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BY COURIER

September 21, 2012

Ms. Kirsten Walli,  
Secretary  
Ontario Energy Board  
Suite 2700, 2300 Yonge Street  
P.O. Box 2319  
Toronto, ON M4P 1E4

Dear Ms. Walli:

**EB-2010-0282 – Application for Exemption from Mandated Time of Use Pricing for Certain Regulated Price Plan Consumers - Hydro One Networks’ Request for an Extension to the Exemption for Time-of-Use Billing**

Please find attached an application by Hydro One Networks Inc. for an extension to the exemption from the provisions of the Standard Supply Service Code for Electricity Distributors requiring time-of-use pricing for regulated price plan customers with eligible time-of-use meters, as of the mandatory date.

Sincerely,

ORIGINAL SIGNED BY SUSAN FRANK

Susan Frank

cc EB-2010-0282 Intervenors (electronic only)

## ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*;

AND IN THE MATTER OF an Application by Hydro One Networks Inc.

for an Order or Orders including an extension to the exemption from the provisions of the Standard Supply Service Code for Electricity Distributors requiring time-of-use pricing for regulated price plan consumers with eligible time-of-use meters, as of the mandatory date.

### SUMMARY OF APPLICATION

1. The Applicant is Hydro One Networks Inc. (“Hydro One”), a subsidiary of Hydro One Inc. Hydro One is an Ontario corporation carrying on the business, among other things, of owning and operating electricity distribution facilities in Ontario.
2. Hydro One requests an extension to exemption from the provisions of the Standard Supply Service Code for Electricity Distributors (the “Code”) requiring time-of-use pricing for regulated price plan (“RPP”) consumers with eligible time-of-use meters, as of the mandatory date. The subject exemptions was granted by the Ontario Energy Board (the “Board”) on January 13, 2011, in proceeding EB-2010-0282.
3. Hydro One requests that the Board establish the duration of the extension to begin on January 1, 2013 and to have an indefinite expiry date.
4. Hydro One requests that the reporting schedule that was required by the Board in its approval of the original exemption in EB-2010-0282 be eliminated as Hydro One already reports on the number of customers on time-of-use and two-tier pricing as part of the quarterly RRR.
5. Hydro One requests that all other terms and conditions that were granted by the Board in the original exemptions in EB-2010-0282 for customer billing apply during the period of the extension.
6. Hydro One requests that this proceeding be conducted by way of a written hearing.

On January 13, 2010, in EB-2010-0282, the Board granted Hydro One an exemption (“the original exemption”) from complying with the obligations specified in sections 3.4 and 3.5 of the Code. These sections of the Code detail the time-of-use structure for regulated price plan consumers with eligible time-of-use meters and the transition from two-tier pricing. The exemptions, which relate to time-of-use, will expire on December 31, 2012. In accordance with the Board’s Order, Hydro One has continued to file quarterly compliance reports with the Board detailing the status of its time-of-use meter implementation.

## **EXTENSION REQUEST**

Hydro One is requesting an extension of the exemption granted on January 13, 2011. The requested term of the extension is from January 1, 2013, with an indefinite expiry date.

Hydro One requests this exemption because there are no options that will meet full compliance. The options that are available will only achieve partial compliance and the costs are excessively high. This situation is not expected to be resolved until there is improved telecommunication infrastructure or when future technological advancements in automated meter infrastructure become available. There is no estimated time for these improvements and advancements, and as such, the required extension is for an indefinite period.

During the extension period Hydro One proposes that those hard to reach customers would remain on two-tier pricing specified in section 3.3 of the Code.

Also, Hydro One proposes that the exemption reporting be eliminated as the number of customers on time-of-use and two-tier pricing is already reported quarterly in ‘*Reporting and Record Keeping Requirement 2.1.2 - Quarterly Customer Numbers*’. This proposal seeks to improve efficiency by eliminating duplicate reporting to the Board.

## **BACKGROUND**

The Provincial Smart Meter Functional Specification imposes a very high standard for Smart Meter data retrieval and availability for processing and customer use. The implementation of a workable solution is a significant challenge. Proven technologies which meet the requirements have been shown to have limited effectiveness in very rural or sparsely populated portions of Hydro One’s service territory, as well as, those areas without full cellular network coverage. Alternate solutions, including the use of estimated bills with periodic reconciliations using time-of-use rates are technically problematic, costly, time consuming to administer, and are not compliant.

