



The Sustainable Energy Forum Inc.

P O Box 11 152, Wellington
Email: info@sef.org.nz
Web: <http://www.sef.org.nz>
SEF Office – Ian Shearer 04 586 2003

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Mr Ron Beatty
Senior Advisor Retail
Electricity Commission
PO Box 10041
WELLINGTON
Delivered by email to info@electricitycommission.govt.nz
Dear Ron

Submission on Advanced Metering Discussion Paper

The Sustainable Energy Forum (SEF) welcomes the opportunity to comment before August 3rd (since extended to August 10th) on the Electricity Commission discussion paper “Advanced Metering” published on the EC homepage June 2007.

SEF considers this to be one of the more important papers for consultation addresses the fundamental issue of how to make the NZ power market more competitive. In this respect SEF strongly supports the main objective of this paper, that is in summary, to introduce Advanced Metering Infrastructure (AMI) in NZ as soon as practicable so that consumers can benefit from managing their own electricity consumption in ways that effectively compete with inefficient or uneconomic electricity supply. We attach a list of answers to the questions posed in your paper and offer the following general comments.

NZ has had very poor experience with light handed regulation in the power sector, because incumbent electricity suppliers can ignore guidelines that may disturb their control of the power market. Without true advanced metering infrastructure enforceable by regulation, active demand management cannot even establish a foothold in NZ. Retailers in particular will always look for means to establish monopoly power over their customers, and the supply of incompatible metering systems would help them lock in their customer base. This needs to be vigilantly resisted, for both the technology and the information used in billing the customer.

Electricity consumers must own the right to manage their discretionary load to obtain the highest value to themselves. It must be emphasized that consumers also own the metering (intellectual) information about their loads. The best way to ensure that there is no double counting by participants is to require meter owners to lease meters to consumers – and thereby enable consumers to make their confidential power usage information available to any suppliers of their choice.

Fully functional automatic metering infrastructure can overcome the existing "everything-or-nothing" approach of the ripple relay system, while the meter readings will (or should) enable the lines companies to price according to the loads imposed by the customers of individual suppliers. Regulations for advanced meters need to set a minimum standard to ensure

compatibility. A prospective new supplier will not want a customer if their meter produces data in a format, or via a specific communication channel, that only the existing supplier can digest. In addition, the benefits of making a major investment will be largely lost if the new meters have a disparate range of limited capabilities.

We anticipate that initially few customers can be expected to get involved in programming their meters; and appreciate that those customers wanting lower prices will need to tolerate a lower standard of service. However even a small amount of active demand management by consumers could make a real impact on cost of supply at times of extremely high load. This experience could provide the basis for retailers to offer a variety of products, under pricing pressure from the lines companies to moderate peak loads on local and national transmission, and generation, whether as pre-set tariffs or special offers made at times of shortage or surplus.

We look forward to your further deliberations on this Consultation and offer SEF membership support as required to clarify the basis for our concerns.

Yours sincerely

Ian Baxter

For The Sustainable Energy Forum Inc.

