



Itron Canada  
6700 Century Ave., Suit 100  
Mississauga, ON L5N 2V8

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Dear Sirs:

Itron has been actively involved in the Ontario Energy Board's policy development and stakeholder consultation process related to the development of the province's Smart Meter Initiative. In particular, we have participated in the meter communication-working group since September 2004 with a number of other representatives from the metering sector, including vendors, local distribution companies and others. These include representatives from three significant vendors of meter communications equipment. The group discussed the technical and operational merits of adopting a two-way communication system at length, and the draft report received on November 9<sup>th</sup>, 2004 reflects the consensus position that we were able to achieve. Although our preferred position is found in this report, we have chosen to respond to your request of December 21, for further comment on this specific issue.

Itron supports, and has worked towards achieving, the aims of the Smart Metering Initiative as stated by OEB:

1. Promote a culture of conservation among the electricity users
2. Provide a cost effective solution to promote this culture without burdening the consumers with unnecessary costs

Itron is committed to assisting the Ontario Energy Board in addressing this issue of two-way communication systems raised in this letter and would be pleased to discuss our comments on this issue in more detail as part of the working group process or in some other forum.

1. What are the benefits and drawbacks of mandating a two-way communication network?

Two-way communication is usually referred to as the ability of a network to be able to communicate with a meter for the following activities:

- 1) Collect *off cycle* meter reads (often termed as "on demand read")
- 2) Reprogram the meter to change TOU bins and add Critical Peak pricing bins



Meter communication systems are made up of two networks, a local area network (LAN) between the meter and the concentrator(s) and a wide area network (WAN) between the concentrator(s) and the head-end where all of the reads are collected. All currently available systems have two-way communications to the concentrator on the WAN and for the most part use public networks for communication on this network to deliver the meter data back to the central repository. Commonly referred to as the “backhaul” this portion of the system relies on established protocols and systems that have been commercially optimized and readily available. The public two-way networks are cost effective and are already available for the data backhaul, and hence there is no need for any additional communication network.

For LANs there are a number of different possible architectures involving one-way and two-way communication as well as a number of different communication mediums.

Two-way LANs are only able to communicate with the meter. Providing a communication channel to the meter allows for the manipulation of data or functionality within the meter and little else. However, Measurement Canada regulations restrict the benefits of two-way communication to the meter as most measurement parameters are sealed.

One of the benefits often cited with regards to two-way LAN communication with the meter is the ability to use the two-way communication channel to control loads or provide consumers information. However, in the absence of a physical connection between the meter and loads, or informational displays within the account, this benefit has yet to be realized in any jurisdiction on the backs of a two-way LAN meter communication system.

In two-way communication LANs, the meter does not act as a gateway to the account. In order for a consumer to receive information from the meter, or provide some level of load control, additional equipment and systems will need to be put in place. These systems can operate independently of the two-way LAN meter communication and in a more cost effective manner with a one-way communication meter reading solution being contemplated by the OEB and recommended by the working group.

The meter communications working group discussed at length the benefits and drawbacks of mandating a two-way LAN communication system. The meter communications working group discussed that most smart networks are full two-way up to the concentrators – which often store up to date meter reading and interval data information which is usually a minute or less old. These concentrators are connected on any publicly available IP based network (e.g. broadband, fiber, phone and cellular) to collect a near real time read. Therefore one way and two-way systems have the same ability to do “on request reads” and provide near real time information up to the concentrator.



The working group also discussed and agreed that reprogramming the complete residential meter population is unpractical when all that is needed is the collection of hourly interval data to meet the needs of providing TOU tariffs and Critical Peak pricing tariffs. Further, the working group discussed that there is additional risks with a two-way LAN system that calculates TOU and Critical Peak price in the meter. This risk is when communication signals sent to trigger a new TOU rate or Critical Peak pricing are either corrupted or fail to reach all customers. The result would be incomplete or inaccurate measurements that would not record the appropriate information.

During the discussions at the meter communications working group – the members had agreed that specifying “two-way communications” to the meter was akin to specifying one potential solution to meet the needs of Smart Metering Initiative and may not be the optimal thing to do from a cost to consumers, time to market, and technical perspective. Mandating two-way communication limits the utilities ability to make optimal choices for their territory and customer base. It will also add unwanted costs that will, in turn, have to be passed on to the customers.