There are approximately 1.2 million RPP customers in Hydro One’s service territory and as of June 30, 2012 a total of 1,066,019 (~88%) have been placed on time-of-use billing. For the 150,000 RPP customers that were the subject of the exemption, as of June 30, 2012 Hydro One migrated 15,961.

Hydro One has filed four compliance reports with the Board, covering January 1, 2011, to June 30, 2012. A summary of Hydro One’s compliance status is provided in the table below.

*Table 1: Customers Migrated to Time-of-Use*

Date	RPP Customers	On Time-of-Use Billing
October 2010	1,188,804	373,179
June 2012	1,207,285	1,066,019

Hydro One continues to provide service to new customers, and as such the number of customers and those that are on time-of-use billing does fluctuate. At the time of the original exemption, Hydro One had approximately 150,000 affected hard-to-reach customers. While progress has been made with respect to those customers, we find that as of June 2012 the number of affected hard-to-reach customers is approximately 140,000.

*Table 2: Breakdown of 140,000 Affected Customers by Rate Class*

Rate Class	% of Customers
R1	13 %
R2	34 %
UR	4 %
Seasonal	31 %
Gse	17 %
Uge	1 %

As of June 30, 2012 there are approximately 140,000 affected hard-to-reach customers. Some are located in areas that are not covered by any cellular network or that lack the density to form an effective local area mesh network, or both. These can be categorized into two groups:

- Group 1 – Available Cellular Network, Partial or No Local Mesh Network.
- Group 2 – Partial or No Cellular Network; No Local Mesh Network

The following table presents the number of customers by type of technology gap and possible solutions to close the gap.

*Table 3: Breakdown of Affected Customers by Network Gap*

	Estimated Number of customers	Possible solution
<b>Group 1</b>	80,000	Enhancements of existing platforms
<b>Group 2</b>	60,000	No current solution
<b>Total</b>	<b>140,000</b>	

## REQUEST FOR EXTENSION

At the time of the original hearing, Hydro One did not have complete solutions or cost estimates for solutions to bring time-of-use pricing to hard to reach customers. During the original exemption period Hydro One investigated a number of potential options, but was unable to find a solution that is technically viable, economic, and fully compliant. Furthermore, none of the options can be implemented within the timeframe of the original exemption.

## **OPTIONS CONSIDERED**

### 1. Enhancement of Primary Platform

Hydro One has been working with the industry and vendors since the exemption was granted. There are a number of enhancements to the primary platform that have been investigated:

#### Enhanced Network Coverage

Hydro One and its Vendor have learned from experience with operating a communication network in a sparsely populated service territory. From that learning, Hydro One believes that there are opportunities for more effective placement of network equipment, i.e. adding repeaters and regional collectors. This option has limited potential, to approximately 30,000 customers.

#### New Software

New meter communications software is currently under development by our Vendor. This new software may marginally improve the reach and robustness of local area data communication performance (within the local area mesh network). The software has been in development for some time and currently there is no estimated timeline for delivery or reliable estimate of improved performance capability.

#### Dual Network Technologies

A new type of smart meter collector is currently under development by our Vendor. It is expected that this new collector will be able to backhaul meter data via Global System for Mobile Communications Network (GSM Network). Since the current smart meter collectors only work with Code Division Multiple Access Network (CDMA Network), these new collectors will provide additional cellular network coverage niches (i.e. those areas covered by GSM network only). However, there are not many such areas, and as such, this option will only be applicable to very small areas, reaching only a limited of customers.

#### Lower Frequency (400 MHz) Extension

This technology is essentially transmission of information over a lower frequency. The lower frequency has a further reach but is unable to transmit large quantities of data in a timely and reliable manner. Initial research indicates that there will continue to be some technical and data capacity throughput issues and therefore the option is not economic at this time.

