



January 7, 2005

Peter H. O'Dell  
Ontario Energy Board  
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Dear Mr. O'Dell

Re: File RP – 2004 -0196, Smart Meter Initiative – Further Consultations

Thank you for this opportunity to respond to your questions regarding two-way communication.

Elster Metering is a major supplier of electricity meters and advanced metering systems to Ontario and the Canadian Utility Market.

The questions raised are important ones – the Province is embarking on a major investment and we need to start out right. The challenge is that no one can (nor should try to) define today all of the requirements, needs and expectations that will arise over the life of the SMS.

Elster believes, therefore, that consideration must be made to allow as much future flexibility as possible for the Smart Metering System. Two-way communication in the SMS can only enhance that flexibility. At the same time, significant operational benefits are realized immediately when two-way systems are chosen vs. one-way systems.

### **What are the Benefits and Drawbacks of mandating a two-way communication system?**

Ultimately, two-way communication is required to each and every customer on the metering system. One direction to read the meter – and the other direction to provide, as a minimum, information back to the customer in various formats. The question really is whether the METERING SYSTEMS ITSELF should be a two-way system. The current drafted minimum requirements of the OEB can be achieved with one-way communication in the metering system.

### **Benefits to two-way communication in the metering system;**

There are some communication functions that are best handled by other media than the SMS (daily feedback of profile data for example) but there are many other functions in which the SMS can provide an important channel to the customer, and especially to the meter itself.

Ontario Utilities will be investing in a technology that they will rely on for perhaps the next 20 years or more. It is not clear at this time what opportunities and requirements will arise over that time, but certainly having the metering system allow two-way communication provides immediate operational benefits and, perhaps more importantly, as yet unknown potential benefits that will reduce the risk of a stranded asset – something Ontarians are all too familiar with

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Implementing two-way systems today will reduce the chance of obsolescence down the road. While data presentment and even load control may be done over a separate channel other than the SMS, **only two way communication to the meter over the metering system will allow;**

- ❑ the ability to adjust meter and communication settings remotely
- ❑ future upgrades to meter software
- ❑ software bug fixes at the meter (think Microsoft upgrades)
- ❑ synchronize metering time clocks system wide
- ❑ do on demand reads – a significant business case driver for operations and for customer service personnel
- ❑ enhanced outage and restoration management capabilities by accessing “real time” data
- ❑ implement and realize the multiple benefits of CPP using TOU at the meter (reduced data management, reduced communication costs, simplified VEE, improved audit trail, etc.)
- ❑ obtain positive feedback (confirmation) of meter commands and communications being received and executed at the meter level
- ❑ adjust meter parameters such as interval length, TOU buckets, etc.
- ❑ set threshold demands for load curtailment, prepayment and delinquent accounts
- ❑ confirm disconnect and reconnect operations
- ❑ enablement of future options within the meter for added services
- ❑ a channel and/or additional bandwidth into the customer location for current and future exploitation

Several of these functions can be significant contributors to reducing the operating cost of the Utility immediately, not to mention enhance customer service capability. The benefits noted above **cannot** be realized with one-way systems.

### **Drawbacks to mandating two-way communication.**

Potentially fewer suppliers. However, in most cases this only limits older technology solutions. There are several suppliers and technologies that can provide two-way SMS technology and hence choice for the Utilities, so this is not a major issue.

One might argue that *potentially* there is a higher cost than a basic one way system. This is not at all necessarily true, especially if one considers operational benefits over the life cycle of the SMS.

### **Recommendation;**

Elster believes that Ontario needs choice and flexibility in selecting solutions to make the SMS initiative a reality.

Elster recommends that rather than eliminating the possibility for one-way systems, that the OEB encourages two-way systems by allowing Utilities to de-emphasize initial capital cost only, and be allowed to take a unilateral strategic and operational decision in selecting two-way SMS considering the above benefits. Most notably, Utilities be allowed to consider the somewhat intangible (but enormously expensive) reduced future risk for a stranded asset by choosing a two-way system in the first place.

## **2. In the event of Province wide two-way communication, should electricity providers be responsible for operating the communication network?**

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This needs to be considered at several levels. Most if not all systems will use public networks at some point in the communication channel (e.g. cell phone) which obviously the Utility shouldn't operate. As well, capable smart metering system service providers will be offering smart metering services and will own part or all of the SMS.

