toronto hydro corporation

January 10, 2005

Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 26th Floor
Toronto, Ontario
M4P 1E4

Attn: John Zych
      Board Secretary

VIA COURIER

Dear Mr. Zych:

Re: **Smart Meter Initiative – Further Consultations**
        Province-Wide Two-Way Smart Meter Communications System
        Comments of Toronto Hydro-Electric System Limited
        RP-2004-0196

I write in response to your consultation letter dated December 21, 2004 and make the comments below on behalf of Toronto Hydro-Electric System Limited ("Toronto Hydro"). The requisite six (6) paper copies are enclosed, as well as an electronic copy in Adobe Acrobat (PDF) format.

Toronto Hydro has discussed the views that follow with the other members of the Coalition of Large Distributors (Enersource Hydro Mississauga, Hamilton Hydro Inc., PowerStream Inc., Veridian Connections Inc. and Hydro Ottawa Limited). We are supportive of one other's position and will continue to work closely together on this initiative. Toronto Hydro hopes that the Board will be assisted by the comments provided and would be pleased to take part in more detailed discussions as the Board may deem suitable.

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

Toronto Hydro does not support mandating a two-way communications network for smart metering in Ontario. Although a two-way communications network provides a number of benefits as discussed below, the supporting technologies require additional investment before these benefits can be realized. Consequently, distributors should be allowed to base their decision to implement a two-way network on business case analysis specific to their own circumstances.

One drawback of a full two-way communications network is that it costs more than a one-way or 1.5-way network. However, the difference in cost is not significant given the potential additional benefits of a full two-way network. With the implementation of appropriate additional technologies, a full two-way network could support a number of current or future utility operations including:

- Outage management;
- Remote service disconnect;
- Remote voltage reads for power quality checking;
- Direct load control with verification;
- On-demand meter read;
- Remote meter re-configuration; and
- Customer in-home display for consumption/price information.

It must be pointed out, however, that even though there is potential for these applications, the technologies that support a two-way communications network may or may not exist today, depending on the actual system to be deployed. Therefore, it should not be assumed that once a selected two-way communications network is deployed, all the technologies for the applications listed above would be immediately available. It should also be pointed out that the costs associated with implementing the necessary technologies, when these technologies do become available, will be considerable.

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

Toronto Hydro believes that electricity distributors should assume responsibility for operating any two-way communication network, assuming that operating the communication network includes the maintenance of the network, the meter reading operation, and support for the meter services work.

It would be particularly complex and inefficient for a single operator to interact with 92 distributors to properly support meter installations, change-outs, etc., in addition to carrying out meter readings for billing. Since meters are connected to the network and meters are also related to customer accounts in the billing systems of distributors, any meter installation or change-out must be reflected in the smart meter system and the billing system expeditiously. Accordingly, distributors operating the system for their own service territory are well positioned to expedite the fieldwork with respect to the smart meter and billing systems.

The interactions between 92 distributors and the smart meter system operator for the metering fieldwork would be logistically very complex. For example, if a customer of a distributor calls in about a broken meter, it would be straightforward for the distributor's meter service personnel to expedite the meter change-out in coordination with the smart meter system if it is within the distributor's operation. On the other hand, if that distributor, along with 91 other distributors, has to interact with the smart meter system operator, it is difficult to imagine how that interaction would be more efficient than the case where the distributor operates the system in its own service territory.

In the case of some smart meter systems, the two-way communications network consists of strategically located meters serving as network nodes. It would be even more difficult to imagine how an external system

operator would work efficiently in these cases where the distributor is responsible for the meters.

Regardless of which entity operates the two-way communications network, all distributors will continue to be required to reverify and compliance sample-test meters, replace broken or stopped meters, trouble shoot defective meters, install new meters, and remove meters when services are no longer required. All of these activities require significant resource and material planning. At present, distributors can plan and track this work, including updating the meter reading records, using their own customer information system. However, in the case of a single, province-wide system, all 92 distributors will have to coordinate their activities with the system operator. The planning and reporting process would be extremely cumbersome, resulting in higher operating and material costs. It would also most likely be impossible to carry out this coordination and meet the deployment targets of the Government.

It is not immediately clear, and it should not be a forgone conclusion that deploying a single system across the province would be more cost effective than having distributors implement systems that best suit their conditions, perhaps in cooperation with one another where they share boundaries. The consideration for a province-wide communications system, whether it is two-way or one-way, comes down to cost effectiveness of the deployment options. Cost effectiveness would pertain to the life-cycle system cost to distributors, and ultimately to consumers. The life-cycle cost of each option would include the service fees paid each year if the system is implemented by a third party that charges distributors for the service.

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

Toronto Hydro submits that it would be less complex, more efficient, and ultimately more beneficial for consumers, if distributors were to operate

the smart metering communication system. However, in the event that a non-distributor system operator must be selected, the system operator should be independent of the provision of products or services related to smart metering deployment. For example, the system operator should not have an ownership position in a company that sells meter hardware, act as a distributor of a product, or provide labour resources for workload management other than contracted meter reading. Under these conditions the system operator could have undue influence and eliminate competitive opportunities to their own benefit.

The notion of multiple operators, hence multiple systems, is presumably to promote competition with a view to lowering cost. However, the additional complexity would be considerable. The ramifications of multiple operators must be properly analyzed, or the result could be higher cost instead.

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

Toronto Hydro reiterates that distributors are in the best position to assume the role of system operator. If, however, the Board finds that a non-distributor system operator must operate the system, fees could be based on the number of electric meters, number of reads, or even the distributor territory area covered. Regardless of the method employed to set associated rates, it must be ensured that the lifecycle cost of the system based on the rate structure does not exceed the cost the distributors would incur if they were to implement and operate the systems themselves.

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

Absent the definition of "data protocol" in the question, Toronto Hydro has assumed the definition of data protocol to be "the specification of meter data format for transportation, at the Application Layer". An open data protocol in this sense is obviously useful, but is by itself not sufficient to lead to multi-sourcing of smart meters. Open protocol must cover all seven OSI protocol layers, or their equivalent, to truly support multiple sourcing. Data protocol as assumed above is only one aspect of data communication.

If the specification for the entire protocol stack, including the Physical Layer, is standardized or made public, it would allow true competition at the meter level. Having said this, Toronto Hydro notes that the Ontario market is probably not big enough to induce a communications system vendor to open up its protocol stack. Even if a vendor does make its protocol stack available, the R&D time and cost for each manufacturer to comply with the vendor's requirements would be considerable. The R&D time would certainly not fit into Ontario's 2005-2010 deployment timeline.

Some communications vendors license their meter communications modules or sell the modules to meter manufacturers. This is not the same as opening up the protocol specifications so that meter manufacturers can build their own modules. This also does not promote true competition since the most critical piece, the communications module to be installed on the meter, has to come from the communications vendor.

Toronto Hydro believes that developing an Ontario open standard for the communications protocol stack would not be practical. There is neither time for it, nor does the customer base exist to make it worthwhile for vendors to undertake the exercise.

Yours truly,

R. Zebrowski, Vice-President
Regulatory Services