## 2. Extension of Existing Secondary Platform

Hydro One's secondary platform allows for direct communication between the meter and Hydro One's data processing center via available commercial cellular networks. These meters are referred to as point-to-point meters. This technology is available in areas with reliable GSM network coverage. However, for the most part, GSM and CDMA Network coverage is similar (they overlap) and therefore there are only limited opportunities to take advantage of this option (see above, Dual Network Technologies). Further, the operating costs of point-to-point meters are much higher than mesh network meters given their technical characteristics - each meter is in essence a separate cellular account. Thus, this option is uneconomic and impractical for broader application at this time.

## 3. Alternative Solutions to Commercial Cellular Networks

There are currently approximately 60,000 customers that are located in very rural sparsely populated areas with no existing commercial cellular network. While commercial cellular carriers have plans to reach some of these areas over time, the exact coverage and timing is uncertain. Without a cellular network to back-haul the meter data to Hydro One, the existing technology platforms simply will not work. Hydro One, therefore, has evaluated a few alternatives to address this gap and found that they are very expensive and therefore deemed them to be uneconomic.

### Satellite and WiMax (1.8 GHz) Enabled Collector

This potential alternative works just like the primary platform solution except it utilizes a satellite network or WiMax network (Worldwide Interoperability for Microwave Access - wireless broadband technology that provides performance similar to Wi-Fi networks with the coverage and quality of service of a cellular networks) to back-haul smart meter data to Hydro One. After initial investigation, this option is considered not to be economic at this time or for the foreseeable future.

### Power Line Carrier

Power Line Carrier (PLC) is the method of transmitting data through power lines. Hydro One evaluated this technology and has concluded that this is not an economic solution for the volume of customers across its service territory. The deployment would have to span across the majority of Hydro One's system to reach few (~60,000) customers. Such a deployment would be costly as PLC equipment is required at each transformer and on each feeder. Additionally, at each distribution or transmission station special equipment is required to ensure that data is accurately transmitted across voltage levels. The combination of vast deployment of PLC equipment and very expensive specialized equipment makes this option uneconomic.

### In-Person Meter Reading

This solution involves deploying Hydro One service personnel to travel to the affected locations and download smart meter readings on a periodic basis using a hand-held device. The meter information stored on this hand-held device would then be transferred for processing and subsequent use for time-of-use billing. This option has the additional challenge of overcoming the security of the meter to allow for the information to be downloaded. Smart Meters are equipped with high security to protect customer information that was designed to block such access. Revising the security measures such that in-person downloading is permitted only by authorized personnel will take time to develop and implement.

This option does not meet existing smart meter specifications, as Ontario Regulation 425/06 states that electricity distributors are required to transmit hourly smart meter data to their central processing center by 5:00 a.m. the next day. The in-person meter reading technique, which would occur on a semiannual basis at best, does not meet the criteria. Even if this option was implemented, full compliance would not be met and as such this option has been deemed ineffective.

## **CONCLUSION**

Hydro One's assessment is that there are no options that are economically prudent, cost effective, and fully compliant. The full suite of options would cost in excess of \$53-million with an ongoing operating, maintenance and administration cost of \$4-million per year; this is in addition to the cost of the meter and installation. Hydro One is reluctant to place an additional and significant cost burden on its customers by undertaking the options given that compliance will not be achieved.

At this time, there are no economic and compliant smart metering solutions for customers located in very rural, low density areas and those areas with no cellular network coverage within Hydro One's service territory.

Hydro One will monitor the industry for economic options to comply with the current Code requirements. Until then, Hydro One requires the extension to be able to continue to bill, using two-tier, customers without becoming non-compliant.

**APPENDIX A  
TIMELINE OF EVENTS RELATED TO TIME-OF-USE**

Date	Item
May 2009	The Government of Ontario announces the provincial time-of-use rate roll out targets. The first, a target to have one million Ontario households on time-of-use rates by the summer of 2010. The second, a target to have an estimated 3.6 million customers on time-of-use rates by June 2011.
August 4, 2010	The OEB issued its final determination to establish the mandatory time-of-use date for each electricity distributor. This determination requires time-of-use pricing for RPP consumers with eligible time-of-use meters, as of the mandatory date. The mandatory time-of-use date for Hydro One was June 30, 2011.
September 16, 2010	Hydro One requested an exemption covering ~ 150,000 RPP customers that are outside the reach of our smart meter telecommunications infrastructure.
January 13, 2010	The OEB granted Hydro One's exemption, until December 31, 2012.