Electricity Distributors Association Commentary on OEB's Discussion Paper

General Comments

The decision to proceed with Smart Meters for Ontario is a large, costly and ambitious project involving a diverse customer base. As the Board has set out the process in its July 19, 2004 letter, the implementation should be done with care and consultation while recognizing that targets are challenging.

The OEB's Staff Discussion Paper on the *Implementation Plan for Smart Meters in Ontario* was a helpful means to logically consider the challenges and to begin to break down the issues. The EDA and Distributors look forward to co-operate in an implementation plan that the industry has embraced.

The smart meter installation efforts should be directed initially to the over 50 kW commercial and industrial customers which do not already have interval meters installed. The technology for the metering and settlement is already in place and has proven itself. These energy users can pay the spot market price or sign on with a retailer. With the largest loads, these customers can deliver the most demand response and receive in return the largest benefits. It would also ease implementation efforts to target industrial parks and downtown areas first.

New connections (residential, commercial, industrial) should also require advanced meters. When a suitable energy savings plan is formulated and pilot projects proposed for the residential market are in place, these newly connected residential customers will be automatically included in the pilot projects. In addition, consideration should be given to change the building code and ESA requirements to require smart meters for all new homes and / or service upgrades.

Each of the OEB's questions that are posed in the discussion paper is addressed in turn.

(1) Costs, Cost Recovery and Savings

It is important to understand what all the costs are. In general, each set of benefits comes with a cost and the entire infrastructure underlying each meter needs to be considered. We can identify the cost drivers as follows:

- the selected meter itself
- the communications infrastructure
- meter reading in whatever form that takes including final reads and re-reads
- data management
- data manipulation
- staff time to follow up on unresponsive meters
- consumer education
- customer calls and questions about the new technology and the potential rate increases they may cause.

For cost recovery, LDCs support a rate base approach, which takes into account the physically installed meter as well as the associated costs mentioned above. LDCs can pay for the costs of implementing smart meters through a gradual increase funded by all customers since the benefits of demand response do benefit all customers. It also avoids the problem of customers raising concerns that they do or do not want a smart meter because they do not want to pay a separate smart meter charge.

Even with an LDC-supported rate base approach to cost recovery, upfront money will be crucial to kick-start the process. We recommend that the OEB's 2005 rate plan, expected to take effect in March or April 2005, include a component for smart meters in recognition of an ambitious implementation schedule.

Cost savings will vary for each distributor depending on their current practices, cost structure, customer types, mix and density. For example, today's typical LDC meter reading cost of between 30 cents and up to 75 cents does not leave lots of room to provide significant cost savings. Only recently has the smart meter technology arrived to a point where we can begin to consider whether cost savings approximate the costs, otherwise, we would have smart meters already. Therefore, proven savings need to be known before there is full-scale implementation. In cases where there is theft of electricity, the problem may not necessarily be reduced, especially when the customer continues to tap into the line ahead of the meter. The Board's paper notes that smart meters will mean fewer estimated bills. This may not necessarily result in a cost saving because estimates can be made quite accurately.
In some cases, smart meters may never make sense and exemptions should be considered. For Remote customers in areas where diesel generation is used, the diesel fuel costs the same in peak or in off peak periods. Also, for railway crossings or signs, there is no demand response benefit by installing smart meters. There are other cases, perhaps at spartan vacation properties where the customer's load is very low or on remote islands, where exemptions would save money.

(2) Pre-payment Meters
Pre-payment or pay-as-you-go meters have demonstrated statistically that that pre-pay customers use less energy than non pre-pay consumers. This helpful result should be preserved. If some future technology development provides bi-directional capability for pay-as-you-go meters, upgrades could be considered at that time.
It is not, however, the feeling of distributors that pre-payment meters with bi-directional capability should become the metering standard.

(3) Time of Use (TOU) Meters
The Directive, as written, can only permit interval meters and not TOU meters in order to respond to Critical Peak Pricing (CPP). The serious concern raised by a number of LDCs is that interval meters introduce significant operational risks. Some customers do not have telephones; some customers do not always pay their phone bill; wireless technology

is not available in many parts of the province. If there is an insistence on interval meters by decision-makers, the rollout should proceed very slowly, it should involve larger customers first and it should proceed in areas where the supporting technology is available. One of the features of whatever meter is selected is that the meter should include an ability to permit manual meter reading, especially if more automated systems fail.

(4) Bi-directional Communication

If the decision is made to invest large sums of money to install interval meters everywhere, we need to ensure that there are some savings by not having to have meter readers visit these meters regularly. If deemed mandatory, bi-directional capability is a very costly proposition to install for the more remote customers. In fact, bi-directional capability is simply not available in many parts of the Province. There may be other means to provide the bi-directional capability and benefits without incurring most of the costs. A combination of the use of a website, text messaging, newspaper notices, in-home display, meter display or a standard meter interface that allows pulses from the meter to be streamed to provider(s) who could profile any customer's usage into pre-formatted reports without compromising data security or integrity. For interval type meters, bi-directional communication is not required to change meter parameters because billing hubs and engines are designed to apply different rates to usage over time. Therefore, if interval meters are the standard, bi-directional communication should be directed at the consumer, not to the meter. Field trials may prove to be instructive in the determination of bi-directional communication.

