

30 April 2010

Lisa DuFall
Electricity Commission
Level 7, ASB Bank Tower
PO Box 10041
2 Hunter Street
Wellington

Dear Lisa,

RE: Amendments to the advanced metering infrastructure guidelines

Please find attached Energy Market Services' submission to the Electricity Commission's Consultation Paper - *Amendments to the advanced metering infrastructure guidelines*.

As an independent service provider to the New Zealand electricity industry, Energy Market Services (EMS) views these guidelines as important step in maximising the benefits of Advanced Metering Infrastructure (AMI).

AMI is a cornerstone enabling technology for smart grids - if implemented with an eye on the future. EMS commends the Commission on progress made towards putting standards in place and welcomes the opportunity to provide feedback into the development process.

The Commission's consultation paper includes some interesting questions and the changes proposed demonstrate that an evolutionary process is happening within the New Zealand AMI environment.

New Zealand industry has proved repeatedly through history that it is capable of delivering world leading products and services through innovative thinking backed by intellect and experience. Those innovations were often developed through necessity due to a lack of capability in existing products from offshore, New Zealand market nuances or geographic isolation.

The New Zealand electricity has developed its own innovation sub culture with examples such as the Energy Information Exchange Protocols (EIEP). As a result we have some very New Zealand-specific data exchange protocols that fit most current purposes of our industry. EIEP development has been largely resourced by volunteer industry representatives with the Commission providing guidance, oversight and operational support.

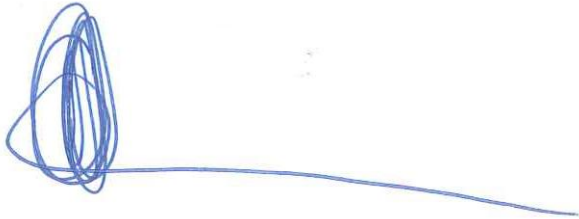
Working in parallel with the New Zealand effort are initiatives such as those driven by the US National Institute for Standards and Technology (NIST). NIST received USD10m of US Department of Energy stimulus funding to coordinate development of a framework for smart grid interoperability.

Although New Zealand has been a leader in AMI (and still is in many instances) we are in danger of rapidly falling behind in standards and the technology curve as a result of our bespoke efforts.

To mitigate this risk the Commission could leverage the efforts of organisations like NIST rather than duplicate the effort and produce New Zealand-specific guidelines and standards. EMS recommends that the Commission strongly consider alignment with international standards development to ensure that the New Zealand industry not only benefits from international developments but can remain in front of the technology curve by becoming active in AMI international standards development.

This is an exciting period for the New Zealand industry so EMS keenly awaits development in this area with leadership from the Commission and the maturity of guidelines and standards that focus innovation efforts and pave the way for growth in our industry.

Yours faithfully,

A handwritten signature in blue ink, consisting of a series of overlapping loops and a long horizontal tail extending to the right.

Quintin Tahau
Service Deliver Manager
energy market services limited

Question No	Question	Response
Q1	Do you agree that AMI systems should be capable of sharing infrastructure? Please give reasons.	Agree. Where possible, an AMI should be capable of multi utility metering to avoid unnecessary duplication of infrastructure.
Q2	Do you agree that, regardless of whether a distributor wants to make use of information from an AMI system at the time that it is installed, the capability should be made available, for those distributors that wish to pay for this access? Please give reasons.	Partly Agree. This question assumes that the users of AMI systems are limited to retail and distribution and also limits the purpose of an AMI as an information source. AMI is a cornerstone enabling technology for smart grids if implemented with an eye on future requirements. An AMI that purely focuses on remote collection of revenue data should be classed as an AMR, not AMI. Control functions and access to data within an AMI could also apply to other parties such as demand aggregators, intermittent generation providers or the System Operator. Other users may have a future requirement.
Q3	Do you agree that, as a minimum, both the distributor and the retailer should be consulted by the AMI systems provider when an AMI system is being initially installed or replaced? Please give reasons.	Disagree. As a minimum, the local distributor should be consulted any potential AMI systems provider as part of the AMI design and planning process. This is to avoid any potential conflict with planned network maintenance and development programmes that may impact on the AMI. Experience in a number of international jurisdictions has shown that end user engagement is an essential step in the success of an AMI rollout. Customer engagement should form part of any consultation/communications programme. Revenue metering requirements and the associated obligations are well documented within the EGRs (Parts D, E, G and J). Assuming that retail / and generation obligations are covered, retailer consultation is not essential.
Q4	Do you agree that the AMI system installed should meet all potential users' requirements? Please give reasons.	Agree. As a minimum an AMI system should be capable of meeting international interoperability standards such as those under consideration by NIST (the US National Institute of Standards and Technology), ie, the Common Information Model (CIM) includes IEC 61968-9 and Multispeak.
Q5	Do you agree that advanced meters should be replaced only if there is a functionality or price reason for the replacement? Do you agree with the proposed wording in the Guidelines or do you have suggestions for alternative wording? Please also give reasons.	Disagree. While economic theory may apply in Utopia however it does not consider consumer choice or commercial and regulatory issues such as an underperforming AMI provider.
Q6	Do you agree that all AMI systems should have half-hour data capability as well as programmable time of use registers? Please	Partly Agree. This question assumes that the use of an AMI is limited to retail billing and reconciliation purposes. More granular and flexible measurement is required for AMI to be used as resource in the reserves and interruptible load markets. This also applies to future

