the addresses provided below or fax it to 04 460 8879. You can call 04 460 8860 if you have any questions.

Postal address

Submissions
Electricity Authority
PO Box 10041
Wellington 6143

Physical address

Submissions
Electricity Authority
Level 7, ASB Bank Tower
2 Hunter Street
Wellington

Deadline for receiving a submission

1.3.5 Submissions should be received by 5:00pm on 26 August 2014. Please note that the Authority is unlikely to consider late submissions.

1.3.6 The Authority will acknowledge receipt of all submissions electronically. Please contact the Submissions' Administrator if you do not receive electronic acknowledgement of your submission within two business days.

2. The situation – effective competition requires engaged consumers

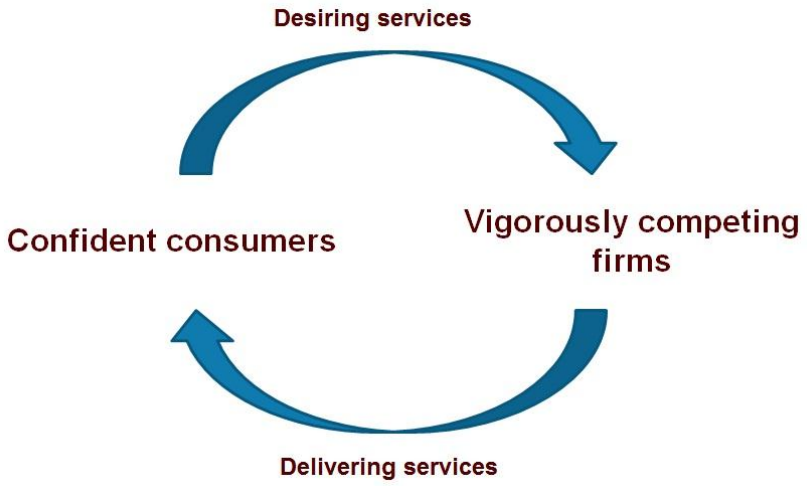
2.1.1 Workably competitive markets require both consumers and suppliers to effectively engage in the buying and selling process. Consumers and suppliers are less able to engage in the buying process when either party does not have enough information.

2.1.2 In a workably competitive market, suppliers engage in the buying process by vigorously competing with rivals to gain market share. They can achieve this by delivering what consumers want as efficiently and innovatively as possible. Consumers engage in the buying process by making well-informed and well-reasoned decisions that reward the suppliers that best satisfy the consumers' 'informed' needs.

2.1.3 If consumers are less engaged in the buying process then suppliers will find it harder to win market share by providing what consumers most want. This will reduce consumer benefit because suppliers will have less incentive to compete to provide the services desired by consumers. Suppliers will be less likely to innovate in these circumstances. They can gain from innovation only if they can get their products and services to market and consumers are active and willing to adopt new, higher value, products and services.

2.1.4 When both consumers and suppliers are engaged in the buying process this creates a virtuous circle. Active and confident consumers and vigorous competition work together to promote workable competition and deliver long-term benefits to consumers.

Figure 1: Virtuous circle of a well-functioning market



2.1.5 Market development activities in the electricity sector have traditionally taken a supply-side route to developing workable competition. The focus

has been on reducing barriers to entry and increasing the opportunities for multiple suppliers to compete to deliver what consumers want. This focus reflects the Authority's strategic directions to reduce barriers to entry, exit and expansion and to provide efficient pricing.

2.1.6 However, increasing consumer engagement in the market provides another complementary route to developing workable competition in electricity markets. This is the reason for the Authority's strategic direction to facilitate consumer participation in the market.

2.1.7 The role of consumer engagement has been recognised in other electricity markets. For example, the Office of Gas and Electricity Markets (Ofgem), the United Kingdom energy regulator, identified consumer engagement as a key ingredient to the development of workable competition.

Well-functioning markets require effective operation of both the demand-side (consumers) and the supply-side (firms). On the demand-side, consumers need to be able to engage actively in the market and make choices that reflect their preferences. Where this is not the case, the benefits of competition can be significantly weakened.[3]

2.1.8 Some submitters on the Authority's January 2014 retail data project issues paper echoed this view. For example, the Energy Management Association of New Zealand said:

Without engaged consumers, competition in New Zealand's electricity markets is inadequate and essentially superficial. For consumers to be engaged, they must have reliable information sources to manage their energy costs.[4]

[3] Office of Gas and Electricity Markets, "What can behavioural economics say about GB energy consumers?" page 2. Available at, https://www.ofgem.gov.uk/ofgem-publications/39711/behaviouraleconomicsgbenergy.pdf.

[4] Energy Management Association of New Zealand, submission to Retail data project issues paper, page 1.

2.1.9 However, some submissions did not agree with the link between levels of consumer engagement and retail competition. For example Orion observes that:[5]

"the paper covers quite a bit of ground, and we struggle to see how some of the matters are related. Overall the paper seems to identify three somewhat distinct problems, but at least in part implies these can be dealt with by a common solution. We doubt this is achievable. Our view on the paper's perception of the three problems is:

• All stakeholders have a limited understanding of what drives retail prices,
• Consumers have difficulty making reliable comparisons of retailer offerings, and
• Consumers do not have access to sufficient consumption data to support comparisons.

In our view, they are quite different problems, yet the paper seems to think they are closely related, and that there is perhaps a common solution via 'big data'. We don't think this conclusion follows even if the problems are granted."

2.2 Many consumers are not engaged in the buying process

2.2.1 Research conducted by UMR Research for the Authority of consumer attitudes to comparing and switching retailers shows that:[6]

(a) 81% of residential consumers believe that reviewing which retailer is offering the best deal is worthwhile, but only 32% are likely to shop around (compared to 40% who are not likely to do so)

(b) 79% of small to medium enterprises (SME) believe that reviewing which retailer is offering the best deal is worthwhile, but only 13% were actively looking or intending to look in the next 12 months

(c) 8% of residential consumers say they change retailers often and will almost always take a better deal that comes along, while 69% had not switched in the past two years. [7]

5 Orion, submission to Retail data project issues paper, page 1.

6 UMR, January 2013, Shopping around for electricity retailers: a quantitative study among small and medium enterprise customers; and UMR, February 2013, Shopping around for Electricity Retailers: a quantitative study among the general public.

7 These survey results are not unique to the electricity sector. For example, similar consumer behaviours are seen in the insurance and banking sectors.

2.2.2 The survey results suggest that most consumers do not regularly decide about retail offers and consumption choices – they are not necessarily engaged in the buying process. This is the case even though consumers are increasingly aware that they may make savings.

2.2.3 The frequency at which consumers approach retailers also provides an indication of consumer engagement in the retail sector. Table 1 shows that residential consumers are over three times more likely to have been approached by a retailer than to have approached a retailer themselves. SME consumers are more likely to engage than residential consumers, but are still 50 per cent more likely to have been approached by a retailer.

Table 1: Consumer engagement in retail market

In the past two years		2011	2012	2013	2014
Residential	Approached	23%	21%	18%	21%
	Was approached	58%	66%	68%	69%
SME	Approached	33%	31%	30%	NA
	Was approached	46%	56%	45%	NA

Source: Electricity Authority surveys

Note: The table does not include those consumers who engaged in the market via comparison websites but the surveys suggest that these channels represent a small proportion of consumers, i.e. about 4-6% of consumers who switch.

2.2.4 There were a range of views expressed in submissions on the Authority's retail data project issues paper about levels of consumer engagement or perceptions of retail competition. Many submitters considered that the direction of price movements in the market is the greatest influence on perceptions. For example:

Nova believes that much of the distrust of the electricity market stems from the experience in rising retail prices and the media attention brought to this point, rather than the ability of consumers to identify and switch to lower cost suppliers.[8]

[8] Nova Energy submission to retail data project issues paper, page 1.

2.2.5 Genesis expressed the view that:

…the [issues] paper does provide some evidence of a separate customer perception problem. We suggest that this is most likely a reflection of consumer apathy.[9]

2.2.6 A further perspective was provided by Meridian, who:

…agrees that consumer perception can influence their engagement with purchase decisions. So if perception can be increased to an acceptable level, this must be more efficient.[10]

2.3 Better information can lift consumer engagement

2.3.1 Consumers with less information are less able to effectively engage in the market. Providing more and better information to consumers can lift consumer engagement (and retail competition).

2.3.2 For consumers to be engaged in the buying process, they need to:

(a) access information about the various offers available in the market

(b) assess these offers in an easy and well-reasoned way

(c) act on this information and analysis by purchasing the good or service that offers the best value to them.

2.3.3 A roadblock to any of these three things can harm the consumer's ability to engage in the buying process.

2.3.4 Suppliers have incentives to make it more difficult for consumers to assess the best deal.[11] Studies indicate that consumers have difficulties comparing complex offers and firms may exploit this by complicating their prices or increasing the number of offered rates.[12] They may also use

[9] Genesis Energy submission to Retail data project issues paper, page 2.

[10] Meridian Energy submission to Retail data project issues paper, page 2

[11] See for example, G. Wuebker and J. Baumgarten, Strategies against Price Wars in the Financial Service Industry, Simon-Kucher and Partners.

[12] See for example, V.G. Morwitz, E.A. Greenleaf and E.J. Johnson, (1998), Divide and prosper: Consumers' reactions to partitioned prices, J. Marketing Res., 35, 453-463; and T. Hossain and J. Morgan, (2005), Plus Shipping and Handling: Revenue (Non) Equivalence in Field Experiment on eBay, Advances in Econ. Analysis & Policy.

price promotions and 'framing' to distract and distort consumer decision-making.[13]

2.3.5 There are two main approaches for addressing the difficulty consumers may have dealing with greater choice or complexity of electricity supply options:

(a) reducing complexity by simplifying tariffs and structures. This approach has been adopted by Ofgem which has regulated the number and structure of tariff plans that can be offered by retailers[14]

(b) providing consumers with tools or information for managing complexity. For example, improving access to consumption data and tariff data can assist consumers to cut through complexity by facilitating matching of consumption profile to tariffs.

