



Submissions

Electricity Authority

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The Energy Management Association (EMANZ) welcomes the opportunity to provide input to this initiative.

Improving data access for commercial and industrial energy consumers to make better energy management decisions is of primary concern to EMANZ and its members.

EMANZ members interests range from energy service companies (or individuals) assisting commercial and industrial consumers to optimize their energy use; energy managers responsible for the purchase and management of energy for organisations; large energy using organisations with an interest in maintaining their skills and knowledge in energy management; through to equipment suppliers whose wares improve energy performance.

### **In General**

Without engaged consumers, competition in New Zealand's electricity markets<sup>1</sup> is inadequate and essentially superficial. For consumers to be engaged, they must have reliable information sources to manage their energy costs<sup>2</sup>.

The complexity of market arrangements and relatively low level of understanding by consumers of the opportunities and risks in this area escalate these issues into serious issues that support the Electricity Authorities decision to investigate this area.

EMANZ believes that this country must develop a culture of managing our energy risks well. The electricity market has evolved to allow energy supply side risks to be well managed to the benefit of generators, and they are very well managed, albeit now with a highly complex set of market arrangements beyond many in the industry, let alone consumers. However we should confuse complexity with efficiency, nor assume that the benefits of sound risk management by generators, are necessarily flowing through to consumers.

Overseas examples of market designs that allow participation in wholesale markets by end users as small as 100kW load, raise very interesting questions about the complexity

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<sup>1</sup> Wholesale, Ancillary Services, AUFLS, Hedge, FTR, Retail, Day ahead?

<sup>2</sup> EMANZ notes that the EA's scope is limited to electricity and so information and data relating to substitution of electricity for other energy uses e.g. switching to natural gas, may not be fully considered.

versus efficiency of New Zealand's arrangements.

### Specific Points

- In terms of meter data and information, while information streams from larger Time of Use (TOU) meters is of a professional and reliable standard, there are still some major shortcomings in information flows from smaller TOU and non TOU metering arrangements that contribute to sub optimal levels of engagement from consumers. The DOE's Green Button initiative is an excellent example of what could and should occur in New Zealand.

From the DOE Green Button website:

*"With their own data in hand, consumers can take advantage of a growing array of online services to help them manage energy use and save on their bills. Voluntary adoption of a consensus industry standard by utilities and companies across the country both enables and incentivizes software developers and other entrepreneurs to build innovative applications, products and services which will help consumers manager energy use by, for example, programming their home energy management devices, sizing and financing rooftop solar panels, and helping a contractor to verify their home energy savings more cost-effectively."*

- Better energy management decisions would come from the ability to understand the energy performance of other comparative organisations. Energy benchmarking has proven benefits, but energy service companies in New Zealand have for years relied on overseas information built from data streams in more open markets that support the open exchange of energy performance information. In New Zealand there has been no convenient and cost effective means of accessing information on peer business energy performance, and energy benchmarking has languished in the shadows. For those businesses prepared to share their performance with others, ensuring the information streams ore collected in a standard and comparable manner usually results in a high cost resource intensive project that is difficult to justify. Yet this information could be more cost effectively accessible with large benefits if repositories of standard meter information were more freely and widely accessible (while respecting confidentiality).
- Larger energy using organisations with dedicated energy managers, or "aggregators", the energy service companies, the tariff consultants, the equipment suppliers, and the finance companies are all prospective (but currently excluded) market participants who need improved access to information to ensure energy demand side risks are managed well for a broader range of customers and the bundle of electricity markets evolve to service based markets.

The fact that the frequency keeping services market in PJM (USA) is now dominated by a cheaper approach - battery farms instead of traditional stand-by generation should provide ample evidence of the need for the EA to consider a wider set of electricity market participants.

- Some of the most susceptible customers who fall through the cracks are not the largest or smallest, but those below 200,000 kWh usage per year but larger than residential sector where standard contracts apply. These customers do not typically have streaming meter information directly from the meter company, but are subject to the customer service levels offered by their retailer. While in the

main, these service levels are of a professional nature, EMANZ is aware of a large amount of value going begging where probably three quarters of commercial customers are pay significant amounts a year in electricity, and receiving almost no service. These customers are are oblivious to the opportunities to reduce costs or value extraction through:

- Bill checking,
- Tariff negotiation (and ensuring supply infrastructure is appropriately sized and priced),
- Power factor correction,
- Peak load reduction,
- Participation in ancillary services markets.