	give reasons.	potential capacity based mechanisms such as Grid Support Contracts where event based metering is required.
Q7	Do you agree with the clarification that there should only be one party that operates the AMI system and that access should be via standardised formats? Please give reasons.	Agree. One party should be responsible for securing, operating and maintaining an AMI. Access to resources within an AMI should be managed via standard interfaces to maximise interoperability potential. EIEP is one option however international standards should be adopted where possible.
Q8	Do you agree that the services access interface should have access and security provisions? Please give reasons.	Agree. An AMI should comply with and leverage international AMI security standards. <i>Security Profile for Advanced Metering Infrastructure, v 1.0</i> provides guidance and security controls to organisations developing or implementing an AMI.
Q9	Do you agree with the proposed recommendation that there should be sufficient memory and processing capability installed? Please give reasons.	Agree. Although the guidelines should specify parameters to ensure that meter manufactures have something more definitive to develop to. An example is the ANSI C12 suite of standards, in particular ANSI C12.19 2008.
Q10	Do you agree with the proposed recommendation for interoperability with other utility devices? Please give reasons.	Agree. Interoperability is essential with other utilities to minimise the risk of unnecessary duplication of infrastructure. While an electricity meter may not be capable of measuring water or gas flow, gas and water meters should be able to 'plug in' to an AMI using standard interoperability protocols.
Q11	Do you agree that voltage and current should also be available as meter register information? Please give reasons.	Agree. As a minimum, this type of non-revenue information should be available and recorded in the meter logger.
Q12	Do you agree that the meter event log should include instantaneous values that are triggered perhaps by a threshold or an application running within the meter? Please give reasons.	Agree. This type of information is useful for customer supply analysis, theft detection, event analysis and network planning purposes.
Q13	Do you agree that the event log should be operated on a first on/first off basis? Please give reasons.	Agree. However event log data should be available from an alternative source such as a historian or an MDM.
Q14	Do you agree with the advantages in the management of existing hot water load control in the Guidelines? Please give reasons	Agree. Existing load control by distributors supports the ability to operate their networks without large additional investment in supplementary equipment capacity. Additional load control opportunities, possible via advanced meters, should be sought by the industry as a whole, including distributors, retailers, generators (backup for lost generation) and transmission. The ability to control that additional load should be decided by discussions and negotiations between these parties. This should take into account the source and delivery path of energy

		that is being replaced and the investments required to provide the control capability.
Q15	Do you consider that all advanced meters should have the ripple receiver built into the device? Please give reasons.	Disagree. This should not be mandatory. There are other mechanisms available to control load within a house.
Q16	Do you agree with the clarification that illustrates two modes of consumption behaviour that can be controlled? Please give reasons.	Disagree. Many other mechanisms exist to manage demand response. One example is a device that can take a signal (such as KYZ pulse) from a meter which is then connected to an in home control mechanism via the internet. Commercially available systems exist and are used by demand aggregators to control consumer devices such as smart thermostats for domestic heating systems.
Q17	Do you agree that access over the services interface should be via standardised formats for all users of the AMI system? Please give reasons.	Agree. International interoperability standards such as those under consideration by NIST include the majority (if not all) service interfaces for an AMI. These standards define information exchanged among control centre systems using the Common Information Model (CIM). They define application-level energy management system interfaces and messaging for distribution network management.
Q18	Do you agree with the clarification that there may be settlement information contained within event logs, and that the same data storage requirements as required under the Rules, should relate to this information also? Please give reasons.	Agree.
Q19	Do you agree with the clarification that the connection of the HAN to an AMI system should not require replacement of the advanced meter, should not reduce the integrity of the metering installation, and should be a simple connection type such as a plug or radio connection? Please give reasons.	Agree. As with many other smart metering standards, this is an area under with significant resources committed internationally. Standards such as OpenHAN exist that specify this type of detail.
Q20	Do you agree with the proposed update to these minimum attributes, as the advanced meter must be capable of providing this information to the customer display? Please give reasons.	Partly Agree. Market data (such as price) should not be required from the meter as it is not the primary data source.
Q21	Do you agree with this proposed security recommendation? Please give reasons.	Agree. The business rules outlined are sensible.

Q22	Are there other security recommendations that you consider should be included? Please give reasons.	Where possible the Commission should consider standards from other jurisdictions. For example: <i>Security Profile for Advanced Metering Infrastructure, v 1.0</i> - provides guidance and security controls for AMI solutions. The Advanced Metering Infrastructure Security (AMI-SEC) Task Force was established under the Utility Communications Architecture International Users Group (UCAIug) to develop consistent security guidelines for AMI.
Q23	Do you agree with these proposed amendments? Please give reasons.	Agree. However there is additional operational data in this category that could have value to many parties such as Outage/Restoration Reporting, tamper detection, disconnect count, power quality reporting etc.
Q24	Do you agree with the proposed real time event notification functionality? Note that this could be for voltage or current alerts. Please give reasons.	Agree. Although often the limiting factor in an AMI is likely to be the communications network rather than the meter, so the AMI should have a capability to prioritise real-time events in a real-time manner.
Q25	Do you agree with this proposed reference? Please give reasons.	Agree. This is consistent with the provisions in the EGRs (Part D Schedule D1 Code of Practice D3 4.1).
Q26	Do you think the Guidelines should recommend what action to take should an AMI system not be able to be installed because it does not comply with the Electricity Regulations 1997? Please give reasons.	Agree. This is consistent with the provisions in the EGRs (Part D Schedule D1 Code of Practice D3 4.1).