2.3.6 The purpose of the retail data project is to identify whether consumers have the right tools and information for managing complexity.

2.3.7 An alternative to helping consumers manage complexity would be to limit complexity directly through regulated simplification. Regulated simplification would have both positive and negative effects on consumer engagement. In a positive sense, consumers would have simpler choices and require less assistance to make decisions. In a negative sense the ability of suppliers to engage in the buying process by providing consumers with innovative products and services would be reduced. For example, retailers would not be able to deliver benefits to consumers by using smart metering technology to offer time-of-use or dynamic pricing. The Authority expects that the net outcome of regulated simplification would be less engaged consumers, less vigorous competition and reduced consumer benefits.

2.3.8 Access to consumption data provides information that consumers can use to inform comparison of tariff plans. If consumers had access to their actual consumption information, they could use this directly to make better switching decisions. This view is reflected in submissions to the retail data project issues paper. For example, the Domestic Energy Users Network said:

The improved data from this proposal would overcome the present situation, where "What's my number" is only a very rough guess, intended only to point the

[13] See for example, M. Baye, J. Morgan and P. Scholten, (2004), Price Dispersion in the Small and in the Large: Evidence from an Internet Price Comparison Site, J. Indus. Econ., 52(4), 463-496; and A. Tversky and D. Kahneman, (1981), The Framing of Decisions and the Psychology of Choice, Sci., 211 (44810), 453- 458.

[14] The Office of gas and electricity markets (Ofgem) has regulated to limit the number of tariff plans that can be offered by retailers. For more details of the Ofgem initiative, refer https://www.ofgem.gov.uk/simpler-clearer-fairer/simpler-choices.

consumer to the Powerswitch website which again gives only an approximate guess. Improving the integrity and granularity of the data is essential to give the consumer confidence that their effort and risk of switching is worthwhile.[15]

2.3.9 Consumers can also use interval consumption data to make decisions about time of use or to make energy-related investment decisions. For example, a detailed record of interval consumption data provides consumers with feedback about their usage that they can use to understand the costs of their existing heating and lighting equipment versus buying new, more efficient heating and lighting technology.

2.3.10 Access to tariff data represents a different set of information or tool that consumers can use to manage complexity. The focus of part two of the retail data project is to identify whether improving access to tariff data can assist consumers to manage complexity of retailer tariff offers.

2.4 More consumption data is available but there are limits on access

2.4.1 The relevance of consumption data to the consumer decision-making process was noted by the Top Energy Consumer Trust who observed:

The best information available to the vast majority of consumers is the amount of electricity they consumed in the previous month. Moreover, proportionately few consumers have better than a passing understanding of their past or likely future consumption patterns or of the energy efficiency savings that they could make…

…As a consequence, there are widely varied reasons for current consumer switching, not all of which are based upon the most economically effective or fully considered decision-making processes. The degree of stasis exhibited by consumers who do not switch, despite evidence that they are on expensive tariffs reflects this issue. [16]

Improved consumption data, especially in the absence of real time information, will allow better choices by consumers both in terms of appreciating the actual impact of different tariffs (such as for low users versus high users) and also in terms of being better informed in terms of controlling usage.[17]

[15] Molly Melhuish for the Domestic Energy Users Group submission to Retail data project issues paper, page 1.

[16] Top Energy Consumer Trust, submission to Retail data project issues paper, page 4.

[17] Top Energy Consumer Trust, submission to Retail data project issues paper, pages 9-10.

There is more recorded consumption data because there are more smart meters

2.4.2 Electricity consumption is measured in kilowatt hours (kWh). Consumption data is a measure of the kWh a consumer uses in a specified period.[18]

2.4.3 Retailers arrange for metering equipment providers (MEPs) to collect consumption data on their behalf.[19] The main purpose of measuring consumption is to determine electricity charges – the consumer's bill. Before the industry introduced smart meters or advanced metering infrastructure (AMI), the measurement period reflected the frequency of data collection. A monthly or two-monthly visit by a meter reader meant that consumption data consisted of 6-12 cumulative values each year.[20]

2.4.4 AMI has enabled retailers to gather significantly more data about consumption. AMI has recording and remote communication capability that overcomes the limitations of meter reading. It allows the meter to transmit detailed data files containing numerous consumption data points to the retailer (or the meter equipment provider or other party). This allows much shorter measurement periods of kWh consumption.

2.4.5 The most common measurement period using AMI is by half-hour. This aligns with price intervals in the wholesale market. There are 17,520 half-hour intervals in a normal year. This paper refers to this half-hourly consumption data as interval data.

2.4.6 There were 1.07 million smart meters in New Zealand as at 30 April 2014. This means that there is currently capability to provide interval data for 51% of consumers.[21] About 90% of consumers are expected to have smart meters by 2018.

2.4.7 Equivalent consumption data for gas usage is not yet available. The gas industry has yet to identify a common 'smart' technology for recording interval consumption data. One reason for this is that shorter intervals are not required because the wholesale gas market settles on a daily basis.

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[18] The Electricity Industry Participation Code 2010 defines consumption information as the information describing the quantity of electricity conveyed during the period for which the information is required, which may be directly measured or calculated from information obtained from a metering installation or calculated in accordance with this Code.

[19] The roles and requirements of the retailer and MEP and the operational process for collecting consumption data is described in Part 10 of the Code.

[20] Each consumption value is associated with a connection point identifier, read type, register, unit of measure (e.g. kWh), interval, start time and end time.

[21] A small proportion of older smart meters may not meet market requirements (i.e. are not certified as accurate).

There are limits on access to consumption data at present

2.4.8 Consumption data is available to consumers through diverse channels. At the most basic level, monthly kWh information will be available on their bill. However, consumers can receive interval data directly from a smart meter to an in-home-display or via AMI communications and the internet to home or mobile applications.

2.4.9 Interval data gives a consumer some access to information about how much electricity they consume and when. However, access is restricted to the approach and format that the retailer provides.

2.4.10 Retailers must record consumption data for market settlement and consumer billing purposes. Most smart meters record interval data which is stored by MEPs. This means that the data that retailers record is mostly interval data where there is a smart meter. However, there is no specific requirement for retailers to provide interval data to the consumer.

2.4.11 The common scenarios for access to interval data are:

(a) there is a smart meter and the retailer provides access to real-time or near real-time interval data via an in-home display or internet-based portal

(b) there is a smart meter and the retailer provides delayed access to interval data

(c) there is a smart meter but the retailer does not provide access to interval data (sometimes because the retailer may not receive or hold interval data). Cumulative consumption data is available monthly on the consumer's bill.

2.4.12 Some energy service providers offer products and services based on real-time or interval data derived from clamp meters that transmit to an in-home display. Clamp meters are energy monitors attached to the mains cable. However, without a link to wholesale or retail pricing, and therefore costs, there are limits to a consumer's ability to obtain the benefits from the information this provides.

2.4.13 The Authority considered arrangements of access to interval consumption data in the Part 10 project (a review of metering arrangements).[22] The Authority's views on consumer rights of access to interval consumption

[22] Electricity Authority, May 2011, Advanced Metering Infrastructure: Nomination of the MEP and access to data consultation paper, available at http://www.ea.govt.nz/dmsdocument/10293.

data are documented in the related decision paper published in April 2012.[23] In particular, the Authority considered that:[24]

> *…there is no need to grant rights through the Code for consumers to obtain access to metering data. The Privacy Act 1993 gives individuals rights to request access to, and to receive, personal information held by an agency, including electricity retailers and their services providers (eg MEPs). The Authority considers that the definition of personal information includes data and information available from a metering installation.*

2.4.14 This previous work by the Authority clearly established that consumers have rights of access to their interval consumption data.

2.4.15 However, in practice only a small number of consumers exercise these rights to access information under the Privacy Act 1993. The Act does not specify the format or volume of data that is to be supplied and there is no standard format or process for providing consumers with access to interval consumption data about them. Further, businesses are not explicitly covered by the Privacy Act 1993 and would therefore be unable to access their data using this approach.

2.4.16 The Authority considers that sufficient time has passed since the previous consultations to establish whether general, easy and useful access to consumption data by consumers would occur by normal competitive processes. The Authority considers that some retailers are providing consumers with access to interval consumption data. However, consumers do not necessarily receive this interval data in a format or timeframe that is useful for their purposes and cannot necessarily share this interval data with another party who might help them make electricity-related decisions. This limits consumers' ability to obtain the benefits from the existence of interval data.

2.4.17 The Authority does not consider that normal competitive processes will lead to retailers providing improved access to interval consumption data in a way that assists consumers to compare electricity tariffs. The main reason for this view is that retailers have poor incentives to make it easier for consumers to assess the benefits of switching to other retailers.

2.4.18 The evidence to date is that retailers are using their interval data to provide value-added services to customers to increase loyalty, rather than to assist their customers to find the best offers in the market. While the provision of value-added services may be beneficial to consumers, it

[23] Electricity Authority, April 2012, Part 10 review: nomination of metering equipment provider and access to metering data: Decisions and reasons, available at http://www.ea.govt.nz/dmsdocument/12837.

[24] Ibid page 2 clause 9

represents a ‘walled garden’, where consumers have the best of what is available from their retailer, but cannot effectively search or compare tariff offers and services from other retailers. Without genuine choice and competition, the long term benefits to consumers will not be maximised.

Q1. Do you have any comments on the description of the current situation, including:

a) The link between consumer engagement and retail competition?

b) Current levels of consumer engagement?

c) Current limits on access to consumption data?

3. The problem – limited access to consumption data is limiting retail competition and efficiency

3.1.1 The Authority considers that limited access to consumption data by consumers and their agents is limiting retail competition and reducing the operational efficiency of the industry.

