

Comments on the OEB Smart Meter Implementation Plan

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Comments on the Ontario Energy Board's Smart Meter Implementation Plan

Mr. John Zynch
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SmartSynch is pleased to have the opportunity to continue to provide feedback on the Smart Metering Initiative and the Smart Meter Implementation Plan recently released. Although the Smart Metering Initiative is a significant undertaking given the short time frame, the vision set forth in the Minister's Directive is achievable and is based on proven technologies with a history of successful implementations.

As the leading provider of commercial and industrial (C&I) smart metering solutions throughout North America, SmartSynch is well positioned to provide input. With an installation base of twenty-eight utilities and over 50,000 commercial and industrial smart meters in production, SmartSynch's comments are based on best practice observations garnered through numerous implementations of similar vision.

Sincerely,

Stephen D. Johnston
SmartSynch, Inc.

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1 Two Groups of End-Users versus Three

SmartSynch does not believe that there is a compelling reason to warrant three (3) separate groups of consumers. Instead, two groups of consumers are more appropriate – one for consumers under 50kW and one for consumers above 50kW. These two groups shall simplify the procurement, implementation and deployment processes while successfully maintaining the differences in functional requirements between residential (< 50kW) and commercial and industrial consumers (> 50kW).

Based on SmartSynch's numerous commercial and industrial implementations, there are no significant differences in smart metering functionality required to service both commercial (50kW to 200kW) and industrial consumers (>200kW). Although these consumers are likely to have different types of systems for utilizing the data delivered to them, they still require the same TYPE of data at the same frequency to make educated conservation decisions. Furthermore, the different types of Load Control and Load Analysis systems used by the consumers are not likely to be provided by the LDC and are not likely to be part of cost-recovery. Consequently, SmartSynch believes there is no reason to complicate the planning, procurement and implementation processes by bifurcating commercial and industrial consumers where neither the LDC nor consumers receive benefit.

2 Granularity of Data for Commercial and Industrial Consumers

SmartSynch believes that 15-minute intervals are more appropriate for both commercial and industrial consumers (all consumers > 50kW). A finer degree of granularity provides consumers with near-real time information for critical decision-making during periods of high peak demand and promotes conservation more effectively than less granular hourly data. In fact, North American utilities implementing demand response programs have trended towards greater granularity, even as low as 5-minute intervals, which is currently supported by existing technology. The greatest reduction in peak demand shall be realized when all consumers over 50kW are able to respond to real-time information.

3 Wireless Communications Provide the Best Solution for all C&I Consumers

In Section 2.3 (Smart Metering Deployment for Customer Group 3 (> 200kW), Section 2.5.7 (Upgrading existing Interval Meters), and Section 2.6.2, there are references to telephone communications as the preferred solution for Group 3 consumers (>200kW).

SmartSynch believes these statements should be removed or at the very least amended to stipulate the use of a wireless equivalent.

In fact, these statements are inconsistent with Section 1.1.5 and Section 1.1.6 of Appendix D-11, which provide the following benefits of wireless communications:

1.1.5 Public RF Networks – SMRC – SMDCC (WAN applications Only)

1.1.6 Public RF Networks – SMCM to SMDCC (WAN applications with no LAN)

Publicly owned wireless networks with the primary service offering being either public voice or data services do not depend on SMS for its primary source of revenue. Service providers are responsible for maintaining and upgrading the network. This alleviates core responsibility and the maintaining of staff with specialized skill sets within the LDC.

SMSs using this transmission option are more appropriate to commercial and industrial customers. Modem costs, network rates and overall SMS deployments can be easily deployed in a dispersed method rather than the more traditional cost contained cluster type deployments for residential SMS.

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Each SMCM can be implemented on a one off basis with the capacity to transmit as much or as little data as required (EG: TDP rates and hourly or even 15 minute or smaller intervals).

