



November 24, 2004

Mr John Zych, Secretary
Ontario Energy Board
2300 Yonge Street, 26th Floor
Toronto, Ontario
M4P 1E4

Re: Smart Meter Implementation Plan
Comments on Draft Report of the Board (dated November 9th)
File: RP-2004-0196

Firstly, thank you for the opportunity to have representation from London Hydro on one of the working groups for the Ministry of Energy's Smart-Metering initiative. Various staff within London Hydro has now reviewed the document entitled: *Smart Meter Implementation Plan – Draft Report of the Board for Comment*, dated November 9th. Their comments have been brought together and are presented below with specific reference to a section and page number within the report. I trust you will find London Hydro's comments to be of a constructive nature and of value to a successful implementation of the Smart Meter initiative.

As a general comment, although perhaps not direct participants of the various Smart Metering working groups, a good many LDC's actively followed the discussions via the Minutes of Meetings as posted on the OEB's website or via exchanges with colleagues that were participants. In reflecting on this preliminary information, many LDC's have come to realize that the Smart Metering initiative is more than simply a different style of revenue meter that might require a bit of tinkering with the billing system. Rather, and perhaps not intuitive, Smart Metering imposes functional requirements that are a radical departure from the underlying premises used to design existing customer information and billing systems. Simply stated, this project is certainly bigger and expected to be more expensive than the opening of the competitive electricity market. This isn't to suggest that LDC's are not up for the challenge. Rather, neither the Ministry nor the OEB should have unrealistic expectations — in spite of engaging reportedly the best consultants and teaming with reputable vendors, several LDC's experienced significant costs and delays implementing their new Customer Information Systems. The bottom line is that the Ministry and OEB should accept at the outset that there will be implementation challenges and instances whereby the technology fails to deliver on a first time basis; actually some re-design and re-iterative efforts would be unavoidable – and greater regulatory oversight isn't going to avert this reality. As with market opening, implementation plans would have to be managed appropriately while being a little

fluid in accommodating some timeline shifts as we experienced during the market readiness project.

Our specific comments follow:

Section	Page	Comment
2.2.3	15	London Hydro fails to see the value of additional bureaucracy that will inherently be part and parcel of the proposed “implementation co-ordinator”. This is major government policy and appropriate managing/monitoring should be part of Minister of Energy’s activities or part of OEB’s role as regulator/overseer. We suspect that the newly created Ontario Power Authority might have conflicting responsibilities should it take on this role. Procurement strategies and implementation plans are approvable per LDC? What benefits are to be derived that outweigh the cost/effort? One size does not fit all!
3.4	37-39	Please see comments given later in reference to Appendix C-4 (pages 77-79), <i>Cost Recovery Through Distribution Rates</i> .
3.4.3	39	With respect to the section, <i>Recovery Costs for Customers over 200 kW</i> , this interpretation of the Distribution System Code is incorrect. Within London Hydro’s service territory, no customer with load in excess of the established threshold for mandatory interval-style revenue meters has contributed towards the cost. Earlier this year, we lowered the threshold to 200 kW and have an active conversion project to convert all customers with load in the range of 200 kW to 500 kW to interval-style meters with no contribution from the customer (other than some involvement in the dial-type phone circuits). Presently, only customers with loads below the 200 kW threshold that request an interval meter will make a capital contribution to London Hydro to reflect the incremental cost of the interval-style meter installation.
4.2	42	With reference to the paragraph “ <i>The Board is ... of 0.01 kW to provide granularity for settlement</i> ”, we believe that your units of measure are incorrect. The meter specification contained within Appendix D.2 indicates a unit of kWh (i.e. consumption versus demand).
4.4.1	43	The whole process around Critical Peak Pricing (CPP) needs to be clarified. When customers sign with a supply retailer, it is often for price certainty – and as such, are these customers even

subject to CPP? What if the retailer's CPP occurs at a different time than any Provincial CPP's? This will be a critical driver on the total bill and will be of great interest to all; but especially the customer. The method of notice and bill presentment must be clear and understandable. Will this be a mandated OEB issue?

4.4.1 43 Making the customer usage data available to the customer by 8 am of the next day is acceptable; however the data must be identified as being preliminary and thus subject to change within the next three business days.

4.4.1 43-44 I believe that there is an important omission in the technical requirements for the communications between the Smart Meters and the Regional Collector (shown as the LAN in Figure 4 on page 42), and between the Regional Collector and the Data Collection Computer (shown as the WAN in this same figure). No minimum requirements are stipulated for data integrity. For a SCADA / telecontrol application, one would include requirements such as:

The error detection method shall provide data integrity which meets or exceeds the requirements for *Class I2* as defined within IEC Working Group 57 publication: *Telecontrol Equipment and Systems; Part 5.1, Transmission Frame Formats*.

The referenced IEC publication dates back to 1991 – we would assume that by now it has been embedded within IEC Standard 60870-5-1, *Telecontrol equipment and systems. Part 5: Transmission protocols - Section One: Transmission frame formats*. *Class I2* integrity is unnecessarily stringent for an AMR application, but something should certainly be defined to ensure that meter readings, corrupted by noise during their transmission between the meter and Data Collection Computer (DCC), aren't processed as valid data.