3.1.2 The consequences of limiting retail competition are:

(a) reduced incentives for retailers to innovate and seek efficiency gains

(b) reduced incentives for suppliers, including energy services suppliers, to enter the market

(c) less efficient investment and consumption decisions.

3.1.3 Operational efficiency is reduced because consumers and suppliers face increased transaction costs when undertaking activities associated with buying and selling electricity.

3.1.4 Limited access to consumption data may reduce reliability of supply by limiting consumers' ability to manage peak demand or respond to situations of short supply. However, the effects on reliability are secondary and indirect.

3.2 Retail competition is being limited

3.2.1 Consumption data (interval data) is specific and detailed information that a consumer (or their agent) can use to engage in the buying process. The consequence of limited access to consumption data is a reduced ability of consumers to engage and reduced incentives on suppliers to innovate and seek efficiency improvements to gain market share over their rivals.

3.2.2 There are two main ways that retail competition is being reduced:

(a) retailers are less able to reap the benefits of innovation and thus less inclined than they otherwise could be to offer innovative services and products. Consumers are limited in their ability to supply data to take advantage of services relying on consumption profile information

(b) potential suppliers (retailers and third party energy providers) have reduced incentives to enter the market. Energy services suppliers cannot easily act as agents for consumers because it is too hard and costly for consumers to get access to their consumption data.

Impacts of reduced retail competition

Reduced incentives to innovate and seek efficiency gains

3.2.3 Existing retailers with access to consumer data (of their customers) are able to develop and offer innovative tariff plans based on a consumers' consumption profile. However, the need for existing retailers to innovate and provide such services is less than it would be under a situation where they faced competition from rivals seeking to gain market share by offering innovative services.

3.2.4 Improving consumers' access to their consumption data will increase consumer engagement which will incentivise more retailers to offer innovative services. Likewise, the availability of improved consumption information would encourage third party energy providers, acting as the consumer's agent, to offer innovative services to assist them make choices around energy.

3.2.5 The innovative benefits that would arise from enhancing consumers access to their consumption data was recognised by Community Energy Action who said:

Future retailer offerings may involve more time-of-use tariffs. We think therefore that if the Authority wishes to achieve any significant traction in this area it will need to focus on mechanisms to allow a customer to gain access to time-of-use profile data. This may well be linked to the roll-out timeframe for smart meters.[25]

Reduced incentives on parties to enter the market

3.2.6 If consumers had better access to their consumption data, they would be better able to seek out either directly or through agents the best deals for them. This heightened engagement would entice more retailers to enter the market to provide the services that consumers' desire, including innovative retailers that offer new products and services.

3.2.7 A new entrant or small retailer may not be able to compete as vigorously or effectively if it doesn't have the same understanding as its competitors. If prospective and existing retailers have information about the consumer's consumption profile and the cost to supply, this increases competition.

3.2.8 Likewise, the current limited access by consumers to their consumption data works against the entry and growth of third party energy services suppliers. Residential and small business consumers may not have either the desire or the necessary time and skills to collate, analyse and understand interval data to draw useful conclusions.

[25] Community Energy Action, submission to Retail data project issues paper, page 2.

3.2.9 Consumers may seek help from a third party who can analyse their energy consumption and the options available, and advise them on the best choices. Some energy services suppliers already operate in this energy information market, to assist commercial and industrial consumers. However, constrained access to interval data is limiting the entry of these suppliers to the market and reducing the benefits available to consumers. Put simply, if consumers' access to their data was improved there would be a greater opportunity for energy services providers to provide useful services to consumers. This will encourage more energy services providers to enter the market, especially the residential retail market.

3.2.10 The Cortexo submission to the Authority's retail data project issues paper highlights the potential for traditional retailers to face competition from non-traditional energy services suppliers:

To enable innovation, especially from the high tech sector, the electricity industry must become more open. We see the Retail Data Project as a step in the right direction.

If you look at the very successful online accounting company Xero, which has opened up accessibility to financial information, you will see that the innovation ecosystem, built on top of the Xero cloud platform, exceeds 100 new products from other independent companies.

No industry has a monopoly on innovation. Only the end user, having understood and used a service, can decide if it is useful.[26]

Inefficient consumption and investment decisions

3.2.11 Consumption data can provide information for a consumer to make decisions about electricity usage or investment.

3.2.12 To enable consumers to decide how and when they consume energy requires information about consumption at different times (such as times of peak usage) and the reward from altering consumption to another time. For example, reduced tariffs may reward consumers for shifting electricity use from day to night. To do this consumers need access to consumption data.

3.2.13 One example of a consumer response to access to detailed consumption data is the early results from the Mercury Energy Good Energy Monitor service. Mercury estimates that consumers using the service have on

[26] Cortexo, submission to Retail data project issues paper, page 1.

average reduced overall consumption by 1-3% compared to consumers not using the service.[27]

3.2.14 The Authority considers that if consumers could easily access their consumption data this would create more opportunities for suppliers to offer products that enable and reward consumer-initiated demand response.

3.2.15 Examples of investment decisions that consumers could make more efficiently if they could use data about energy usage include:

(a) choosing equipment for space heating and water heating

(b) comparing energy efficiency ratings of appliances

(c) buying and using timers and delay functions

(d) understanding home energy generation and storage solutions such as solar panels and battery systems.

3.3 Reduced operational efficiency

3.3.1 Limited access to consumption data increases the transaction costs for consumers to make energy-related decisions. These increased costs include longer search times, more frequent decision checks and more frequent changing of decisions. Higher transaction costs reduce the operational efficiency of the electricity industry.[28]

Q2. What are your comments on the Authority's assessment of the problems arising from limited access to consumption data?

[27] http://www.mightyriver.co.nz/Media-Centre/Latest-News/New-technology-reduces-household-power-bills.aspx

[28] The Authority interprets its statutory objective as requiring it to exercise its functions in section 16 of the Act in ways that, for the long-term benefit of electricity consumers … increase the efficiency of the electricity industry, taking into account the transaction costs of market arrangements and the administration and compliance costs of regulation, and taking into account Commerce Act implications for the non-competitive parts of the electricity industry, particularly in regard to preserving efficient incentives for investment and innovation. Refer the Electricity Authority, Interpretation of the Authority's statutory objective, paragraph 2.1.1.

4. The Authority's proposal for addressing the problem

4.1.1 The Authority proposes to amend Part 11 of the Code to establish a framework for access to consumption data.

4.1.2 The proposed amendment will impose minimum obligations on retailers as the primary custodian of consumption data. The obligations are intended to ensure that all consumers or their authorised agents who access interval data receive it in a format that is likely to be useful to them.

4.1.3 The draft proposed Code provisions are attached as Appendix B.

4.1.4 Examples of how the Authority thinks these amendments might work in practice for consumers are given in Appendix D.

4.2 Criteria used to develop the proposal

4.2.1 The proposal provides a framework for data custodians to provide information to consumers and their authorised agents in a consistent and comprehensive manner.

4.2.2 To develop the framework the Authority has used the following criteria:

(a) rights of consumers to access data about their electricity usage. Consumers should know that the interval data exists, be able to access and share it, and know how others will use it. Those involved in providing data should meet data privacy requirements. A consumer's interval data should be available only if authorised by the consumer or by law

(b) obligations of data custodians and others involved in the data exchange process. Data custodians should respond promptly to requests from consumers, use simple language, and impose a reasonable cost. There should be a maximum cost per request

(c) data to be exchanged. There should be minimum requirements for data to be provided, that meet consumer expectations of what should be available

(d) interoperable data formats and exchange protocols. Data custodians supply data to consumers or their agents using standard, interoperable, machine-readable data formats and structures. This would include standards for data security that meet the requirements for data privacy.

Q3.	**Do you have any comments or suggestions about whether the criteria used in developing the proposal are a suitable basis for the proposed Code amendment?**

4.3 Description of the proposal

4.3.1 The Authority proposes to establish a framework for access and exchange of interval consumption data. The key aspects of the proposal are:

(a) retailers must provide consumption data if requested by the consumer or the consumer's agent

(b) there is a process for providing and exchanging consumption information

(c) consumption data is to be supplied in a standardised format

(d) retailers must provide access to interval data unless relying on transitional arrangements

(e) retailers should have flexibility in meeting their obligations for providing consumption data

(f) measures to ensure privacy, confidentiality and security of consumer data.

Retailers must provide consumption data if requested by the consumer or the consumer's agent

4.3.2 Retailers must give consumers information about their own consumption of electricity.

4.3.3 Consumers can ask retailers for data if they are a customer of the retailer or were a customer of the retailer in the previous 24 months.

4.3.4 Retailers must also give consumers' consumption data to an agent authorised by the consumer. This enables other retailers or third party service providers to help consumers access and understand their data, so they can make better decisions.

4.3.5 Most requests should be for a single location (the consumer's residence). However, retailers should be able to provide consumption data for multiple locations in response to a single request. Data requests for multiple ICPs could arise, for example, from a retailer or consumer advocacy service.

4.3.6 The aim of this provision is to minimise costs and maximise efficiency of data transfer for all parties.

4.3.7 Clause 11.32B of the draft Code describes the requirements of the proposed request for information. Clause 11.32E of the draft Code provides that retailers must respond to requests from agents.

4.3.8 Clause 11.32F of the draft Code requires the Authority to publish procedures for responding to requests for consumption information. These procedures must specify the manner and one or more formats in which information must be given to consumers.

4.3.9 The Authority considers that participant input is required to develop the procedures for responding to requests for consumption information. The Authority would consult further on the content of the procedures as it developed them.

Q4. Do you have any comments or suggestions about the requirement for retailers to provide consumption data?

A specific process for providing and exchanging consumption information

4.3.10 The retailer must be able to provide half-hourly metering information for consumption by the requesting consumer during the previous 24 months. Clause 11.32A of the draft Code describes what information the retailer must hold and be able to provide.