APPENDIX F: SUMMARY OF DISCUSSION POINTS

Question 1	Do you agree with the metering strategy outlined in section 3? Please discuss reasons for agreeing or disagreeing.	<p>In principle, yes. As a format for implementation most definitely no. (However for clarity there needs to be an one overarching objective on which the sub-objectives are based - see response to Q 8)</p> <p>Intelligent meters – and the national benefits that accrue through their use - have been recognized for several years; but their introduction to NZ has been continually stymied by the incumbent power supply industry. Accordingly this extremely important strategy should be recommending regulations rather than (what will be portrayed by the industry as altruistic but impractical) guidelines.</p> <p>Equal access to metering information using AMI (Automatic Metering Infrastructure) systems will enable both the supply and demand side of the electricity market to compete fairly for the benefits that will result from the revolutionary changes taking place in the electricity industry worldwide (but so far not in NZ). Countries such as Australia, Canada, Italy do not advocate AMR (Automatic Meter Reading i.e.without infrastructure backup) because these only increase supplier control of the power market (as demonstrated by the wasted AMR investment in the US).</p> <p>Furthermore NZ has had very poor experience with light handed regulation in the power sector, because incumbent electricity suppliers can ignore guidelines that may disturb their control of the power market.</p>
Question 2	Do you agree that competing demands for discretionary load could create a demand management issue for the industry? Please discuss reasons for agreeing or disagreeing. (<i>section 3: advanced metering and load management</i>)	<p>They shouldn't – the load demand curve today is significantly different today from what it was 10 to 30 years ago. Because of weather related events the supply-demand balance has never been entirely predictable and as a consequence power system stability will always depends on the availability and characteristics of reserve capacity.</p> <p>"Demand management issues" have more positive than negative connotations. Where electricity is used for heating or cooling, storage of heat or refrigeration can smooth out short-term generation fluctuations, especially for wind generation. Future battery and fuel cell storage technologies such as "Vehicle to Grid" applications are also likely to emerge in this decade. DSM will become increasingly important as gas-fired generation becomes less and less flexible. Relying on coal for flexibility would incur extra costs as carbon pricing inevitably enters the New Zealand economy. Demand management is a much better alternative.</p> <p>Eventually, electricity will be used more extensively for transport and energy efficiency programs, significantly affecting the character of the load curve.</p>

		Aggregation of DSM should reduce the obligation for retailers to hedge, opening them up to competition since there will be less pressure to maintain the linkages between the current vertically integrated generator-retailer oligopoly.
Question 3	Do you agree that certain areas such as consumers on AUFLS feeders, and certain type of controlled load should remain under the centralised load management carried out by distributors? Please discuss reasons for agreeing or disagreeing. (<i>section 3: advanced metering and load management</i>)	<p>We agree. Usually this type of load shedding is done in emergency situations triggered by under-frequency signals when it is too late to do anything else.</p> <p>Consumers on AUFLS feeders should in principle be compensated for any inability to offer their load into the demand-side market.. As up to 30-50% of small consumers may be so affected, this will remain a major issue for further discussion and negotiation.</p> <p>There is likely to be a growing market for load shedding effected through the internet, using wireless systems, telephone paging or power line carrier, but if this is inadequate the fallback position must be effected by lines companies using their automatic under-frequency load shedding (AUFLS) systems.</p>
Question 4	Do you consider that with the development of distributed load management within advanced meters distributors will have less incentive to maintain a centralised load management system? Please discuss reasons for agreeing or disagreeing. (<i>section 3: advanced metering and load management</i>)	<p>It is likely that distributors (Lines Companies (LCs)) will progressively phase out their outdated ripple relay control systems (used mainly for hot water switching) in favour of cheaper more innovative DSM operated, generally through the internet, by retail aggregators.</p> <p>The underlying fact is that with RR systems a consumers appliance cannot be switched off more than once at a time. Hence there is a problem in trying to use the control of that appliance for more than one purpose. If an LC has turned a water heater off to reduce loading on its lines, or to reduce its Transpower charges, the consumer cannot then gain any benefit from committing himself to turning it off for any other reason.</p> <p>Hence “economy tariffs” (with RR), give LCs the benefits of having control of the appliance, while blocking the consumer from doing so. If appliance control is to benefit other parties, including the consumer, and used to reduce other costs such as generation or to improve the consumer's living quality, the consumer must be given choices that go beyond RR, and this requires genuine AMI (automatic metering infrastructure)..</p> <p>It would be preferable instead to incentivise LCs to enter the DSM or DG market (e.g. by encouraging them to fund solar hot water systems). However this would require the Commerce Commission’s regressive ODV regulations to be amended to allow LCs to be credited for reducing losses or using their networks as facilitators of energy efficiency programs.</p>