4.4.1 44 The bullet "*Distributors must choose systems that have ... at least 10,000 units ...*" is probably a good guiding principle, but it certainly stifles innovation. We can't speak for all utilities, but suspect that many will opt for hybrid systems, adopting a field-proven technology for a large percentage of the installations, but needing a niche product for some of the unique installations. We suspect that this 10,000 unit mandatory requirement will exclude some very good niche products. A strict reading of this clause would suggest that some of the big AMR system implementations couldn't be considered as, until now, the manufacturer didn't think that the Canadian marketplace was big enough to even apply for a Measurement

Canada Notice of Approval – a mandatory technical requirement.

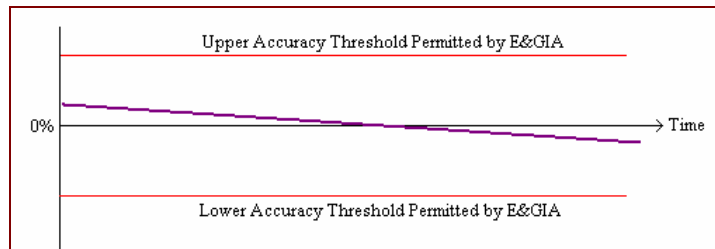
- 4.4.1 44 The OEB is going to create (or at least specify) the actual estimating (Editing and Rebuilding – E & R) process for missed reads? What other operational issues will the OEB be dictating? What is the benchmark and criteria for establishing such mandated operational issues? With a number of existing “systems” in place throughout the province, there is a need to ensure that the imposed criteria does not overly impact on the operational effectiveness of each “system”.
- 4.5 46 With respect to the clause “*Pricing for all rate periods in each 24-hour period must be estimated and presented to the customer with the usage information by 8 am every day*”, as an LDC we can certainly provide pricing information for default supply customers, as long as the pricing is positioned as “preliminary, subject to change”. However, for customers that have contracted their supply from a retailer, London Hydro has no knowledge of the contracted energy prices or tariff structure that the retailer has offered the customer. For such customers, is London Hydro’s obligation limited to presentation of electrical consumption information only (and made available to whom – the customer or the retailer, or both), or will the retailer be required to provide both consumption and pricing information?
- 4.5 46 With respect to the third paragraph (*The Board must develop standards ... understand the feedback information*), we naturally wonder when this will be done. Given that the various systems need to be functional by December 31, 2006, we are hopeful that the OEB won’t wait until the last minute!

Appendices

- A-3 15 London Hydro has been omitted from the list of participants in the Metering Technology Working Group.
- B-4 32 Within the NEPPA Group, we believe that *Brantford* has been misspelled.
- B-5 40 Within the *Recommendations and Rationale* column of the table, we believe that *achieve* has been misspelled. See entry “*LDC’s will need to complete 100% of >50kW meters ...*”.
- C-1 53 With respect to Benefit #1, *Broader Social Benefits*, within the Chart Notes section, there is a sentence “*If smart metering achieves its reduction target of 5% of provincial peak demand*”.

then this would translate into ...“ We may be wrong, but from all our readings, we believe that the 5% is the established target for the combination of smart metering and the conservation / DSM initiatives. As such, it is inappropriate and misleading to attribute the combined benefits of LDC energy conservation / DSM initiatives to the smart metering program. Apart from an actual in-field count at a certain date, are there any benchmark measurable objectives to determine whether this program was a success or not?

- C-1 56 With respect to item #6, *Increased Meter Accuracy*, while we agree with the conclusion that no savings should be attributed to Smart Metering on account of improved metering accuracies, we think it worthwhile to clarify the usual calibration technique for electromechanical meters. It is of course expected that, due to mechanical wear, electromechanical meters will slow down over time. To compensate for the mechanical wear phenomenon, most electromechanical meters are initially calibrated and sealed to run slightly fast, but well within the accuracy limits prescribed by the federal Electricity & Gas Inspection Act and Regulations.



The time frame being discussed here is measured in decades – London Hydro has more than twenty thousand electromechanical revenue meters still in service after 25 years that are still operating well within the required accuracy limits.

- C-1 57 With respect to the description for Benefit #7, in the third sentence, the word “there” should correctly read: “their”.
- C-1 57 In suggesting that “*Automatic meter reading replaces the need for manual reading and therefore saves ...*“, one should be cognizant of certain Measurement Canada *Legal Metrology Bulletins* (e.g. E-9, E-11, E-18) that compel the owner “...*to read the register of the meter on which the device is installed and, at the same time, determine the registration of the meter by means of the automatic meter reading system ... at one year intervals as long as the device remains in service*”. To date, the AMR systems in Canada have mostly been small in both

numbers and scale, and this regulation has not been applied consistently throughout the country. As yet, we have not been able to obtain a definitive answer to informal inquiries regarding the present and future status of this regulation amongst our contacts within Measurement Canada.

