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January 10, 2005

**Mr. John Zych**  
**Board Secretary**  
**Ontario Energy Board**  
2300 Yonge Street  
26<sup>th</sup> Floor  
P. O. Box 2319  
Toronto, ON M4P 1E4

Dear Sir:

**Re: Board File No. RP-2004-0196 – Smart Meter Initiative – Further Consultation:  
Communications Issues**

We have reviewed stakeholder submissions to the Draft Smart Meter Implementation Plan, and understand that further information is requested with respect to mandating a Province-wide two-way communication network to support the goals of the Smart Meter Initiative. We appreciate the opportunity to comment on the December 21, 2004 request, and offer the following comments and concerns.

We agree that there are potential benefits to a two-way communication system. We have identified the benefits, from our perspective, responding to Issue #1 of your letter of December 21, 2004, in the attachment to this letter. However, we are concerned that the direction appears to place us on a path to a province-wide communication system without a real understanding of the benefits and the costs. As we noted in our first letter on November 25, 2004 we suggest that a well-defined cost benefit analysis in a province-wide system be developed and discussed with all stakeholders. The costs of any communication initiative will ultimately be passed on to consumers. We should answer the question “Does the benefit to the end user justify the cost.”, before we commit a wholesale provincial strategy in this direction.

In closing let me re-iterate that we are supportive of the efforts of the Board and the Government in seeking to change consumer behaviour in the use of electricity and other forms of energy. We are committed to assisting the government meet its objectives. However, we are concerned that an investment in this technology could result in other options that may be just as effective, less costly and meet the objective of demand and energy-use reduction, not being fully explored. We have a concern that as an industry we could lose focus on the objectives of creating a culture of conservation by relying solely on technology.

We appreciate the opportunity to comment and we look forward to participating further in this interesting and challenging debate.

Yours sincerely,

GUELPH HYDRO ELECTRIC  
SYSTEMS INC.

*Original signed by*

J. A. MacKenzie, P.Eng.  
President & CEO

c.c. A. Stokman  
M. Weninger  
P. Henderson  
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N. van der Meulen

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

**Benefits:**

- 1.1 Will provide a more robust system with more capability than a basic Automated Meter Reading (AMR) system;
- 1.2 Can initiate a remote read at any time for a variety of purposes (customer moves, remote verification of reads, etc);
- 1.3 Depending on the system, possible to update firmware in smart meters remotely;
- 1.4 Should allow for easier trouble-shooting. If unit were to stop communicating within 24 hours, we should be notified of a communication failure;
- 1.5 Would be mandatory as the backbone for some of the Demand Side Management (DSM) initiatives;
- 1.6 Would allow for almost real time analysis of service consumptions, service status as well as effects and results of DSM;
- 1.7 May allow for response to confirm load control action or remote shut-offs have been initiated.

**Drawbacks:**

- 1.8 One drawback of mandating a two-way communication network with the capabilities that would be desirable in such a system, to accommodate more than just AMR, to every home and business in the province, is that the technology in this area is to some degree still in its infancy, and rapidly changing. The system should be open and flexible enough to permit future capabilities. One could argue that the technology should be allowed to develop on its own, and a Province-wide business case should be made to justify the step up to this level of cost, sophistication and complexity.
- 1.9 The largest drawback with some of the two-way communication technologies currently available is speed and throughput. Depending on the communication method selected (ie. narrow band powerline as compared to broadband), communication “hand-shaking” between the Remote device and the Master could take several seconds per end device. For example to gather daily meter reads for a meter population of 40,000 meters as end devices, each download required an estimated 7 seconds per read, this would require high speed broadband or many injection points or radio head ends at much greater capital

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cost. The Smart Meter initiative plan must specify minimum performance standards, which will in turn drive the minimum technical system requirements, including communications requirements.

- 1.10 We have a concern over the security of such a system, especially if internet-based communication is used. Access to the meter, customer metered information, as well as activation of load control activity must be very carefully guarded.

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

- 2.1 One could point out that to some degree this would depend on the communication method chosen. For example, if broadband powerline carrier were selected, then the LDC, the electricity distributor, would have to be responsible for the installation and maintenance of the system. The communication system would be directly interfaced with the LDCs power distribution system, involving high voltages, and a legislated requirement to abide by the Electrical & Utility Safety Association, (E&USA) Utility Work Protection Code.
- 2.2 Distributors are the most knowledgeable of their respective service areas and should have the control and responsibility to operate their local communication networks. Many LDCs already have established communication networks for operating their Supervisory Control and Data Acquisition (SCADA) systems, and are experienced in directly working work or coordinating hard-wired, fibre-optic and wireless licensed and unlicensed radio networks in support of their operations.
- 2.3 LDCs may be able to utilize some of their existing infrastructure (ie radio towers, fibre optic communications to transformer substations, etc) to support the Smart Metering Initiative, which may be more difficult for an independent Operator or Operators.
- 2.4 In a deregulated market intended to lower rates and offer choice to the end user, adding another level of administration by having another organization look after this aspect of the market, may be counterproductive to the first two goals. A new province-wide communications entity (or entities) may need a return on their investment, increasing the overall cost to the end user.

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- 2.5 Implementing a province-wide two-way communication network may hinder or otherwise burden an LDCs ability to control their distribution grid, or may result in unnecessary overbuild.

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

Each LDC should be responsible to maintain the communications network within their service area, while meeting the requirements set out within the Smart Metering Initiative requirements.

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

- 4.1 We believe that Smart Metering and its related communication system is implemented to minimize its impact on the cost ultimately borne by the customer. LDCs are currently operating in an environment designed to continually look for operational efficiencies to reduce cost. LDCs are well positioned to be charged with the responsibility of managing the Smart Metering Initiative communications network. This should not preclude LDCs from choosing to use third party service providers to maintain and operate the network, in the most cost effective manner, suitable to local area needs. LDCs should be able to recover 100% of the cost of implementing and maintaining this new government direction through local distribution rates that would be approved through the OEB.
- 4.2 We recognize that depending on the level of communication system implementation, there may be other opportunities for the LDC or third party service providers to offer a variety of services to the customers. These services could include remote reads and disconnects for water and gas, monitoring and disconnection of various end devices, especially during times of high energy consumption (ie water heater or air conditioner control), responding to other price signals, alarm monitoring, as well as a host of other possibilities. One model could provide for revenues generated around these other opportunities offsetting the cost of building, operating and maintaining this network.

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

- 5.1 In any communication system an open data protocol such as DNP3, Modbus or ethernet is always preferred. This allows for multiple vendors to supply

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equipment and software. Many LDCs have experience with both proprietary and non-proprietary communications protocols as part of their SCADA networks. The more recent industry standardization on DNP3, an open protocol, has allowed for the use of products from multiple vendors, encouraging more cost effective solutions.