Question 5	Is there additional advanced metering or load management capabilities that should have been included or noted? If yes, please discuss these. (section 3: advanced metering and load management)	Advanced metering should be provided with functionality and price signaling (i) to control relay switches that operate a consumer-chosen priority list of appliances; (ii) to track and aggregate the time-of-day two way power flows; (iii) to credit any negawatt flows due to fuel switching (e.g. when solar water heating is used to substitute gas or electric hot water);
Question 6	Do you agree that consumers will react to the price signals that advanced metering systems can deliver? Please discuss reasons for agreeing or disagreeing. (section 3: advanced metering and load management)	<p>Yes, if <u>and only if the following conditions are met</u>: (i) they were provided information to understand the public and potential personal benefit of doing so; (ii) they were given the pricing incentives to do so; (iii) the metering-control facilities were commercially available and simple to operate, (iv) consumers were enabled to reduce risks by being able to override preset controls when required.</p> <p>Retailers/ LCs who claim consumers will not react to price signals have never given them the opportunity to effect DSM measures. The billing information now provided obfuscates the detail, and confuses consumers about the benefits.</p>
Question 7	Do you agree with the objectives outlined in section 4? Please expand with why or why not. (section 4: objectives of advanced metering)	<p>Yes. If policies are designed to be implemented throughout NZ (through regulation) these objectives could bring about a paradigm shift in the way the power market will work.</p> <p>For too long the lack of functionality of outdated induction spinning-disk meters has provided a convenient excuse for incumbent suppliers to avoid revolutionizing the power sector. Just as Telecom is now having to adjust to the new ways of doing business in response to the internet revolution, Retailers/LCs (when they embrace the technologies) will also find also ways of profiting from participation in a new DSM market.</p>
Question 8	Are there additional objectives of advanced metering that should be added? If yes, please discuss these. (section 4: objectives of advanced metering)	<p>The objectives as detailed in section 4 are many and complex. It may be more appropriate to summarize the benefits outlined in section 4 in the form of a simple political objective that will ensure the implementation plan is not watered down by detractors.</p> <p>Perhaps the key Objective could be restated to say: “To introduce Advanced Metering Infrastructure (AMI) in NZ by 2012 so that consumers can benefit from managing their own electricity consumption in ways that effectively compete with inefficient or uneconomic electricity supply” – or words to that effect.</p>
Question 9	Do you consider that there is an issue to be addressed on ownership of discretionary load on a consumer’s premise? Please discuss why you agree or disagree. (section 7.2: load	<p>There is no issue: The Electricity Commission confirms that consumers own the right to manage their discretionary load to obtain the highest value to themselves. It must be emphasized that consumers also own the metering (intellectual) information about their loads. This principle applies to most other commercial transactions including credit cards, bank accounts, etc</p> <p>As noted in Q2 above the character of the demand curve will undergo significant changes before</p>

	<i>control)</i>	<p>an AMI program can be fully implemented. Most load management activity in NZ is currently controlled by antiquated ripple relay (RR) power line carrier systems (hereby acknowledged as a redoubtable pioneer for the development of systems such as Telecoms ADSM broadband).</p> <p>Automatic load shedding by LCs has limited ability to discriminate between critical and non critical loads. Modern communication/ control systems are already using internet/ wireless communication that will price RR systems out of the market. Protests (usually by LCs trying to minimize the stranded costs of their old RR systems) are simply a means to frustrate progress into areas of technology that they are not familiar with.</p>
Question 10	Do you consider that the beneficiaries of information from advanced meters should pay for access to the information outlined in section 7.3? Please discuss why you agree or disagree.	Ultimately consumers will pay any new cost for metering – just as they are now paying to retain old meters that preserve the status quo of competition within the industry. If, as suggested in 7.3, LCs are identified as main beneficiaries of AMI, then they will simply pass on both the costs of metering and the savings achieved by optimizing the use of their networks. See also response to Q14 below.
Question 11	Do you consider that remote disconnections for credit issues should not be carried out? Please discuss why you agree or disagree. (<i>section 7.4: credit control and vacant premises control</i>)	Usually disconnection arrangements are negotiated between retailers and customers over 2-6 weeks; there is ample time for adequate customer contact and consequently there is no need to effect high speed disconnects using modern communications systems.
Question 12	Do you consider that remote connections may require the consumer accepting responsibility for the restoration? Please discuss why you agree or disagree. (<i>section 7.4: credit control and vacant premises control</i>)	Likewise for the reasons above there is no particular urgency to reconnect remotely – unless of course the line company considerably reduces the penalty charge for having to do so!
Question 13	Do you agree with the discussion on costs outlined in section 7.5? Please discuss why you agree or disagree.	Meter charges cover both the capital (typically a one off cost of about \$50 installed for residential consumers) and regular manual reading costs. Since existing meters have been paid for long ago the stranded cost of having to discard old meters should not be an issue; and since existing meters require little maintenance, the main component of the current meter cost is that of organizing and reading meters. Although AMI meters are currently a little more expensive (typically \$100/meter) than induction meters, they should be virtually maintenance-free, so there will considerable saving in meter reading. Internationally accepted communication protocols are