Therefore, the electricity providers should not necessarily operate the communication network.

However, wide open access to third parties is also not practical as it may interfere with the operation and data retrieval of the SMS. Usage of idle bandwidth in the SMS should be encouraged, much as Utilities might sell off bandwidth on their fibre system, as this can help reduce or mitigate costs to stakeholders.

The entity responsible for gathering the meter data, must have some level of control as to what the system can be used for beyond metering.

### **3. If not, how should a communication operator be selected?**

As metering remains bundled, the responsibility for metering and collecting the data shall rest with the LDC. They may also choose to outsource this function.

Therefore the emphasis should be on the Utility to get the data and meet the minimum requirements of the OEB. The Utility should be able to select the communication operator of which there may (will) be several involved (including themselves), with the mindset of ensuring that the meter data requirements are met.

The IMO model where MSPs are used by MPs may be drawn upon here.

### **4. How would rates for the communication operators be set and or collected?**

This should be done on a competitive basis. Telephone companies will compete for the WAN applications where applicable. Where the Utility is owning and operating the WAN or LAN portion of the SMS, then excess bandwidth (after meter data requirements are met) should be dealt with as a retail service, to avoid cross subsidizing. Precedent with fibre exists for this case.

### **5 If there is a two-way communication network, would an open data protocol aid the development and availability of end devices and services?**

The simple answer is yes – this is the Holy Grail – infinite bandwidth on an open protocol to every home and business at low cost. The practical answer is no – not in the foreseeable future.

Protocols tend to be significantly dependant on the communication medium. What makes sense for radio may not work or make sense for power line or telephone. It has already been clearly established that several communication mediums (of which public wireless changes every few years) will be required to serve the market needs of Ontario.

Trying to create, devise or force an open protocol across a province wide communication network will delay the project significantly. Ontario will not achieve its conservation time-line goals.

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There are several layers to consider here. Firstly on the WAN, where most systems will use wireless public networks at some point in the chain, Bell is not compatible with Rogers. Furthermore, these systems are expected to change over the life of the SMS.

On the in home automation side, is the standard Blue Tooth, CE bus, Lonworks, Zig-Bee, Wi-Fi, Wi-Max? Not all will work equally well in all locations. Competitive forces continue to drive down these costs and enhance these technologies.

From a meter perspective, Elster metering practices a concept of open protocols – we make our protocol available to third parties.

Efforts have been made to develop open protocols for meters. In our C&I meters (collectors) we use an open protocol (ANSI 12.19 & 12.21) on the WAN side that is also used by our competitors. This protocol took over 7 years to develop under the guidance of ANSI (American National Standard Institute) and is today seldom specified and even more seldom used by Utilities.

This ANSI protocol is also totally unsuitable for residential applications for several reasons. So we would be essentially starting all over again for a residential solution – a delay of several years at best, assuming that it can be seen to be doable or of sufficient value. Furthermore the wide variety of communication options for residential applications will not allow “one protocol” to satisfy all requirements equally effectively. Consider that the final link to the home could be cable, telephone, Ethernet, radio, Wi-Fi, power line carrier, BPL, etc. Each communication medium will have optimal “protocol” requirements.

While metering systems and meter protocols at the residential level may be proprietary to some degree today, this is only one part of the overall SMS and is not unlike a Utility or business committing to any enterprise system (e.g. SAP or Passport) or a radio dispatch system (Motorola, GE). Every day market forces are driving more interchangeably between vendors in all of these areas.

Global market demands must be allowed to drive development and convergence in these areas. Trying to force this process at the Ontario level would kill the SMS initiative and hence the required benefits to the Province.

What should be focused on are the data interfaces at the SMS head end, to allow various legacy systems and third parties to interface with a variety of offerings for different portions of the system (repository, CIS, billing, validation, etc.) A standard file format at the collection system (much as was done with the Ontario Hub) would allow ease of information flow amongst stakeholders, and increased vendor variety. This work can be completed within the time frames required to enable, and even increase the certainty of the SMS initiative.

We trust you will find these comments useful and invite further discussion at your convenience.

Yours Truly,

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