In discussions with its members EMANZ that most retailers typically do not perform any of services outlined above for customers using less than 200,000kWh per year.

However, on a positive note, the recent emergence of non vertically integrated retailers appears to be improving levels of service. Service could be further enhanced through even greater market participation from non traditional organisations. Based on an estimate of the proportion of commercial customers who utilize the services of EMANZ members (about one quarter), the benefits of having a more informed commercial customer is tens of millions of savings per annum, potentially up to \$100 million.

Example: A small manufacturing business recently sought advice from an EMANZ member (who works for a market participant organisation) as they went through the process of negotiating their annual electricity charges. The business uses in the order of 1 GW per annum with two transformers shared with other nearby businesses and one dedicated transformer. It receives its line and transformer charges via the retailer. The EMANZ member identified that the dedicated transformer was over twice as large as it needed to be for the load it supplied. When the EMANZ member contacted the retailer about it on behalf of their client, a long and protracted process ensued that required a high level of knowledge and experience in the electricity market, and of course ultimately resulted in a review of lines charges by the lines co. The result was a transformer downgrade and reduction in lines charges of \$20,000 per year. The oversize transformer had been required by the local lines company, and the previous retailer had never visited the site for which they had been charging on behalf of the lines co, so had no idea whether the charges were appropriate.

## Conclusion

EMANZ believes it is time to look more closely at the information access rights of non market participants, or indeed to lower the threshold for market participation, just as PJM has lowered its market participation threshold to 100kW.

EMANZ would welcome the EA establishing something similar to the USA Dept of Energy's Green Button<sup>3</sup> initiative that standardized data for electricity consumers in a consultative and systematic way. This was a great example of an electricity sector developing a better service culture with its customers.

There are several appendices to this submission.

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<sup>3</sup> <http://energy.gov/data/green-button> or see Appendix 3

Appendix 1 answers the questions posed by the EA

Appendix 2 provides supplementary information to assist the EA to build a business case to evolve the electricity market to a more service oriented market

Appendix 3 provides more detail on the Green Button initiative.

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## Appendix 1: Answers to Questions

Q1. Do you agree that there is incomplete data about retail costs and prices?

Yes. Having the full range of price information for residential, commercial and industrial consumers, would allow a more thorough understanding of price movements over time and across a more complete range of consumer groups. Achieving that for some customer groups may be a challenge, as the mix of tariff structures can get complex.

Q2. Do you agree that the consequences of incomplete data include inefficient decisions and reduced confidence in retail competition?

Absolutely. For example meter reading frequency has consequences for estimates, and estimates are the source of frustration for some end users who have been unable to or too scared to switch retailers without losing credits derived from over estimates.

The energy services sector relies on consistent presentation of high quality meter and billing data, and currently bears an increasing cost in maintaining energy management software to fit with an increasingly diverse array of retailer metering and billing information.

Q3. Do you agree that there is incomplete information about retail tariffs?

Yes. While there is an issue with incomplete information preventing good understanding by market watchers perhaps a more poignant question would be a lack of comparability and guidance for consumers on the suitability of different tariffs or the savings that go with options such as interruptible load. The lack of access to information by non market participants on clearing prices for ancillary services, availability of time of day based or interruptible tariffs etc is a concern.

Q4. Do you agree that there is incomplete information about consumption data?

Yes. As explained above, there is no deliberate mischief by retailers but energy management software providers who rely on retailers metering and billing information are becoming overwhelmed trying to keep up with the wide range of data packets, and the frequency of changes to this information by a growing number of retailers. Given the increase in the number of retailers, and forecast further increases, this issue needs to be addressed urgently (see DOE's Green Button initiative for a positive example)

Q5. Do you agree that these issues inhibit effective decision-making by consumers?