4.3.11 The Authority considers that 24 months of consumption information is enough for a consumer, retailer or energy services provider to understand a consumer's consumption profile. For example, the data would enable some comparison of annual and seasonal consumption.

4.3.12 Consumers will, over time, be able to develop a continuous record of their consumption at a particular location.

4.3.13 For consumers without a smart meter or where interval data is not available, the retailer must be able to provide up to 24 months' of monthly accumulation data.

4.3.14 This means that customers that do not have interval meters installed will still be able to make data requests to help them in make decisions about their energy use.

4.3.15 The requirement to provide up to 24 months of consumption data is consistent with the existing requirement for retailers to keep 48 months' of raw meter data by clause 18 of schedule 15.2, and clauses 4 and 8 of Schedule 10.6, of the Code.

4.3.16 A retailer will not have to provide half-hourly meter data covering 24 months if a smart meter was installed less than 24 months ago. Similarly, if a consumer has lived at an address for less than 24 months, the retailer

will provide data only for the time that the consumer has lived there (and been a customer of the retailer). The retailer can provide data for a longer period if the previous occupants give permission.[29]

4.3.17 The proposed Code amendment does not require retailers to provide data outside the 24 month period. The Authority considers that this data is likely to continue to have value to consumers, service providers and regulators. The Authority will separately consider the issue of long-term storage and archiving of consumption data.

Q5. Do you have any comments or suggestions about the process for responding to requests to provide consumption data?

Consumption data is to be supplied in a standardised format

4.3.18 Clause 11.32F of the draft Code requires the Authority to publish procedures for how retailers respond to requests for consumption information. These procedures must specify the manner and one or more formats in which retailers must give information to consumers.

4.3.19 Significant transaction costs can arise when converting file formats and data structures between platforms/users. This is a barrier to economically efficient transactions between data holders and users. Standardised formats reduce these transaction costs by using standard, interoperable, machine-readable data formats and structures. These can facilitate transfer of significant amounts of data between participants at a low cost.

4.3.20 Standardised data formats already exist for interval data. An example is the Electricity Information Exchange Protocols (EIEP) 3 format for exchange of half hour metering information between industry participants.

4.3.21 Another example is the OpenADE/ESPI standard used in the United States of America for consumers to access their consumption data.[30] Consumers can:

(a) access the internet

(b) get usage and price information promptly

(c) receive information in standardised, machine-readable formats so they can use their preferred systems

(d) authorise third parties to access data on their behalf.

[29] Such permission may be provided in, for example, a contract for sale.

[30] For more information on OpenAD/ESPI refer http://osgug.ucaiug.org/sgsystems/OpenADE/default.aspx.

4.3.22 The Authority will seek input from participants on the design of procedures. The Authority anticipates a process like the one it used to develop and maintain the minimum standard specification for the EIEPs.

4.3.23 Appendix C contains an example of how the Authority might specify the format for providing data. A marked-up version of the full draft EIEP3A specification and an example of a consumption data file created based on this specification can be found on the retail data project page on Authority's website at http://www.ea.govt.nz/development/work-programme/retail/retail-data/.

Q6.	**Do you have any comments or suggestions about the development of procedures requiring the supply of data using standardised formats and structures?**

Retailers must provide access to interval data unless relying on transitional arrangements

4.3.24 There are likely to be circumstances where the retailer does not collect interval data from the MEP. For example, the retailer may have a low service business model that does not use consumption data except to issue bills. The requirement to hold interval data will impose additional costs on these retailers.

4.3.25 The Authority considers there are two options in this situation.

4.3.26 One approach would be to make it optional to have to provide interval data. This approach could undermine the effectiveness of the proposal by encouraging retailers to not hold interval data.

4.3.27 The alternative is to provide transitional arrangements so that retailers that do not currently have systems to hold interval data have time to develop them.

Q7.	**Do you have any comments or suggestions about whether retailers should be required to hold consumption data?**

Retailers have flexibility in meeting their obligations for providing consumption data

4.3.28 Clause 11.32B of the draft Code describes the requirements of the proposed request for information process. Retailers are required to respond to a request within five business days. However, they do not need to provide data if they have already done so within the last three months.

4.3.29 The five-day timeframe provides a minimum standard for responding to consumers. The Authority considers that delays in responding to

consumers could potentially reduce the usefulness of the data, and undermine consumer confidence in the retail market. Five days should enable a manual response to a request. However, the Authority considers that retailers could develop automated queries against database systems that will respond almost instantaneously.

4.3.30 Retailers cannot normally charge a fee for responding to a request, but can do so if the consumer makes more than four requests in a 12-month period. The four free requests per 12-month period provides consumers with regular data should they wish, while giving retailers the option to impose a reasonable charge for access to data if they feel the number of requests are vexatious or imposing undue cost on them.

4.3.31 Providing interval data at no cost four times per year reflects practice in comparable industries (banking, telecommunications) and in energy industries in other jurisdictions. The primary justification for fees are where the data custodian faces additional costs for non-standard requests, including the retrieval of older data from archives (as opposed to storage) or abnormally frequent requests. Where retailers provide data using automated and online systems, the marginal cost of repetitive standard requests is likely to be negligible.

Q8.	**Do you have any comments or suggestions about the requirements of the process for providing interval data?**

Privacy, confidentiality and security of consumer data

4.3.32 Consumption data has the capacity to identify the individuals it is about. To the extent that consumption data is personal information, the requirements of the Privacy Act 1993 will apply. This includes obligations for when consumption data is collected, stored, used and shared.[31]

4.3.33 Section 45 of the Privacy Act also requires that when someone makes a request for information, the organisation that holds the information releases it to the right person. That means the person the information is about, or the agent of that person. Where an agent requests information, the agent must be properly authorised by the person the information is about. It is up to the organisation that holds the information to make sure the agent is properly authorised.

4.3.34 Clause 11.32D of the draft Code requires retailers to comply with Privacy Act 1993.

[31] See section 2 of the Privacy Act 1993: personal information means information about an identifiable individual and includes information relating to death that is maintained by the Registrar-General pursuant to the Births, Deaths, Marriages, and Relationships Registration Act 1995, or any former Act (as defined under that Act).

4.3.35 Clause 11.32E of the draft Code requires retailers to respond to a request from an agent if the agent has the written authority of the consumer or is otherwise properly authorised by that consumer to obtain the information. The clause also requires retailers to apply the standards required by the Privacy Act 1993 to requests from consumers that are not individuals, for example small companies.

4.3.36 The Authority is confident that retailers and MEPs already have in place systems and processes to meet requirements of the Privacy Act 1993 with regard to holding, collecting and storing personal information, because these parties already regularly collect and exchange consumption data.

4.3.37 Non-participant energy service suppliers are required to comply with the Privacy Act 1993 to the extent that the information they hold is personal information. Any parties that choose to offer these services based on access to an individual's consumption data will therefore need to ensure they have systems in place to meet these legal requirements.

4.3.38 The Authority places very high expectations on the conduct of market participants, particularly where their conduct has the potential to affect the public's perception of the electricity sector.

Q9.	**The Authority has investigated a prescribed approach to customer authorisation to provide high levels of privacy and data security and considers that retailers are best place to provide this service in an efficient and cost-effective manner. Do you have any comments or suggestions on privacy, confidentiality and security of consumer data?**
Q10.	**Do you have any other comments or suggestions on the proposal?**

5. Regulatory statement for the proposed Code amendment

5.1 The Authority's proposal

5.1.1 The Authority proposes to amend Part 11 of the Code to place obligations on retailers to provide consumers with access to their consumption data.

5.1.2 Section 4.3 describes the Authority's proposal and Appendix B contains the associated draft Code amendment.

5.2 The objective of the proposed amendment

5.2.1 The purpose of the proposal is to improve the ability of consumers to participate in the retail market and increase consumer engagement in the retail market. Increased consumer engagement will drive retailers to innovate and seek efficiency gains.

5.2.2 The objectives are to promote competition in, and efficient operation of, the electricity industry for the long-term benefit of consumers. The specific benefits expected from the proposal are:

(a) ***Competition***

The proposal will improve consumers' ability to make well-informed and well-reasoned decisions about electricity purchases. This in turn will increase consumer engagement and encourage consumer participation in the retail market.

Increased consumer engagement will provide incentives for vigorous competition between existing players and encourage new retailers and energy service providers to enter the electricity market.

Increased competition will drive innovation in products and services and put competitive pressure on costs and prices. This leads to improvements in productive, allocative and dynamic efficiency of the industry for the long-term benefit of consumers.

(b) ***Efficiency***

The proposal will improve operational efficiency of electricity markets by reducing the cost of consumers' decision-making processes and by reducing transaction costs of participants.

Better access to consumption data will help consumers to make better and faster decisions about their supplier and supplier tariff plans or investments in energy devices, systems, or other equipment.

More accurate and better informed decisions in these areas will improve productive efficiency by reducing the cost of serving the consumer. Allocative efficiency will improve by ensuring that the price paid by the customer reflects the cost of supplying them. Dynamic efficiency will be improved by encouraging innovation in products and services that assist consumers to make more efficient decisions.

(c) ***Reliability***

No adverse impact on reliability is expected. It is possible that some benefits to reliability will arise as a secondary effect of more efficient consumer decisions and ability of consumers to respond to price signals.

Q11.	**Do you agree that the purpose and objectives of the proposal as set out in section 5.2 are appropriate and consistent with the Authority's statutory objective? If not, why not?**

5.3 The Authority has considered alternatives

The Authority considered four options

5.3.1 The Authority considered the following options to promote competition in, and efficient operation of, the electricity industry for the long-term benefit of consumers:

(a) Option 1: the proposal

The proposal as described in section 4 of this paper.

