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Independent Electricity
System Operator
655 Bay Street
Suite 410, PO Box 1
Toronto, Ontario M5G 2K4
t 416 506 2800

www.ieso.ca

August 3, 2010

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: Determination Under Section 1.2.1 of the Standard Supply Service Code to Mandate Time-of-Use Pricing for Regulated Price Plan Customers
Board File No. EB-2010-0218

Thank you for your letter of July 28, 2010, regarding the ability of the Meter Data Management and Repository (MDM/R) to support the Ontario Energy Board's (the "Board") June 24, 2010 Proposed Determination to mandate time-of-use (TOU) pricing for Regulated Price Plan consumers.

The Independent Electricity System Operator (IESO), in its role as the Smart Metering Entity (SME), sees no impediments at this time to either the MDM/R system or the SME providing appropriate or adequate support to distributor enrollment and the implementation of TOU billing under the Board's proposed TOU mandate, subject only to the timely receipt of meter read data of appropriate quality. As the Board requested, specific information regarding our resources and the MDM/R's processing capacity that will support the achievement of the TOU mandate is outlined below.

Resources

Resources for the operation of the MDM/R and the enrollment of distributors are provided by the IESO and IBM, in its capacity as the MDM/R Operational Service Provider (OSP). The anticipated acceleration of TOU rollout precedes the Board's proposed mandate. It began in March 2009 when the Honorable George Smitherman, as Minister of Energy and Infrastructure, established targets to have 1 million Ontario consumers on TOU rates by the summer of 2010 and 80% of the province (3.6 million consumers) on TOU by June 2011. To support this initiative, some of the key measures implemented by the IESO in 2009 included:

- Increased the team that works with the distributors to enroll them in the MDM/R from 2.75 to 4 people;

Paul Murphy
President and CEO
paul.murphy@ieso.ca
d 416 506 2810
f 416 506 2849

- Retained key project leaders and subject matter experts to support the increased volume of activities;
- Hired a full time communications professional to expand the information provided to distributors and employ a wider variety of delivery channels;
- Hired a full time training professional to develop additional materials and create several web-based training packages; and,
- Increased the size of its testing team to turnaround new software code deliveries faster.

IBM also took measures to accommodate the accelerated plan, including:

- Added infrastructure to handle larger numbers of distributors concurrently testing their systems with the MDM/R;
- Added personnel to operate and manage the additional infrastructure;
- Accelerated the increase of infrastructure capacity to support an earlier and steeper ramp up of smart meters enrolled in the MDM/R;
- Increased the size of their registration and enrollment team; and,
- Extended the assignment of some key project personnel to the project.

Despite the establishment of those original targets, the response of the distributors was slower than expected. The increased staff and infrastructure have remained however, with different work being assigned to staff in the absence of the anticipated enrollment volumes.

On the assumption that the Board's TOU mandate will drive the desired response from the distributors, the IESO and IBM have already taken and planned a number of additional measures. These are necessary because although the target end dates and volumes haven't changed, with less time to achieve them, the effort is more concentrated and more resources are needed. Further actions include:

- Added a fifth person to the registration and enrollment team with a sixth person planned to join as soon as the Board's mandate comes into force; this will enable the team to enroll up to six distributors per month, a rate that is factored into the Board's mandate language.
- Added another person to the MDM/R operations team, with a further position identified but not yet staffed; and,
- Developed additional materials to improve Help Desk capabilities in efficiently responding to enquiries.

Correspondingly, IBM has undertaken the following:

- Engaged technical experts from across IBM (in the months of May through July) to conduct a review of the system's infrastructure and operation profile to confirm that the system is being operated and managed in an effective manner;
- Added a Project Manager to the IBM Enrolment Team, enabling the existing team lead to be more focused on problem solving and trouble-shooting;

- Added a Project Manager to its Operations team to streamline daily operations and turnaround time on incidents;
- Completed the onboarding of analysts to the Enrolment Team; and
- Doubled the size of the database team (to 5 FTE) to better monitor and manage the role of the database in overall system performance. This team works actively with the software vendor to identify and implement improvements in the application that will benefit overall throughput.

All these staffing additions are based on our prior experience interacting with the distributors that have already moved through the registration and enrollment process and are now operating in MDM/R production, along with our best estimates of the increased demand for our services under the Board's proposed mandate. The IESO and IBM are prepared to further augment the teams in the event these projections prove to be inadequate.

Processing Capacity

As indicated in previous correspondence, of the several functional areas of processing data that the MDM/R performs, it is the daily receipt and processing of hourly electricity consumption data from 4.5 million meters that will pose the largest load on the system. We believe this has been the area identified in the distributors' comments on the proposed mandate.

The IESO and IBM have monitored and steadily enhanced the system's capability to process the growing volumes of meter read data since early this year. We are continuing to make improvements, some that are completed and outlined above and others currently underway as follows:

- Engaged performance experts in a range of activities including application and infrastructure performance to ensure the system is configured to meet IBM's contractual obligations. This has resulted in the requirement to replace the storage solution with a larger and uniquely tuned system that is expected to provide further performance benefits to the entire system. The end-state solution is being implemented in phases, with:
    - Phase 1 being the re-configuration of the existing solution to improve performance of the database and reporting. This is complete.
    - Phase 2 being planned for September. This expands Phase 1 with the implementation of an Oracle utility that further enhances performance of the system.
    - Phase 3 being planned for February 2011. This is the replacement of the existing solution with one that will accommodate the end state volumes.
- Targeted application performance testing will continue through September and the implementation of Release 7.0. At this time, IBM is expected to have completed all necessary testing and to have developed tuning procedures for the Operations team to follow as the meter ramp up continues.

Recent simulations of processing capacity indicate the MDM/R can achieve daily meter read data processing rates of 500 meters per second, or 1.8 million meters per hour. Such throughput would clearly be able to deliver the processed meter read data by the intended times. However, achieving these rates requires the incoming data to adhere to the following conditions, *all* of which are outside the IESO's control, and require the support of the distributors and their technology providers:

- Meter reads sent to the MDM/R must fulfill the Advanced Metering Infrastructure (AMI) functional specification (developed by the Ministry of Energy and Infrastructure) requirement of containing at least 98% of the hourly interval data (i.e. no more than a 2% rate of estimating missing intervals).
- Meter read data sent to the MDM/R needs to be reasonably distributed over the midnight to 5 a.m. primary collection period (i.e. the system is not designed or sized to meet service levels if all the data is received at the end of the submission window).
- The preponderance of the daily meter read data for each meter must be "blocked" from midnight to midnight (i.e. minimal submittals of partial day data).

The IESO and IBM are working with the distributors to help plan how these conditions can be met. We have a commitment from three of the four largest distributors in the province to make the necessary accommodations. Discussions with the balance of the larger distributors are promising but not complete. In all cases, nothing has yet been demonstrated.

In closing, nothing to this point causes the IESO a level of concern that would prompt the withdrawal of our assessment that the MDM/R will process the data volumes implied by the Board's proposed TOU mandate and do so in accordance with documented service levels.

Please let us know if you require any additional information. Equally, if a meeting would be more productive, we stand ready to address any issues directly with Board Members or staff.

Yours truly,

Paul Murphy
President and CEO
Independent Electricity System Operator