		well established in IEC (International Electrotechnical Commission) standards (http://en.wikipedia.org/wiki/IEC_62056). Any further discussion of the “costs” issue sounds like a red herring to obstruct implementation!
Question 14	Do you consider that costs should be allocated to the beneficiaries of advanced meter functionality? Please discuss why you agree or disagree. (<i>section 7.5: costs</i>)	<p>The entire power sector and the nation will be beneficiaries of AMI metering. Generators will be able to delay investments, retailers will be less dependent on hedging, line companies will be able to optimize their networks, consumers will get lower prices - and the Government obligations relating to the Kyoto Protocol will be reduced.</p> <p>For the reasons noted in Q 9 above it would be a self defeating exercise to apportion the cost and benefits of metering to each participant in the market. The best way to ensure that there is no double counting by participants is to require meter owners to lease meters to consumers – and thereby enable consumers to make their confidential power usage information available to any suppliers of their choice</p>
Question 15	Do you agree with the discussion on safety issues? Are there any other safety issues that should be considered? Please note and discuss these in your submission. (<i>section 7.6: safety</i>)	Yes. Replacing meters many of which have been exposed to adverse weather or other environment damage should provide meter owners with the opportunity to perform the inspections (that they should have been doing anyway on a periodic basis – eg 1/5 yrs)
Question 16	Do you agree with the discussion on switching? Please discuss any issues in your submission. (<i>section 7.7: switching issues</i>)	Yes. This doesn't appear to be a significant issue.
Question 17	Are there any other switching issues that should be discussed? Please discuss these in your submission. (<i>section 7.7: switching issues</i>)	Be wary of any new issues that are raised by the industry to delay the introduction of AMI metering.
Question 18	Do you agree that there is a potential for advanced meters to create barriers to trade? Please discuss why you agree or disagree. (<i>section 7.8: barriers to competition</i>)	Yes. The sort of petty behavior described in this section provides a very strong reason for regulation rather than guidelines. The use of a meter to restrain competition should be taken up as a serious issue for the Commerce Commission.

Question 19	Do you agree with the solutions to barriers to competition outlined in section 7.8.2? Please discuss why you agree or disagree.	Yes. They are all standard solutions – but should be backed by the force of regulation.
Appendix B, Question 1	Do you agree with changing the metering installation definition in part A of the Rules? Please discuss why you agree or disagree. (<i>paragraphs 3, 4, 5, and 6</i>)	Yes. The current definition that separates functions is clearly open to abuse in controlling the use of information provided by the meter. The communication function presumably relates to the link between the meter and the main communications link (e.g. internet modem) that would be the responsibility of others.
Appendix B, Question 2	Do you agree with not having any changes to rules 3 and 6 of part D of the Rules? Please discuss why you agree or disagree. (<i>paragraph 7</i>)	Yes. It would make little sense for anyone other than the meter owner to be responsible for the validity of its operation.
Appendix B, Question 3	Do you agree to changing rule 3.8 of code of practice D3 of part D of the Rules? Please discuss why you agree or disagree. (<i>paragraphs 8 and 9</i>)	Yes. Although it is not clear why this provision isn't already in place.
Appendix B, Question 4	Do you agree that appropriate controls be placed within advanced metering installations and that it is reasonable to extend the inspection period beyond one year? Please discuss why you agree or disagree. (<i>paragraphs 11, 12, and 13</i>)	Yes. This provision may be waived over time once users of AMI metering get used to the new market situation.
Appendix B, Question 5	Do you agree with not changing rule 3 of code of practice D4 of part D of the Rules? Please discuss why you agree or disagree. (<i>paragraphs 14 and 15</i>)	Yes. Software changes are easy to hide and must be tested independently before being returned to service.