Additionally, for the following reasons, wireless solutions should be promoted over existing telephone line communication technology throughout the Implementation Plan:

- 1) Wireless solutions provide lower operational (recurring) costs. Wireless network costs are much more affordable than the legacy phone-modem alternatives. Significant recurring operational cost savings can be achieved through wireless network implementations.
- 2) Wireless solutions provide greater reliability than phone modem solutions that have a high rate of call failure and dropped connections.
- 3) Wireless solutions provide greater scalability than telephone line communications. Phone-modem solutions are not as scalable as wireless solutions due to the inherent communicational limitations imposed by having a fixed number of phone lines. The number of phone lines limits the maximum number of smart meters that can communicate with a head-end data acquisition application at any single time. With a wireless solution, thousands of smart meters can communicate bi-directionally with the head-end application simultaneously.
- 4) Phone Modem solutions are further constrained by scattered geography of meters when sharing phone lines.
- 5) Wireless solutions provide greater capability for real-time response. Due to the limited number of phone lines available with a phone-modem solution, real-time responses from all meters are not feasible. During power outages, only a limited number of smart meters can report outages in real-time to the head-end application. Additionally, during load curtailment events, the number of devices that can report interval data in real-time is limited. Wireless solutions are not confined by this constraint and provide the best mechanism for achieving true real-time responses.
- 6) Wireless solutions have lower installation costs. Under-the-cover wireless solutions do not require any additional cost other than the installation of the meter itself. Phone-modem solutions may require the additional cost of installing a separate phone line for each location.
- 7) Wireless solutions that meet OEB MIST and Revenue Canada requirements are available for immediate deployment in Ontario.

4 Largest Reduction in Peak Demand from C&I consumers

In Section 2.5.3, the Implementation Plan states that there “is no strong evidence that any one Ontario customer group is a better focus for consumption shifting than another”.

The Implementation Plan references several U.S. studies of demand response programs that indicate that the greatest reduction in peak demand and the most effective adoption of demand response pricing is overwhelmingly seen in the commercial and industrial sector. Although the Implementation Plan indicates that these studies may not apply to Ontario, there is no evidence to suggest otherwise.

SmartSynch believes C&I consumers will provide the greatest conservation for the following reasons:

- 1) C&I customers (> 250,000 kWh in annual consumption) already see both hourly energy prices and TOU demand charges and are better educated/conditioned to respond to these stimuli.

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- 2) C&I customers are much more responsive to pricing signals than residential customers as they have both a greater financial motivation and a greater operating means to effect demand response due to the availability of energy management systems, the diversity of controllable loads and the increase in on-site generation options.
- 3) C&I customers account for two-thirds (C&I customers over 50 kW represent about one-half) of the load in Ontario and will therefore yield the largest absolute demand response given their overall load consumption level.

5 Bi-Directional Communication

In Section 4.3.1, the Implementation Plan allows for one-way communication Smart Meter Systems.

SmartSynch believes that bi-directional communication should be required, especially for commercial and industrial consumers (all consumers > 50kW).

One-way communication is inconsistent with the types of functionality required for effective demand response pricing and is inconsistent with many of the other requirements (e.g. remote programming of TOU Rates) stipulated elsewhere in the Implementation Plan.

Bi-directional communication enables dynamic load curtailment and critical peak pricing programs, which provide the conservation inducing pricing structures necessary to change consumption practices. One-way communication effectively nullifies these dynamic pricing structures as a mechanism for promoting conservation.

It is not likely that forward-thinking Canadian LDCs will purchase one-way communication systems and their inclusion will only cloud the procurement process and divert energy away from evaluation of more effective bi-directional systems. Although the inclusion of one-way communication systems will proffer a greater variety of options, it will also dictate a lower overall quality and flexibility of candidate systems. This application quality and flexibility will be seminal in ensuring that the various LDC conservation programs achieve long-term success.

6 Deployment for C&I Consumers First in Congested Zones

SmartSynch strongly disagrees with the recommendation to deploy Work Program B meters (i.e. new installations and residential & general service <50 kW single phase meters) in congested transmission zones first as noted in Section 2.5.5. The most effective strategy to realize rapid and sizable demand response capability in congested areas, such as the Greater Toronto Area, is to concentrate efforts on the large (>50 kW) C&I customers. This segment represents a high proportion of the load in urban centers and can be harnessed rapidly using technology that is available today leveraging existing TOU pricing structures. For instance, in the City of Toronto, smart meter deployment of 100% of the C&I >50 kW population yields about 900 MW (12,000 x 75 kW/customer) of available demand response vs. 160 MW (660,000 x 2 kW/customer x 0.12) of demand response from the residential & small General Service segment assuming a 12% deployment by 2007.

Distributors in congested zones should be tasked to give priority to Work Program A meters as this is the most effective strategy to realize timely and substantial demand response by 2007.