(5) Contestability / Ownership of Meters

LDCs believe that the LDC / customer relationship should be preserved throughout the implementation of this initiative. LDCs should continue to be responsible for the meters and remain the billing agent regardless of what type of meter is used. LDCs may use third parties at their sole discretion for individual business reasons. The types of concerns LDCs have are ones that relate to installation and meter quality, compatibility, power system security and cyber security plus each provider's co-ordination with each LDC. There are operational reasons why LDCs should have continuous access to customers' meters for such reasons as service upgrades and disconnections. Witness the recent example in Peterborough where in a flood situation, the local LDC had to disconnect 600 services at the meter base in one day to facilitate the safety of residents and to permit recovery efforts to begin. If other meter providers or their agents had somehow blocked LDC access to the meter, customers would have been placed at risk. As agents of DSM, LDCs are best positioned to coordinate the implementation of smart meters in conjunction with the DSM activities of customers. If the contestability goal were defined as helping to promote customer access to the meter data itself, then access to the meter pulses would facilitate valuable contestable services without compromising any ability for LDCs to guarantee timely and accurate meter data collection required to clear the market. We do not want to repeat the experiences of the Ontario wholesale

market where now only a few providers remain and no provider wants to service the remote and hard-to-serve customers.

(6) Installation Requirements

The goal of installing 800,000 meters will be a challenging target. It will require the confluence of an early decision on the specifications and meter functions for the selected meter, quality manufacturing and delivery of that meter in sufficient numbers and in sufficient time to achieve the installation targets. To be workable, we also require the development of the types and methods of billing and settlement. To this end, we could learn from any number of ongoing pilot projects.

The discussion paper cites Enel in Italy as installing 40,000 meters per month. We believe the discussion paper has erroneously cited this level of activity. We believe Enel's installation rate to be around 40,000 meters per day not per month. At 40,000 per month, it would take them several decades to complete the installation. What are missing are the history and the steps and missteps it has taken Enel to get to this point. Enel commenced pilot projects in the early 1990s and a completely installed system involving 70,000 customers was abandoned due to the availability of more competitive technologies. We can and should learn from Enel and others who have gone down similar paths. In addition, metering and communicating systems that work for Europe may not be the most feasible for the Ontario energy market.

Assuming 800,000 meters are installed by 2007, existing and outsourced resources may be stretched to complete the task of smart metering the entire province by 2010. Another potential concern is that CIS vendors may have difficulty in meeting all the required changes.

The government could easily change the targets based on the results of the experimentation conducted over the next year or two.

Other Comments

Meter Life

We have come to expect a lot from the $45 electro-mechanical residential meter with respect to accuracy, reliability and operating life. It is still uncertain what the life cycle of an electronic meter is compared to the electro-mechanical types. Electronic and especially advanced meters will no doubt increase the overall cost of metering. Operating costs will be substantially higher if advanced meters are not allowed to be seal-extended under Measurement Canada's compliance sampling polices. Replacement costs will be substantially higher simply because these meters aren't going to cost $45. Also, with the increased number of active features programmed into the meter, sealing fees may be higher. It may become more economical upon seal expiry to scrap and replace electronic residential meters rather than retest and reseal. Meter re-verification has the potential to become a significant problem because the shortened sealing periods for electronic meters will cause overlap among the meters that are installed early in the

process and the ones which have installations to occur later in the process (eg. depending on the seal periods, a meter installed in 2005 may have to be re-verified or replaced in 2009, the same time that new meters are being installed). In addition, it needs to be clear what the write-off period is for each model of smart meter compared to the 45-year life of today's electro-mechanical meter.

Demand / Supply Balance

Efforts to reduce consumption using smart meters and other initiatives are ultimately to ensure an adequate supply of energy. Therefore, it is crucial that the data and information provided by OPG and other generators are as complete and accurate as possible. For example, prior to market opening, a surplus of generation was reported—this was later found to be incorrect. Users must have confidence that the demand / supply balance data is valid or else attempts at encouraging users to buy into smart metering and to reduce energy consumption over the long term will ultimately fail.

Large Volume Purchases

Once the base functionality for meters is established, individual LDCs should be able to choose which technology works best for them and their community. To the extent there is a convergence toward particular products, LDCs can cooperate to utilize their collective buying power to strike the best price for their choice(s) of meter.

Measurement Canada Role

The role that Measurement Canada will take in approving smart meters is a critical upfront requirement. It is essential to have representatives from Measurement Canada on any Working Group to be established this summer and fall.

Self Selection

The rollout of smart meters needs to be prioritized such that neighbourhoods receive the meters and not just keen customers in scattered pockets around the province. Otherwise, costs will be much higher, implementation will be more complex and demand response results will not be improved. It is also relevant to consider the underlying and available telecommunication needs in coordination with the smart meter installation.

Effects on the Workforce

Currently, meters are read by a combination of staff and / or contract meter readers. We understand that some labour contracts involve clauses regarding limitations on contracting out. As new technologies involving telephony and radio frequencies are employed to serve the same function as these meter readers, there will be created a human resources issue that will need to be handled. While perhaps transitional, there could be impacts on operational costs and timing of the smart meter deployment.

Next Steps

- The EDA and LDC representatives as well as Measurement Canada should be represented on every Working Group Committee.
- A number of field trials should be essential to a project of this scale and cost. Ideally, a large-scale installation in a large LDC would be targeted first in order understand all the benefits, costs, difficulties and customer reaction.
- In considering these issues, it is important to also adjust the relevant portion of any legislation or codes, which may restrict or impede smart meter installations. For example, the DSC allows a customer to request an electronic meter, as long as he pays for it. To ensure a smooth implementation, this current entitlement should be suspended so that an LDC's deployment of meters is not interrupted by the well-meaning requests of scattered customers. In addition, the Retail System Code permits access to the meter – if access is not properly defined, this could pose a problem in empowering bi-directional communications.

The EDA is pleased to put forward its initial thoughts on this significant issue and looks forward to participating with other stakeholders in helping to achieve the best metering solution for the province.