(b) Option 2: the status quo

The status quo is characterised by different, generally poor levels of access to consumption data for different customer groups, primarily depending on the consumer's retailer. There are varying practices and standards for the provision of consumption data to consumers.

(c) Option 3: provide 12 months of consumption data on the bill

In response to the retail data project issues paper, one submitter suggested that retailers should provide 12 months of monthly consumption data on each consumer's bill.[32] This would provide all

[32] Nova Energy, submission to retail data project issues paper, response to question 16.

consumers (with or without a smart meter) with some consumption data history.

(d) Option 4: A central meter data store

A central meter data store could hold all consumption data (including interval data). Retailers (or MEPs) would be required to submit meter data to the meter data store. Authorised parties could access the data in the meter data store.

Option 2 would not meet the objectives

5.3.2 The status quo is unlikely to achieve the competition and efficiency benefits expected of the proposal.

5.3.3 Retailers are unlikely to provide access to interval consumption data if this will force them to compete more vigorously, even if doing so is in the interests of the consumer. Not improving access to consumption data does not provide the better information that would facilitate consumer participation and increase engagement. The competition benefits of more engaged consumers would not be realised.

5.3.4 Similarly, the status quo is unlikely to provide better information that could reduce transaction costs associated with consumers' buying decisions.

5.3.5 The status quo will not meet the Authority's objectives.

Option 3 would only partially meet the objectives

5.3.6 Providing consumers with monthly consumption data is unlikely to achieve the competition and efficiency benefits expected of the proposal.

5.3.7 Providing monthly consumption data on a consumer's bill does not facilitate the easy exchange of consumption data to and from the consumer needed to lift consumer participation and increase engagement. The competition benefits of more engaged consumers would not be realised.

5.3.8 Similarly, monthly consumption data would not provide the consumption data information that could be used to reduce transaction costs associated with consumers' buying decisions.

5.3.9 Requiring retailers to provide monthly consumption data would probably partly meet the Authority's objectives, but not to the extent of the proposal.

Option 4 would impose higher costs and delayed benefits

5.3.10 Developing a meter data store could potentially deliver greater benefits than the proposal over time. But this would only be the case because a central meter data store would deliver efficiencies in providing other market services.

5.3.11 The key problem identified by the Authority with option 4 is that it would take two to three years to set up a meter data store and associated service provider arrangements. This would delay the benefits of improved access to consumption data.

5.3.12 The size of these benefits means that a delay of two to three years would result in lost benefits greater than the total cost of the proposal. Therefore, even if option 4 was eventually to go ahead, the costs incurred in pursuing the Authority's preferred option would still be justified.

5.3.13 Option 4 may also cost more to establish than the proposal, due to duplication of storage systems and data transfers. This is because some retailers will still wish to maintain their own databases of consumption data. A meter data store may also limit the flexibility of retailers to innovate and minimise their costs in responding to requests for data.

5.3.14 Option 4 would still require many of the features of the proposal, including obligations on retailers to provide data in a standardised format. For that reason, option 4 could be a next step from the proposal. The Authority considers that a meter data store could be established under the draft Code with minimal modification.

5.3.15 Option 4 would meet the Authority's objectives, but relative to the proposal, the costs are expected to be higher, and the benefits would be realised later.

Q12.	**Do you agree that the proposal is preferable to other options? If not, please explain your preferred option in terms consistent with the Authority's statutory objective.**
Q13.	**In particular, do you agree that option 1 is better than option 4?**
Q14.	**What are your views on the establishment of a centralised meter data store at some point in the future?**

5.4 Evaluation of costs and benefits

5.4.1 The Authority has assessed the expected benefits and costs of the proposal. The Authority considers that the benefits of the proposal will be shared with related proposals of parts one and two of the retail data project. However, the costs can be directly attributed to the proposal.

Net impact of expected benefits and costs

5.4.2 The Authority expects the dynamic efficiency benefits of the proposal to be large, but has not quantified these because it is hard to do accurately. The static efficiency benefits of improving access to retail data are estimated to achieve a present value net benefit of $0.775 million to $4.28 million. This

estimate of net benefit includes the costs of part three of the retail data project only. The net impact of the estimated benefits and costs of the retail data project is shown in Table 2.

Table 2: Summary of 10 year present value costs and benefits of the retail data project

Benefits and costs	Present value
Allocative efficiency benefits from increased engagement that makes consumers more likely to compare and switch retailers to obtain a better deal	$762,000 to > $2.8 million
Productive efficiency benefits from retailers seeking efficiency gains to capture some of the wealth transfer to consumers arising from more consumers comparing and switching retailers	$862,000 to > $2.3 million
Dynamic efficiency benefits as more vigorous competition between retailers and energy services firms delivers innovation and efficiency gains	> $0 (many $million)
Present value of costs of part 3 (this proposal)	$425,000
Net present value	**$1.2m to > $4.7m**

Note: The Authority has assessed the costs and benefits over a 10 year period. The full costs and benefits of the proposal and any related retail data project proposals are likely to take some years to be realised (eg five years). However, the costs and benefits are unlikely to continue indefinitely, for example because technology change will result in changes in how retail data is captured and exchanged. This has led the Authority to determine that a 10 year period is a reasonable period for assessing the costs and benefits.

5.4.3 The Authority considers that the expected benefits of the retail data project (part three) will be greater than the expected costs. The estimated total benefits are difficult to quantify and uncertain but are expected to be significantly greater than the estimated costs.

Nature and size of expected benefits

5.4.4 The expected benefits from the proposal (and the related proposals of the retail data project) will be achieved from allocative, productive and dynamic efficiency gains. In particular, the Authority considers that there will be significant dynamic efficiency benefits from the proposal.

Allocative efficiency benefits from increased consumer engagement

5.4.5 The textbook definition of allocative efficiency requires that prices are efficient, or equal to marginal costs. In practice, competition is not perfect, and results only in prices that approach the theoretically efficient levels. This is referred to as workable competition. Vigorous workable competition is expected to result in retail prices being lower than would occur under less vigorous competition. These lower prices will mean that a higher quantity of electricity is available to consumers at prices they are willing to pay. This is an allocative efficiency gain and an increase in consumer welfare.

5.4.6 The proposal will deliver allocative efficiency benefits by increasing consumer engagement. More engaged consumers will be more price-sensitive, or more likely to compare and switch retailers. This will result in consumers being more likely to pay prices closer to efficient levels and use a more efficient amount of electricity. The Authority estimates the present value of potential allocative efficiency gains of the proposal are at least equal to the costs of the proposal and are potentially greater than $2 million. Table 3 shows estimates of the present value efficiency gains available from several possible scenarios. The left hand column gives the additional percentage of consumers that would switch as a result of implementing the proposal, against a base switching rate of 20%. The column headings are scenarios of annual savings per customer. These table values are the calculated present value of the potential deadweight loss reduction.

Table 3: Estimates of present value allocative efficiency gains

% additional consumers moving to a lower price	Annual savings available from moving to a lower price ($/consumer)		
	$100	**$150**	**$200**
1% more or 21%	$67,721	$152,373	$270,886
5% more or 25%	$338,607	**$761,866**	**$1,354,428**
10% more or 30%	$677,214	**$1,523,732**	**$2,708,856**

Notes: 20% base switching rate; 10 year discounting period at 8% with no inflation; and elasticity (price sensitivity) of -0.26.

5.4.7 The Authority considers that the proposal will encourage more consumers to move to a lower (more efficient) retail price, either by negotiating a discount from their existing retailer or by switching to a new retailer. The

Authority considers that the proposal will lead to at least an extra 5% of consumers comparing and switching retailers and moving to a lower (more efficient) price.

5.4.8 The Authority considers that the average savings available from moving to a lower price are about $150. This estimate of the savings available is consistent with the Authority's estimates for the What's My Number campaign of the average savings available from consumers moving to the lowest available price. The average saving was estimated at $155 for 2013 and at $175 for 2012.

5.4.9 Potential allocative efficiency gains sensitive to the value of elasticity assumed. For example, a price sensitivity, or elasticity, of -0.4 (versus the -0.26 used for the scenarios outlined in Table 4) would lead to present value allocative efficiency benefits of $520,934, based on an extra 5% of consumers moving to a price that was $100 lower than their existing price.

Productive efficiency benefits of improved market efficiency

5.4.10 The proposal will deliver productive efficiency benefits by providing incentives for suppliers to seek efficiency gains.

5.4.11 Productive efficiency is achieved when the costs of production equal the minimum amount necessary to produce the output. A productive efficiency loss results if the costs of production are higher than this because the additional resources could be deployed productively elsewhere in the economy.

5.4.12 The electricity market is expected to reduce transaction costs and deliver productivity efficiency improvements over time. Competition is the mechanism for achieving these productive efficiency improvements. Over time, competition is expected to improve the average productive efficiency of the electricity industry and deliver long-term benefits to consumers.

5.4.13 The Authority considers that the proposal could result in productive efficiency gains by encouraging suppliers to reduce costs of supply. These gains are expected to be realised by reducing the level of 'x-inefficiency' that is present in the electricity market.[33] This 'x-inefficiency' exists when costs of supply are higher than the efficient levels that would occur under vigorous workable competition due to reduced competitive pressure.

5.4.14 The Authority estimates that a wealth transfer from retailers to consumers of $12.86 million is possible based on an extra 5% of consumers moving to a price that was $150 lower than their existing price. A wealth transfer of

[33] The term 'x-inefficiency' refers to the difference in productive efficiency between an efficient firm and observed behaviour in practice.

$34.28 million is possible if an extra 10% of consumers moved to a price that was $200 lower than their existing price.

5.4.15 The Authority does not consider that these wealth transfers arise from retailers earning excessive returns.[34] This suggests that the potential wealth transfers represent a level of 'x-inefficiency' in the market.