Significant debate was devoted by the meter communications working group on ensuring that the maximum number of vendors could participate in Ontario’s Smart Meter Initiative. It was felt by all of the members that in order to ensure both technical and commercial success all viable solutions should be considered. A significant number of systems currently deployed and commercially and technically viable can be considered one-way systems. Eliminating these vendors from the process will increase costs and risks to the ratepayers of Ontario without adding any additional benefits.

Finally, the term “mandate” suggests that the technical and operational risks will transfer from the individuals tasked with delivering the system to the individuals mandating the system to be used. There is a significant and very healthy meter communication industry that has developed over the past 30 years based on market needs. This industry is made up of vendors and utilities and has developed technically and commercially viable solutions that can be deployed *today* to meet the needs of the Smart Meter Initiative as defined by the Ontario Government and articulated in the OEB draft implementation plan. By mandating a solution, the OEB, and ultimately the government, will bear the primary risk associated deploying this unproven technology when adaptable and market ready solutions are already in place.

In review, using public two-way networks, rather than a two-way LAN metering communication system, to achieve the OEB’s goals is the most cost effective method available. As discussed above two-way LANs provide limited benefits and significant economic and technical risk. Itron strongly believes that mandating a “two-way communication” network will create unnecessary system wide data confusion and raise costs for the OEB consumers without providing any clear benefit. Itron believes that the specifications formulated by the OEB working group are sufficient for utilities to procure



an infrastructure that meets the OEB's objectives in the most cost effective manner without burdening the consumers with unwanted costs and risks.

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

Based on our worldwide experience, and especially here in North America, Itron believes that it would be a difficult to mandate one communication system for the Province. In our 30 years of experience it has been demonstrated that multiple LAN and WAN meter communication systems need to be deployed to economically ensure 100% coverage. In all cases public networks are used for the WAN backhaul of meter data and are independent of communication link between the meter and the concentrator (LAN). Mandating a common communication system could lead to an approach that has not been proven to work from a regulatory, commercial or technical perspective. We are unaware of any current or contemplated projects that is using this approach

Local Distribution Company's should be allowed to choose and operate the system that best suits their geographical diversity and technological requirements. Local Distribution Company's should also be allowed to operate this system to gain any operational efficiency that might be derived from the Smart Meter network. To remove this ability would be a major disincentive to Local Distribution Company's long term goals of improved efficiency and reduced losses. In effect, the Local Distribution Company's will have little incentive to innovate and maximize the benefits of a smart metering system if they are not made responsible for the system, including communication.

3. If not, how should a communication operator or operators be selected?

Itron strongly believes that Local Distribution Company's should be able to choose and operate the system that best meets their geography, operational constraints and business requirements. They are technically competent and have a history of delivering solutions in a cost effective manner.

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

Local Distribution Companies can derive additional value from a meter communication system that may be lost if a mandated solution is imposed. This value would not be captured by the Local Distribution Companies and resulting in higher costs for communications.

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 Province of Ontario has diverse technological needs and mandating an open data protocol will seriously limit the choice of cost optimal technologies for the utilities.



Itron believes that the development of an open data protocol based system will delay the OEB's efforts to put an effective system in place, and will seriously limit the choice of cost effective solutions for the utilities. There are no known success stories of an open data protocol based system that meets the needs of the OEB's objectives around the world, especially North American electrical systems. The metering industry has been working on an open protocol standard through the American National Standards Institute (ANSI) for over 20 years and it is still not finalized. A "Made in Ontario" solution would likely find few customers outside of Ontario, thus forcing the ratepayers of Ontario to absorb the development and commercialization costs of a mandated system.

Finally, Meter Data management solutions are available today that connect to multiple meter data collection systems and provide a seamless, intelligent Meter Data management network. This network provides the ability to implement intelligent, flexible time of use and Critical Peak Pricing based tariffs and provides one data repository for advanced knowledge based applications.

Itron believes that a combination of a one-way meter communication system and an intelligent Meter Data management system operating over a public WAN is the optimal commercial and technical solution for the Province. This approach will draw upon the best available technology and the over 30 years experience of the vendors and utilities. It will provide the lowest cost to consumers while leaving open the prospect of using additional communication systems across the public WAN to further deliver on energy conservation goals. Finally, it can be delivered *today* and without further delay, risks or costs needing to be incurred by all parties committed to making the province's Smart Meter Initiative a success.

Yours truly,

Scott Owen  
VP Sales Canada  
Itron, Inc.