Absolutely. The way information is presented has a huge influence on the way it is treated. An example from a similarly ubiquitous industry - bank feeds provide standard data packets to accounting software systems such as Xero. This industry appears to have standardized arrangements that could be emulated in the electricity market.

Q6. Do you agree that the perception of the electricity retail market as competitive is important for the efficient operation of the electricity industry?

Yes. If customers are not engaged, then competition is essentially superficial. Customers won't engage if they perceive their options to be superficial.

Q7. Do you consider that the various survey findings on perception of competitiveness in the retail energy market align with reality? Please describe your understanding of current perceptions of retail competition.

EMANZ believes there is competition most of the time in most of the country. However perceptions of competition are driven by experiences, and many experiences are derived from periods where competition has not been as strong as it needs to be.

Q8. Do you agree with the objectives of part 1?

Have not considered fully but these appear reasonable.

Q9. What comments do you have on the Authority's preliminary thinking on how to achieve the objectives of part 1?

There are still major scoping issues to be resolved.

Q10. Are there alternative approaches that you would like the Authority to consider in part 1?

Incorporate the DOE's Green Button initiative as a possible approach that ensures consumers get actionable information, not just the EA.

Q11. Do you agree with the objectives of part 2?

Without EMANZ having a thorough understanding of the underlying concern being addressed they appear reasonable.

Q12. What comments do you have on the Authority's preliminary thinking on how to achieve the objectives of part 2?

Need to refine scope.

Q13. Are there alternative approaches that you would like the Authority to consider in part 2?

No comment at this stage.

Q14. Do you agree with the objectives of part 3?

Yes, meter data should be an easier area to address than price data.

Q15. What comments do you have on the Authority's preliminary thinking on how to achieve the objectives of part 3?

Nothing at this stage.

Q16. Are there alternative approaches that you would like the Authority to consider in part 3?

See answer to Q10.

Q17. Do you have any comments on the approach to project presented here?

This is a good idea that runs the risk of being criticized for being loose in scope, so tighten the scope or risk being lampooned.

Q18. Do you have any suggestions for topics or particular questions you would like addressed at industry workshops regarding this project?

The presentation of information – how do we ensure greater awareness of the components of a customers electricity and other energy costs in a way they understand and appreciate.

Q19. Would you be interested in providing sample data to the Authority to assist us with developing detailed options?

Not able to.

## **Appendix 2: Building the Business Case for Improved Access by Demand Side Market Participants**

Dynamic efficiency benefits are notoriously hard to quantify, but ultimately, if New Zealand has an electricity market where users are engaged (either by consumers themselves or through agents, or from energy services offered to them by their retailer), then New Zealand will have a more affordable, more reliable, more sustainable electricity system, to the benefit of all.

To that end, EMANZ offers what information it can here to assist in the development of a business case by the Electricity Authority for a system that provides information to a greater range of market interests in a more reliable, credible and affordable way.

### **The Benefits**

Based on evidence derived from energy management services<sup>4</sup> offered by EMANZ members, EMANZ conservatively believes there is at least \$2 billion of annual energy consumption that is wasted by New Zealand businesses making poor energy management decisions. Some proportion of that amount can be attributed to poor information, or lack of access to information in a manner that allows demand side participants to understand the value of market participation.

Determining dynamic efficiency benefits requires a thorough understanding of the degree to which innovation will be unleashed, and value derived from that innovation from access to further information (and any sharing of that value between potential service providers and the consumer).

The whole premise for establishing an electricity market in New Zealand required confidence in deriving better value from more efficient investment decisions in generation, transmission and distribution of electricity through markets. The same confidence is required in allowing greater participation in the market from consumers.

Investing in energy efficiency and demand response should be a real and comparable investment to investing in buying more electricity, but when confronted with the complexity of upstream arrangements and the barriers outlined below, the investment decision making process is fraught for anyone but the larger industrial consumers whose continued existence relies on competitive electricity prices.