5.4.16 The Authority considers that some portion of this apparent 'x-inefficiency' could be removed if consumers engaged more actively in the market due to improved access to consumption data. This productive efficiency gain would be realised by retailers seeking cost savings to retain or capture some of the wealth transfer. The Authority considers that possible wealth transfers of between $12.86 million and $34.28 million would provide retailers with incentives to seek these cost savings.

5.4.17 The Authority has calculated the potential reduction in the 'x-inefficiency' for a range of efficiency gains and potential wealth transfers. The results of this calculation are shown in Table 4 . However, to provide context, just 1% of the wealth transfer of $12.86 million is $128,562 or $863,000 in present value terms, which is sufficient to cover the costs of the proposal. The Authority considers that a productive efficiency gain of this magnitude is likely.

Table 4: Estimates of present value productive efficiency gains

	Estimated annual wealth transfer		
Rate of reduction in x-inefficiency	**$12.86 M**	**$23.57 M**	**$34.28 M**
1%	$862,916	$1,581,566	$2,300,216
5%	$4,314,582	$7,907,831	$11,501,080
10%	$8,629,165	$15,815,662	$23,002,159

Notes: 10 year discounting period at 8% with no inflation

[34] See for example the analysis of generator/retailer returns over a 10-year period in the appendix to 'Ben Gerritson, NZ Power: Mainstream or Mad, 1 October 2013.

Dynamic efficiency benefits from new products and services

5.4.18 The proposal is expected to deliver dynamic efficiency benefits by increasing rivalry as suppliers compete to meet the needs of more engaged consumers.

5.4.19 Dynamic efficiency involves innovation and the development of new products, new processes, and new business models. This innovation delivers increased consumer benefits. Dynamic efficiency typically has a far greater impact on the long-term benefits of consumers than any static (allocative or productive) efficiency effects on competition.

5.4.20 Measuring the benefits of increasing rivalry is difficult. The Authority has not identified a robust approach for quantifying the potential dynamic efficiency benefits. However, potential dynamic efficiency gains can be illustrated by examples of innovations that have occurred in other markets which have been delayed because of poor regulatory decision making.

5.4.21 As an example, Hausman (1997) showed the consumer welfare costs of delays in the introduction of new telecommunications services in the United States due to the regulator's decisions (and indecision).[35] He estimated that delays in introducing cellular phones as a result of indecision by the regulator resulted in annual consumer welfare losses of between US$16.7 and $33.5 billion in 1994 dollars.

5.4.22 Hausman showed that the dynamic efficiency costs in his study were many multiples of the static efficiency costs, and it is now widely considered among economists that this will often be the case across sectors.

5.4.23 The Authority expects the proposal will provide incentives for existing and new entrant suppliers to offer new products and services (innovation) and to seek efficiency gains. The Authority considers that the potential dynamic efficiency gains are likely to be significant and substantially greater than the estimated static efficiency gains.

Nature and size of expected costs

5.4.24 The proposal is expected to impose the following costs on participants:

(a) retailers will be required to modify systems and processes to enable the exchange of consumption data

(b) retailers may be discouraged from further investment in smart meter technology.

[35] Hausman, J.A, "Valuing the Effect of Regulation on New Services in Telecommunications," Brookings Papers on Economic Activity: Microeconomics, 1997, pp 23

Costs of modifying systems and processes

5.4.25 The Authority expects that the proposal will require retailers to modify their systems and processes to enable the exchange of consumption data from the MEP to the retailer and from the retailer to the consumer (or consumer's agent).

5.4.26 However, the costs of modifying systems and processes are not expected to fall equally on all retailers. The costs that are expected to be incurred by retailers depend on their current capability to provide consumers with interval consumption data. There are four situations or categories:

(a) all of a retailer's customers already have access to interval data. One retailer currently falls into this category

(b) all of a retailer's customers already have access to at least a display of their half-hour consumption if a smart meter is fitted. Four retailers currently fall into this category

(c) not all of a retailer's customers already have access to their metered consumption data (or interval data where a smart meter is fitted). Nine retailers currently appear to be in this category

(d) a retailer does not have any customers with smart metering and provides customers with monthly consumption data. For the purposes of estimating costs it is assumed no retailers fall into this category.

5.4.27 The Authority has assessed the costs of implementing the proposal by estimating the extent of the modifications that they would need to make. The Authority has also taken into account cost differences based on retailer size. Table 5 shows the Authority's estimates of the costs to retailers of modifying systems and processes.

Table 5: Present value estimates of modification costs to implement the proposal

Retailer size	Average cost estimate	Number of retailers	Total Cost
> 250,000	$30,000	5	$150,000
15,000-250,000	$50,000	4	$200,000
<15,000	$15,000	5	$75,000
Total for all retailers			**$425,000**

5.4.28 The Authority considers that the five retailers that have capability to exchange consumption data are expected to implement the proposal by updating existing systems and processes. These retailers are those that already make available displays of interval data for customers with a smart meter. The Authority has estimated the present value cost of these modifications as $30,000 per retailer.

5.4.29 Retailers that have limited or no capability to exchange consumption data are expected to implement the proposal by contracting with MEPs to obtain consumption data and with a web-services provider to exchange this data with consumers (or their agents). The Authority has estimated the present value cost of these modifications/contracts as $50,000 for a medium-sized retailer. The Authority has estimated the present value cost of these modifications/contracts as $15,000 for a small retailer.

5.4.30 The total present value costs of the proposal if all retailers incurred the same costs as a medium sized retailer would be $700,000.

5.4.31 The Authority has assessed establishment and ongoing costs together because retailers could incur different costs depending on how they implemented the proposal. For example, a retailer that contracted out the requirement could have low establishment costs and high ongoing costs.

5.4.32 The Authority's assessment of costs indicates that the ongoing costs could be sensitive to the number of requests for consumption data. However, the Authority considers that these costs depend on a retailer's implementation decisions. A well-designed and automated data exchange process would lead to low to no operating costs regardless of the number of data requests. Conversely a less automated or manual data exchange process would lead higher operating costs.

Dynamic inefficiency costs

5.4.33 The Authority considers that there is a small risk that the proposal will discourage retailers from further investments in smart metering technology. This possible chilling of investment would represent a dynamic inefficiency cost.

5.4.34 The Authority is not able to estimate the size of the possible inefficiency cost, but does not consider that the cost would be significant because other parties, such as distributors, would seize the opportunity to supply smart meters. In any case, retailers and others have primarily invested in smart metering technology to obtain productive efficiency benefits from reduced transaction costs, for example from reducing manual meter reads. As such, the Authority does not expect that requiring retailers to exchange consumption data with consumers materially changes the benefits accruing from investing in smart metering technology.

5.4.35 Additionally, the Authority considers that the possible dynamic inefficiency costs would be more than offset by the dynamic efficiency benefits from increased retail competition and innovation.

Q15.	**Do you agree with the assessment of benefits, costs and net benefits? If not, please explain your reasoning.**

5.5 Assessment of the proposal under section 32(1) of the Act

5.5.1 Section 32(1) of the Act provides that Code provisions must be consistent with the Authority's objective and be necessary or desirable to promote any or all of the following:

(a) competition in the electricity industry

(b) the reliable supply of electricity to consumers

(c) the efficient operation of the electricity industry

(d) the performance by the Authority of its functions

(e) any other matters specifically referred to in this Act as a matter for inclusion in the Code.

5.5.2 The following table sets out an assessment of the proposed amendment against the requirements of section 32(1) of the Act.

Section 32(1) requirements:	**Response**
The proposed amendment is consistent with the Authority's objective under section 15 of the Act, which is as follows to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers	The proposal is expected to: • promote retail competition by improving consumer engagement. More engaged consumers' provides incentives for vigorous competition between suppliers. More retail competition will deliver efficiency benefits • promote operational efficiency by reducing consumers transaction costs in making electricity-related decisions • promote operational efficiency by reducing participants costs of supply. • There is not expected to be any trade-offs across the three limbs of the statutory objective.
The proposed amendment is necessary or desirable to promote any or all of the following:	

Section 32(1) requirements:	Response
(a) competition in the electricity industry;	The proposal is expected to promote retail competition by improving consumer engagement by facilitating consumers' ability to make well informed and well-reasoned electricity-related decisions. This will: • encourage consumers to participate in retail, energy efficiency, distributed generation and energy information markets • encourage competition within and between these markets • encourage new energy service providers to enter (or expand in) one or more of these markets.
(b) the reliable supply of electricity to consumers;	No adverse impact on reliability is expected. It is possible that some benefits to reliability will arise as a secondary effect of more efficient consumer decisions and ability of consumers to respond to price signals.
(c) the efficient operation of the electricity industry;	The proposal is expected to: • promote operational efficiency by reducing consumers transaction costs in making electricity-related decisions • promote operational efficiency by reducing participants costs of supply.
(d) the performance by the Authority of its functions;	The proposal will not materially affect the Authority's performance of its statutory functions.
(e) any other matter specifically referred to in this Act as a matter for inclusion in the Code.	The proposal will not materially affect any other matter specifically referred to in the Act for inclusion in the Code.

5.6 Assessment of the proposal against the Code amendment principles

5.6.1 When considering amendments to the Code, the Authority is required by its Consultation Charter to have regard to the following Code amendment principles, to the extent that the Authority considers that they are applicable.

5.6.2 *Principle 1 – Lawfulness:* The Authority and its advisory groups will only consider amendments to the Code that are lawful and that are consistent with the Act (and therefore consistent with the Authority's statutory objective and its obligations under the Act).

The Authority considers that the proposal is lawful and consistent with the Act.

5.6.3 *Principle 2 – Clearly Identified Efficiency Gain or Market or Regulatory Failure*: Within the legal framework specified in Principle 1, the Authority and its advisory groups will consider using the Code to regulate market activity only when:

(a) it can be demonstrated that amendments to the Code will improve the efficiency of the electricity[36] industry for the long-term benefit of consumers;

(b) market failure is clearly identified, such as may arise from market power, externalities, asymmetric information and prohibitive transaction costs; or

(c) a problem is created by the existing Code, which either requires an amendment to the Code, or an amendment to the way in which the Code is applied.