- C-1 61 With respect to the second paragraph (*The group heard suggestions that ... a normal consumption pattern*), we doubt that the consumption pattern comparison theory will yield the expected result. London Hydro attempted such a scheme a number of years ago (with the purpose of detecting incorrect meter readings due for example to transposed digits). The problem with humans is that they are unpredictable – the utility can't predict when they may opt to vacation out of the country, host the family Christmas, or other events that cause radical changes in energy consumption. A lot of time and effort was expended taking second readings when the majority were right in the first place. It is doubtful that Smart Metering will ever be successful at detecting the most common forms of power diversion, and as such we concur with the summary that "... *no real benefit will accrue from smart metering in the area of theft detection ...*" (but for differing reasons).
- C-2 71 With respect to Cost #1, *Increased Cost of Meters and AMR System*, of the Chart Notes section, the final paragraph on the page contains the sentence "*The first alternative ... the meter will have to be read hourly in order to establish the peak hourly demand for billing*". I'm not sure what type of meter retrofit the authors contemplated, but if the retrofit transmits consumption data to an upstream data collection device on an hourly basis, the calculation of demand (i.e. kWh per hour) in the upstream device would contravene the federal *Electricity & Gas Inspection Act and Regulations*.
- C-4 77-79 With respect to the discussion of *cost recovery through distribution rates*, the report recommends that the cost of the Provincial Smart Meter initiative, and the cost of stranded assets resulting from this initiative be included in the distributors delivery rates that are charged to all customers. We agree with and support the need for energy conservation programs, but these programs, for the most part, are not a standard component of the cost of energy distribution.
- One of the provincial government's stated benefits of deregulation of electricity services was in the unbundling of service costs to inform the customer of the service fees that made up their monthly bill. With the existing inclusion of

transitional and other regulatory asset recoveries and the proposed inclusion of Smart Meter cost recoveries through distribution rates, there is a significant departure from the service unbundling philosophy that was promoted by the provincial government during deregulation.

We recommend to the Board that, from a bill presentation and customer information perspective, it is more appropriate to recover the cost of all regulatory initiatives that are not standard distribution related costs, through the "Regulatory Charges" component of the customer bill.

- | | | |
|------|--------|--|
| C-4 | 78-78 | Although the tabulations on these two pages are an extension of Table 4 within Appendix C-4, Recovery Options for Smart Meter Costs, the header incorrectly reads: <i>Appendix C-5, Recovery Options for Smart Meter Costs – Cont’d</i> . |
| D-2 | 87 | In the second last line, the word “may” should be corrected to read: “may not”. |
| D-2 | 88 | Under the subject <i>Hourly Profile Data</i> , it seems that there is a customer classification that is missing, specifically the <i>general service < 50 kW customer group</i> . Within this same list, the reference to “General Service Consumers 200 – 1000 kW” should be changed to: “General Service Consumers > 200 kW and Large Users”. |
| D-3 | 92 | In line 5, the word “selection” should correctly read: “selecting”. Similarly on the 5 th line from the bottom, the word “now” should correctly read: “no”. |
| D-6 | 99-125 | The footer text on this series of pages should correctly read “Appendix D – System Requirements”. |
| D-6 | 103 | With respect to item 6, <i>Calculating Demand</i> , the same comment as above applies. |
| D-9 | 114 | With respect to the second bullet (Cost for usage in current month), for customers that have contracted supply with a retailer, London Hydro has no knowledge of the contract terms and conditions and as such cannot present such data to the customer (except at the end of the billing period when the retailer provides a monetary amount for which the customer is to be invoiced). |
| D-11 | 119 | Within section 1.1.3, <i>Wireless Networks</i> , the word “form” should correctly read: “from”. |

- D-11 123 The notation in Table 8 suggests 200 MHz is not available in Canada for WAN communications. We were under the impression that Chatham-Kent Hydro had a licensed 200 MHz frequency for their Tantalus AMR project. Perhaps some clarification from Industry Canada would be warranted here.
- E 126-127 The footer text on this series of pages should correctly read “*Appendix E – Glossary of Terms*”.
-

Should you need clarification (or supplementary information) in regard to any of our comments, you can contact me directly at the telephone number shown in the top corner of first page.

Following the conclusion of this stakeholder review process, London Hydro will look forward to receiving a copy of the final report so that we can adjust our budget and planning assumptions and prepare for the implementation phase.

Yours truly,

Vinay Sharma, P.Eng., Ph.D, MBA
Vice President, Customer Service & Strategic Planning
Bus. (519) 661-5800 ext. 5404
Fax (519) 661-5052
sharmav@londonhydro.com

VS/ghr

Reviews and comments from:

- Mark Steeves, P.Eng. Manager, MDMI/Settlement
- Gary Rains, P.Eng. Director of Network Planning
- Tony Vanden Boomen, CET Supervisor, Electric Metering
- Dave Williamson Director, Finance and Regulatory Affairs
- Mark Rosehart Director, Utility Support Services & Energy Management