### **The Barriers**

#### *Information Asymmetries:*

When two parties do not have equal access to relevant information, there is potential for market power. Many end use consumers don't know what they don't know, or the scale of opportunity to reduce their energy costs. The energy services sector clearly exists to do that but their credibility with their customers is derived from the rigour of the information sources they have access to. Presently, they are hampered by a number of issues including:

- There is a lack of industry standards, and no capability to monitor and enforce

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<sup>4</sup> Based on the result of over 50 industrial and commercial sector energy audits, and other energy related information from over 100 commercial buildings in New Zealand.

- those standards should any be produced Evidence of that is the wide diversity in presentation of electronic information of billing and metering data from retailers,
- There is a feast or famine approach to information. Market participants are provided streams of information where non market participants are left out in the cold. There is huge scope for identifying energy performance improvement opportunities should energy service companies be given access to metering data while respecting confidentiality.

While many business customers may not want to know their electricity consumption in real time, or how much they should or could contribute to detailed items such as the transformer outside their building, there are service companies that will know this and if it is worth them having real time information, or querying the proportion they pay for the transformer on the corner, or whether the retailer is overcharging them for their lines charges.

#### *Principal-Agent Problems:*

Improving energy efficiency can have multiple benefits to multiple people, but the costs may not align with the benefits. For example a tenant may pay the electricity bill which doesn't directly impact on the landlord, so the landlord may not want to invest in more efficient heating, cooling, air conditioning or insulation.

A stand out example for EMANZ that demonstrates this reality was the recent re-commissioning of a near new (8 years old) premium Auckland office buildings heating ventilation and air conditioning (HVAC) system that saved \$800,000 in the buildings electricity bill, paid for by the tenant. Clearly the landlord did not want to face up to the fact that the building had not been properly commissioned, and didn't want to incur the cost of rectifying it, but the cost to him was around \$100,000.

The original property developer had weak incentives to ensure the building's energy performance was to any standard, and the tenant had no idea of the buildings energy performance until they had experienced it for a year, and had spent large sums fitting the building out to their requirements.

Armed with information on the relative HVAC costs in buildings, this issue would not occur as often as it does.

#### *Information and Skill Gaps:*

There are a range of skills needed to make optimal energy use decisions; from understanding how to quantify the benefits to a business from investing in improving energy performance, the technical skills needed to install and optimise using equipment and to measure and verify energy performance (and invoices) over time.

EMANZ has a number of highly skilled members who provide information to their clients on energy performance. Their credibility relies on them having access to reliable electricity metering and billing information. They are frequently hamstrung and overwhelmed by continual changes to metering information data packets by retailers. There is no intentional mischievous act by retailers, it is simply that they don't appreciate that there are a large number of them and when they change the data streams of information, a large number of software services incur costs they can't pass on. A more standardized flow of metering information (non TOU) would be of significant benefit in

reducing costs to energy services companies, and hence making this expertise more accessible to a wider set of business customers.

## Appendix 3: What is the Green Button Initiative (from the DOE website)

### **What is Green Button?**

The Green Button initiative is an industry-led effort that responds to a White House call-to-action to provide utility customers with easy and secure access to their energy usage information in a consumer-friendly and computer-friendly format. Customers are able to securely download their own detailed energy usage with a simple click of a literal "Green Button" on electric utilities' websites.

With their own data in hand, consumers can take advantage of a growing array of online services to help them manage energy use and save on their bills. Voluntary adoption of a consensus industry standard by utilities and companies across the country both enables and incentivizes software developers and other entrepreneurs to build innovative applications, products and services which will help consumers manager energy use by, for example, programming their home energy management devices, sizing and financing rooftop solar panels, and helping a contractor to verify their home energy savings more cost-effectively.

Adoption of the Green Button data standard will also benefit utilities that receive numerous requests for data, are administering energy efficiency programs, are looking for avenues for greater customer engagement, and in many other ways.

### **What has been the success and progress on the initiative to date?**

The Green Button initiative was officially launched in January 2012. To date, a total of 35 utilities and electricity suppliers have signed on to the initiative. In total, these commitments ensure that 36 million homes and businesses will be able to securely access their own energy information in a standard format. This number will continue to grow as utilities nation-wide voluntarily make energy data more available to their customers in this common, machine-readable format.