The Authority considers that the proposal will improve the efficiency of the electricity industry for the long-term benefit of consumers.

The Authority also considers that the limits on the ability of consumers to obtain and use their consumption information could represent a market failure by creating a barrier to entry of new retailers and service providers.

5.6.4 *Principle 3 – Quantitative Assessment*: When considering possible amendments to the Code, the Authority and its advisory groups will ensure disclosure of key assumptions and sensitivities, and use quantitative cost-benefit analysis to assess long-term net benefits for consumers, although the Authority recognises that quantitative analysis will not always be possible.

5.6.5 This approach means that competition and reliability are assessed solely in regard to their economic efficiency effects. Particular care will be taken to include dynamic efficiency effects in the assessment, and the assessment will include sensitivity analysis when there is uncertainty about key parameters.

The Authority considers that the benefits of the proposal are greater than the costs based on the results of qualitative and quantitative cost-benefit analysis set out in section 5.4.

[36] Where efficiency refers to allocative, productive and dynamic efficiency, and improvements to efficiency include, for example, a reduction in transaction costs or a reduction in the scope for disputes between industry participants.

5.6.6 The tie-breaker principles have not been used because the proposal delivers a net benefit relative to the options. The assessment is conclusive that the proposal is the best option.

Q16.	**Do you agree that with the Authority's assessment that the proposed Code amendment meets the requirements of Section 32 of the Act?**

Appendix A Format for submissions

Question No.	General comments in regards to the:	Response
Q1.	Do you have any comments on the description of the current situation, including: a) The link between consumer engagement and retail competition? b) Current levels of consumer engagement? c) Current limits on access to consumption data?	
Q2.	What are your comments on the Authority's assessment of the problems arising from limited access to consumption data?	
Q3	Do you have any comments or suggestions about whether the criteria used in developing the proposal are a suitable basis for the proposed Code amendment?	
Q4.	Do you have any comments or suggestions about the requirement for retailers to provide consumption data?	
Q5.	Do you have any comments or suggestions about the process for responding to requests to provide consumption data?	
Q6.	Do you have any comments or suggestions about the development of procedures requiring the supply of data using standardised formats and structures?	
Q7.	Do you have any comments or suggestions about whether retailers should be required to hold consumption data?	

Q8.	Do you have any comments or suggestions about the requirements of the process for providing interval data?	
Q9.	Do you have any comments or suggestions on privacy, confidentiality and security of consumer data?	
Q10.	Do you have any other comments or suggestions on the proposal?	
Q11.	Do you agree that the purpose and objectives of the proposal as set out in section 5.2 are appropriate and consistent with the Authority's statutory objective? If not, why not?	
Q12.	Do you agree that the proposal is preferable to other options? If not, please explain your preferred option in terms consistent with the Authority's statutory objective.	
Q13.	In particular, do you agree that option 1 is better than option 4?	
Q14.	What are your views on the establishment of a centralised meter data store at some point in the future?	
Q15.	Do you agree with the assessment of benefits, costs and net benefits? If not, please explain your reasoning.	
Q16.	Do you agree that with the Authority's assessment that the proposed Code amendment meets the requirements of Section 32 of the Act?	

Appendix B Proposed draft Code amendment

Part 11

Registry information management

…

11.1 Contents of this Part

This Part—

(a) provides for the management of information held by the **registry**; and

(b) prescribes a process for switching **customers** and **embedded generators** between **traders**; and

(c) prescribes a process for a **distributor** to change the record in the **registry** of an **ICP** so that the **ICP** is recorded as being usually connected to an **NSP** in the **distributor's network**; and

(d) prescribes a process for switching responsibility for **metering installations** for **ICPs** between **metering equipment providers**; and

(e) prescribes a process for dealing with **retailer events of default**~~.~~; and

(f) requires **retailers** to give **consumers** information about their own consumption of **electricity**.

…

Access by consumers to information about their own electricity consumption

11.32A Retailers must hold information about consumer electricity consumption

(1) Each **retailer** must hold the information specified in subclause (2) in relation to—

(a) each **consumer** with whom it has a contract to supply **electricity**; and

(b) each **consumer** with whom it has had a contract to supply **electricity** that was terminated within the last 24 months.

(2) The information that each **retailer** must hold is information as to the **consumer's** consumption of **electricity** relating to each **ICP** at which the **consumer** is supplied **electricity** by the **retailer**.

(3) To avoid doubt, subclause (2) applies to **half-hour metering information**, if **half-hour metering information** is collected in relation to the **consumer**.

(4) The information must be held by the **retailer** for 24 months from the **billing period** in which the **electricity** to which the information relates was consumed.

(5) Subclause (4) does not limit clause 18 of Schedule 15.2.

11.32B Requests for information

(1) Each **retailer** must, if requested by a **consumer**, give the **consumer** the information that the **retailer** is required to hold under clause 11.32A.

(2) A **retailer** to which a request is made must give the information to the **consumer** no later than 5 **business days** after the date on which the request is made.
(3) A **retailer** is not required to comply with subclause (1) if the **retailer** has given the information to which a request relates to the **consumer** within the last 3 months.
(4) In responding to a request, the **retailer** must comply with the procedures **publicised** by the **Authority** under clause 11.32F.
(5) A **retailer** must not charge a fee for responding to a request, but if 4 requests in respect of a **consumer's** information have been made in a 12 month period, the **retailer** may impose a reasonable charge for further requests in that 12 month period.

11.32C Retailers must notify consumers of availability of information

Each **retailer** must notify each **consumer** with whom it has a contract to supply **electricity** of the **consumer's** ability to make a request to the **retailer** under clause 11.32B, so that the **consumer** is notified at least once in each calendar year.

11.32D Information security

A **retailer** that receives a request under clause 11.32B must comply with the requirements of section 45 of the Privacy Act 1993 as if,—

(a) in the case of a **consumer** that is not an individual, the **consumer** is an individual; and
(b) the request is made under subclause (1)(b) of principle 6 of section 6 of that Act.

11.32E Agents

If a **consumer** authorises an agent to request information under clause 11.32B, a **retailer** must treat a request from the agent as if it were a request from the **consumer**, if the agent has the written authority of the **consumer** to obtain the information or is otherwise properly authorised by that **consumer** to obtain the information.

11.32F Authority must publicise procedures for responding to requests for consumption information

(1) The **Authority** must, no later than 20 **business days** after this clause comes into force, **publicise** (and must keep **publicised**) procedures under which a **retailer** must respond to a request from a **consumer** under clause 11.32B.
(2) The procedures **publicised** by the **Authority** must—
(a) specify the manner in which information must be given to **consumers**; and
(b) specify 1 or more formats in which information must be given to **consumers**.

Appendix C Example of a possible data format specification

EIEP 3A: Half hour and monthly consumption information for consumers

Title:	**EIEP 3A: Half hour and monthly consumption information for consumers**
Version:	1
Application:	This protocol allows traders (or their appointed agents) to provide volume information to customers at an ICP level to support their energy purchase and consumption decisions.
Participants:	Trader/MEP
Code reference:	Clause 11.32B (from 16 October 2014)
Dependencies:	The Code may also set out requirements relating to the information that must be provided in this file.

Description of when this protocol applies

A data file formatted in accordance with EIEP3A is to be forwarded by the trader to the customer or their appointed agent (or the Authority for monitoring purposes) to provide half hour volume information that enables the customer to make informed energy decisions. The information contained in an EIEP3A format file must be metered half hour data by ICP where the meter channel records real energy volume (in kWh) together with monthly cumulative consumption, for a period of at least 24 months where such data exists. This protocol can accommodate multiple ICPs in a single file or an individual file per ICP.

Business requirements

1. The trader must provide a suitable file transport mechanism by which the trader will provide information to the customer. Non-manual interfaces use electronic file transfer- either via File Transfer Protocol (FTP) or Secure File Transfer Protocol (SFTP) connectivity. In the case of FTP a security mechanism must be used to protect confidentiality. Whatever method is agreed that method must be in a format approved and published by the Authority.
2. Where information is required to be transferred using email, the contents must be delivered in a secure manner and password protected.
3. Unless otherwise agreed between parties, an EIEP3A file containing billing information for the requested period must be delivered by 1700 hours on the 5th business day (business day as defined in the code) following the request.

Business requirements
4. An agent may provide data on behalf of the relevant reconciliation participant, in which case the header for EIEP3A will identify the reconciliation participant. The appointment of an agent must be a permission function of the responsible customer and participants must allow for agents in their systems. 5. A trader must only use codes that are: (a) stipulated in this document; or (b) approved and published by the Electricity Authority; or (c) determined in the registry and reconciliation functional specifications; or 6. Information relating to individual tariff codes must be formatted on separate lines. 7. Information provided in the file will be consistent with the terminology used in the Glossary of Standard Terms published by the Authority. 8. The file must contain all mandatory information, failure to provide the required information will result in the file being deemed as incomplete. 9. Information is to be provided in accordance with the following status codes unless otherwise specified: O Optional M Mandatory where applicable C Conditional - Mandatory if available and required by recipient, otherwise optional 10. Data must be provided for the previous 24 months of consumption if available, as per the relevant Code provisions. 11. The data in an EIEP3A file will normally cover complete calendar months, unless the sender makes it clear that a different period applies. 12. The trading period is the half hour ending based on New Zealand Daylight Savings time, giving 48 trading periods in the day, with the exception of the winter/summer and summer/winter transition days where there are 46 and 50 (respectively) trading periods in the day. 13. If an ICP has multiple meter channels the report must be compiled to provide a single kWh measurement for each trading period. Any additional channels for which data is collected must be reported as additional records in the same file. These additional records should be identified by using the ‘data stream identifier’, ‘data stream type’ and ‘energy flow direction’ fields.

