Comments to The Ontario Energy Board Staff Discussion Paper

Implementation Plan for Smart Meters in Ontario

Reference:RP-2004-0196 – Phase I

OZZ Corporation applauds the Government of Ontario, Premier Daulton McGuinty, and the Minister of Energy, Dwight Duncan for their commitment to moving forward on the issues related to Ontario's electricity sector.

The purpose of this document is to contribute to the process of developing the implementation plan for smart metering in Ontario and to offer to the discussion our perspective as energy service practitioners and technology subject matter expertise in utility management systems for utility meter data, telecommunications, data management demand response, and distributed energy asset management.

Our Credentials and Qualifications

OZZ Corporation is thoroughly conversant on the legislation and regulation of Ontario's energy sector, but is also an energy services and engineering practitioner. OZZ has developed software and Internet based solution for monitoring and managing utility data. It has arguably the most extensive experience of any Ontario company in installing sub-metering systems, residential load control equipment, and interval and electronic metering for electricity, natural gas, and water. We have direct expertise in all aspects of data communications and can comment on the virtues, applications and limitations of such communications solutions.

We believe that we can contribute to this process because we have experience in the field and with virtually all the current and evolving technology to enable utility data communications, demand response and demand management systems. We can bring a pragmatic perspective to assist in establishing the parameters of the optimum solution based on the criteria of cost, effectiveness, reliability, and logistics management of a large-scale deployment.

OZZ has participated in, and provided input into, numerous strategic and discussion forums with on issues ranging from metering, to demand response and distributed generation. Our staff speak regularly at industry events seeking to share the experience of new technologies and products with industry stakeholders, and to raise the awareness of promising new approaches and solutions that may contribute to the implementation of an overall energy strategy for Ontario.

Overview

Ontario represents one of the largest energy markets in North America and its restructuring represents not only a tremendous catalyst for economic growth and investment in Ontario, but also solid platform to move forward on related issues of the environment and new technology development. Canada has made commitments under Kyoto to reduce its emissions and GHG levels and Ontario is in an excellent position to contribute to meeting these targets.

OZZ concurs that the Ontario market requires commodity prices that reflect true cost and the mechanisms to respond to both price and demand signals. Technology that enables both of these elements at the end-use level is less expensive and more rapidly deployable than new or alternative generation. OZZ does not believe that a single initiative or technology can respond to all the challenges faced by this industry. Rather a multi-faceted approach with an emphasis on solutions that reduce dependence on large capital infrastructure in favour of low-cost, localized/distributed solutions. In the long-term, minimizing the value of field-installed assets is an intrinsic risk management benefit of such an approach.

OZZ Corporation has reviewed in detail, The Ontario Energy Board Staff Discussion Paper regarding the implementation plan for smart meters. OZZ concurs with many of the basic premises set out in this document that will have significant impact on the mass deployment of this technology.

As with any major initiative, it is of paramount importance to establish the operational framework for the development and implementation of a system that will meet the policy objectives, achieve economies of scale and of integration. The enabling technology will underpin the cost-effective operation of the new system and will set the boundaries for the benefits that can be derived by all industry stakeholders.

The focus of or commentary with respect to smart meter implementation is on the definition of the smart meter and the establishment of the functionality required.

Defining the Smart Meter

Establishing the "definition" and capabilities of smart meter is fundamental to all subsequent discussions. This is the focus of our comments. There has been considerable discussion on the subject of smart meters including functionality and cost. OZZ believes the core issue around the definition of the smart meter is less important than the capabilities of the solution that will be implemented to deliver timely and accurate data to a billing system and other systems that trigger price or demand response actions. In our view, the essence of the smart meter is and should be simple. Its single enabling function should be to accurately record and communicate detailed, time-based consumption data to a central system.

The smart meter in reality is in not a smart device. It doesn't make decisions. Rather it is a device that has memory. Any other functionality is in our view extraneous. There are other functions an electronic device can perform (so-called "gateway devices have embedded controls and connectivity).

We believe the focus of discussion should be the definition or required outputs of the complete system or smart solution. The integrated system consists of three major components; the electronic meter, a robust communication pathway or pathways, and a central processing system. We refer to it as a Smart Energy Network. While this may seem like semantics, there is fundamental distinction in that it is the capability of the entire system, not the capability of any discrete component of the system that must be "smart".

Many parties have promoted a field-installed device with embedded intelligence capable of managing or controlling all conceivable utility functions including tamper/theft

control, disconnection, load control, tariffs etc.. There is no magic device to resolve all these issues, certainly not at a price point upon which a compelling business case can be made.

From our investigation and development work, we see an intelligent central system as the optimal repository for the real intelligence of this smart energy network. With accurate and timely data originating from the meter, software-enabled functionality residing in a central system can perform the required data validation, manipulation, and transformation to manage the key functions that will support price and demand response mechanisms, be they decisions about load management, dispatch, or the variety of other triggered system responses under review.

One might look to the wireless communications industry for a functional example. The hand-set does not contain rate plan information or other firmware-resident capability. This information as well as the intelligence of the network resides centrally. This industry has identified the need for a low-cost hand-held device in order to maximize market penetration and minimize the cost of obsolescence (stranded asset cost). Unlike cellular phones however, these smart utility meters have a significant life and are not subject to vagaries of consumer preferences, style, and mass marketing. The cost-effective functionality is the driver.

Time-based automated metering technology is essential to the operation of any market where commodity prices vary in time. In conjunction with time-dependent transmission and distribution rates (both retail and default rates), consumers have the means to understand and manage their energy consumption and derive a financial benefit from making informed consumer decisions.

By distributing energy consumption away from peak times, the congestion on the infrastructure will be reduced, reducing additional capital investment in the maintenance and expansion of these systems and reducing the dependence on more expensive and polluting generation sources.

Advanced metering, interval metering, smart metering and AMR are all references to a device that can record time-based consumption information, communicate in an accurate and timely fashion and do so at a cost that has opportunity to generate economies of scale through mass deployment as well as the ability to read multiple data streams form other utility meters, gaining additional economies. In addition, the extensive availability of existing private and commercial data communications networks (Internet, cellular, telephone, paging) allows for connectivity of this smart energy network at low cost with the ability to provide connectivity for a diverse array of site-specific constraints.

Concluding Comments

The development of an integrated network to collect, communicate, and process time-based, utility meter data will enable and support price and demand response mechanisms to maintain reliability of Ontario's electricity infrastructure. The smart meter is one of three components of a smart system which we feel should have intelligence and functionality not concentrated at the point of use, but rather at the control center. With this approach, these distributed assets have low cost, maximum reliability. The

functionality and intelligence is resident in a control system that can be easily accessed, upgraded, configured, and managed in one central location.

The shift to distributed rather than centralized (large capital infrastructure) solutions reduces is an approach that can see the rapid, low-cost, and effective implementation of systems to reduce peak consumption. It will also enable the programs that will provide the tools and information to consumers to make responsible choices about how and when they use energy, and provide the incentives for the desired behaviour of reducing consumption and shifting demand, reducing the strain on infrastructure, reducing pollution, providing tangible benefits to consumers and all market participants involved in the activity chain of delivering energy to Ontario residents.

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