Business requirements

14. Injection and extraction is to be shown with the 'flow direction indicator', where X (extraction) together with a positive 'unit quantity' represents electricity leaving the parent network, and I (injection) together with a positive 'unit quantity' represents electricity entering the parent network (e.g. as a result of embedded generation) . Extraction and injection volumes, even where on the same 'network tariff code', are not to be netted off against each other, and must instead be represented with separate records in the file.
15. Although it is intended that all half hour meters are to measure active and reactive energy, the reactive energy measurement is not to be provided to the customer unless specifically requested.
16. If the trader becomes aware of a format error in a transmitted file, or the file is incomplete, that party must advise the customer as soon as practicable after becoming aware of the issue.
17. If a correction of the error as above is needed, then a full replacement file is to be supplied.
18. .
19. If it is known that the meter reading is taken at the end of the report month, then the 'reading type' F (final) must be used and the data is final.
20. The report is to include all (or each single) ICPs with a registry status of Active against the trader that were correctly requested and authorised by the relevant customer.
21. Trading periods and New Zealand daylight time are defined in Part 1 of the Code. Further information to the reconciliation methodology is given in clause 15.36 of the Code.

General requirements

1. This specification is based on the requirements of the Code as at 16 October 2014. If there are any conflicts between this document and the Code, the Code will take precedence.
2. In general, all participants must provide the customer with:
   (a) accurate information for all points of connection at which they are responsible for the current consumption period;
   (b) when available, revised information for all points of connection at which they have purchased or sold electricity during any previous consumption period; and
   (c) any additional information requested in respect of any consumption period.
3. A number of data transfers may be required between participants for the EIEP3A process to take place. Unless the relevant participants have previously agreed otherwise, these data flows must be those required by the Code. At all times they must take place in a secure and predictable manner.
4. It is the responsibility of participants to meet the principles of the Privacy Act when exchanging customer details

Data inputs

Information from a participant's billing system and/or reconciliation submission file.

Event data	Format	Trader to Distributor: Mandatory/Optional/ Conditional		Validation rules
Header record type	Char 3	M		HDR – indicates the row is a header record type
Version of EIEP	Num 3.1	M		Version of EIEP protocol used for this file.
Sender	Char 20	M		Name of sending party. Participant identifier to be used if the sender is a participant.
Retailer participant code	Char 4	M		Participant identifier of party on whose behalf consumption data is provided.
Brand identifier	Char 15	M		Where the customer is supplied by a brand that is not a retailer participant.
Recipient identifier	Char 4	M		Valid recipient identifier such as customer number, name or identification ID
Customer Authorisation code	Char 20	M		A unique number that links the customers authorisation of the data to the data file
Report run date	DD/MM/YYYY	M		Date the report is run
Report run time	HH:MM:SS	M		Time the report is run
Unique file identifier	Char 15	M		Number that uniquely identifies the file.
Number of interval data records				Total number of INT records in report

Event data	Format	Trader to Distributor: Mandatory/Optional/ Conditional		Validation rules
Report start date	DD/MM/YYYY	M		The start date of the data.
Report end date	DD/MM/YYYY			The end date of the data.
Utility type	Char 1	M		Type of energy supply; G = Gas; or E = Electricity
File status	Char 1	M		I = Initial or R = Replacement or
Checksum	Char15	M		The total of all kWh values in the Active energy column of the detail records in the file. May be encrypted for tamper prevention purposes.

Event data	Format	Trader to Distributor: Mandatory/Optional/ Conditional		Validation rules
Detail record type	Char 3	M		INT – indicates the row is a detail record of interval consumption data.
ICP identifier	Char 15	M		ICP identifier means a unique identifier for an ICP created by a distributor in accordance with clause 1 of Schedule 11.1
Installation Number	Char 15	M		Identifier that details which installation for ICP with multiple installations

Event data	Format	Trader to Distributor: Mandatory/Optional/ Conditional		Validation rules
Meter Number	Char 15	M		Identifies the meter for installations that have multiple meters
Meter channel Number	Char 3	M		Identifies the meter channel for meters that are recording multiple channels
Meter channel type	Char 10	M		The relevant registry code for the meter channel (eg. UN24, CN08)
Reading type	Char 2	M		Final (F)
Date	DD/MM/YYYY	M		Date
Trading period	Int 2	M		Trading period – 1 to 48 (46 or 50 for Daylight Saving).
Active energy (kWh)	Num 12.2	M		Consumption in kWh
Energy Flow direction	Char 1	M		An identifier of whether the channel records the import (injection from the ICP into the Network) (“I”), or the export (extraction from the Network to the ICP) (“X”).
Data stream type	Char 10	C		Null implies standard billable volume else defined by receiver

Protocol specifications
5. The information is to be provided as a comma delimited text file. Commas are therefore prohibited within fields. 6. Each formatted file will consist of one or more records, with each record being a single line of text as defined in the business rules. Records are to be delimited with one of the

Protocol specifications

following:

(d) a carriage return character and a line feed character combination (ASCII characters 13 and 10) commonly used in Windows based programs, or

(e) a line feed character (ASCII character 10) commonly used in Unix based programs, or

(f) a carriage return character (ASCII character 13) commonly used in Mac based programs.

7. Data fields within files must be defined using the attributes in the table following these specifications.
8. Matching of file names, code list values, etc, must to be case insensitive.
9. Each data file must contain only one header but can contain any number of detail records.
10. The first record of a file must contain 'Header" information followed by zero or more detail lines.
11. Each file created must have a file name as outlined below and must have names that are unique within any month:

    Sender + Utility Type + Report Run Date + UniqueID# (e.g. hhmm run time, or ICP but limited to Char(60) with an extension of .TXT and with the components concatenated using the underscore character, to assist readability.

    e.g. TRUS_E_20000802_ICP00000123456ABCDE.TXT

    [Char4_Char1_Char4_ Char7_yyyymm_yyyymmdd_UniqueID.TXT]

Appendix D Examples of how the proposed access to consumption data provisions could work in practice

One

Sarah's family are a typical household with reasonably typical electricity usage. Sarah logs onto a price comparison site and, confused by the range of options available, decides not to switch despite apparent savings of $110.

Sarah later requests her consumption data from her retailer via their website, which comes as a downloadable file. She uploads her data to the comparison tool to get a more accurate estimate. The site uses her data to narrow down the range of tariff options, and is able to provide her an accurate comparison between her current plan and the available alternatives, indicating a likely saving of $83. Even though this number is much lower, Sarah is more confident in the information and proceeds with the switch.

Two

Steve lives with three flatmates in a central city flat. They spend most days out of the flat at university and tend to cook sporadically. They hardly ever heat their flat, often shower at the gym, and vacuuming is only for landlord inspections. As a result, their total usage is very low. Also, most of the power they use is late at night, studying, partying, or playing video games. Being students, they have limited income and are keen to save money on power.

Steve downloads the flat's consumption data through his retailer's data portal and analyses it using his spreadsheet skills. By comparing his consumption with a number of tariffs offered by different retailers, he finds a tariff that will save them over $20 per month.

Steve's flatmates happily agree to the new plan, and a new monthly pizza night at the flat is named in his honour.

Three

Barry's family are both busy and energy hungry. They tend to turn on all the lights, lots of heating in the winter and a wide range of appliances. This consumption gives them a lifestyle they enjoy, but the large power bills sometimes mean they can't go on holiday to the places they would like to.

Barry uses a price comparison service to analyse his consumption data and options for reducing his bill. The advisor notes the family's high consumption, but also their high peak demand. Although high consumption makes them an attractive customer

to many retailers, the shape of their demand means they would not benefit from the best available plans.

Barry switches the family to a new retailer to take advantage of sharper pricing and an application they offer that helps families manage their usage. The family are reluctant at first, but soon take an interest.

After a few months, Barry checks his families consumption again and finds that their profile is now much flatter, enabling them to move to an even cheaper tariff.

Twelve months later, the family is happily relaxing on a tropical beach, their holiday extended by three days with the savings from their power bills.

Four

Edna is a retiree who lives alone on a fixed income. It is important to her to stay warm, but she finds power bills eat up a lot of her budget. She struggles to understand all this new-fangled internet stuff and is not confident to switch retailers.

One day her grandson Jimmy, visits and, hearing about her power cost concerns, logs onto a price comparison site. Using her ICP number from her bill and with her consent, Jimmy assesses her current plan and usage against the available options. He is able to confidently recommend to her that a change in retailer and a different type of plan will save her $40 per month. She also authorises Jimmy as her agent so that he can check how the plan is working out for her and get in touch if it is no longer optimal.

Edna tells all of her friends, and the next time Jimmy visits, she asks him if he could help her friends save money too. Jimmy is happy to help, and while it takes him a bit longer, he gets a nice batch of scones and a woolly hat for his troubles.

A month later, tired of his boring desk job, Jimmy sets up a business helping retirees save money on their power bills. He charges them $20 each, and soon finds himself earning a steady income and feeling good about helping others.

Five

Daniel and Josephine are a young couple who have just bought an old villa. It is cold, draughty and expensive to heat. They make do for a couple of years, but when their first baby arrives, they find the cost of keeping the place warm is astronomical, and sometimes it is still cold despite their best efforts.

Josephine contacts an energy audit service for help. They visit the house. During the visit, Josephine authorises the energy auditor to access the couple’s consumption data. The energy auditor feeds this information into his energy analysis tools on the laptop he has with him, and is able to make specific recommendations to Josephine about the relative merits of options for insulation, heating and energy saving.

Despite being on a limited income, Josephine and Daniel are able to use this information to confidently invest in improved insulation and heating systems for their property, knowing that the energy savings will pay back their investment in 6 years or less.

The next winter, they are warmer, healthier, and have substantially lower energy costs.