

**RP 2004 -0196**

**ONTARIO ENERGY BOARD**

**Comments on**

**Draft Report on Smart Meter Implementation Plan**

**By**

**Wirebury Connections Inc.**

## **1. Introduction**

Wirebury Connections Inc. (Wirebury) reviewed with interest the Ontario Energy Board's Draft Report on the Smart Meter Implementation Plan. It is pleased to provide these comments on the report.

Wirebury owns and operates electricity distribution and metering systems within multi-unit buildings. Its primary focus is in the multi-unit residential market. As a standard it uses interval meters to measure the consumption at the suite level. It believes that interval meters are currently the only technology that currently exists that has the flexibility to meet the near term and longer term requirements of the Ontario electricity market.

Although the Board's draft report does not address the multi-unit market Wirebury believes that, as one of only a handful of businesses that install, read and bill residential consumers using interval meters, its views should be of value to the Board. It is also important for the Board to understand that there are technical and installation differences in the multi-unit market requirements for interval metering, as compared to single family installations that may make the recommendations of the Board coming out of this initiative inappropriate, or cost prohibitive, for application in the multi-unit market. While a requirement for, and benefits of, interval meters are the same for both single family and multi-unit customers the metering technology (hardware), data collection requirements and associated costs may be quite different.

## **2. Implementation**

The Board's Draft Report includes an implementation plan at Figure 3 that indicates less than 10,000 meters deployed in 2005. It would seem that the limited roll-out in 2005 is a result of the perceived need to conduct pilots in 2005 to test technologies. Many of the current technologies are already in use in Ontario in the multi-unit residential market and are in use in the commercial and industrial markets. Taking an inventory of technologies in use and leveraging the current experience of others players in Ontario could accelerate the roll-out in 2005.

The Report also includes suggestions regarding the prioritization of installations. It proposes to exclude early adopters on the premise that installation costs are significantly higher. The Government, by mandating the smart metering program, is trying to create an energy conservation culture in Ontario. This will require the buy-in of all Ontarians. There are many supporters of the need to change the way Ontarians use electricity and these supporters would not only be the early adopters of the enabling technology but the best and lowest cost sales force the government can have. The outright exclusion of early adopters may not ultimately well serve the need to change culture because there may be an intangible cost of deferring service.

Until decisions on technology are made the ultimate cost of scheduling early adopters is not known. Different technologies have different costs. From a consumers perspective requesting a smart meter in 2005 and being advised that it may take 3 months is different than being told your area is not scheduled until 2010. Wirebury suggests that at this time it may be too early to deny early adopters access to technology and that distributors may be in the best position to work with their customers to deliver technology in a cost effective manner based upon their own technological choices.

The Board Report also recommends distributor buying groups. In general this should result in lower costs as scale is typically a cost driver. The primary caution and risk of buying groups is entrenchment which could prohibit innovation in a market that will likely be going through significant technological change over the next 2 to 3 years. Single sourcing for meter technology if mismatched with meter data collection, data management and billing system capabilities could increase the overall costs of the deployment.

### **3. Smart Metering Costs**

The Board report presented two cost recovery scenarios in Section 3. These were;

- recovery of program costs from all customers within a rate class and

- recovery of program costs in each rate class only from customers with smart meters.

The Executive Summary at page 5 seems to suggest that the recommendation is for the first option, recovering the costs from all customers irrespective of whether or not they have a smart meter. Wirebury would like to suggest a third option which might be considered to be a hybrid of the other two.

In the first option the costs of the approved Smart Metering program is included in the utility's revenue requirement for recovery from all customers. Customers that do not have near term access to smart meters pay for them in incremental costs and in most instances are denied access to them because they do not fall into the defined roll-out plan. Rather than paying the full or even partial incremental costs customers that do have access will only see their rates gradually increase along with all other customers until equilibrium is reached and the smart meter program is 100% rolled out.

The second option sees the early adopters allocated and paying the full cost of the smart metering program. In such a case their costs would eventually drop as more customers are brought into the program and the high upfront costs are averaged over a larger customer base. As the report points out there would be challenging cost allocation issues to be addressed.

Wirebury suggests that the best option is to combine elements of both. The program costs should be included in the utility's revenue requirement. However, there are already projections that the long term costs of the program will be \$3-4 per month. Customers that are supplied with the smart meter technology should pay at least the forecast long term cost and the utility would record this as "smart meter revenue". This reflects that there is an additional cost to the technology while still not burdening the early adopters with the full initial cost which on a unit cost basis would be considerably higher.

Since the roll-out plan is to be relatively well established it will be possible on an annual basis to forecast the smart meter revenue and credit it to the utility's cost of service to

reduce the rate increases that all customers would otherwise incur. As the roll-out of the smart metering initiative reaches its end the smart meter revenue should come close to offsetting the incremental cost of the program that had been included in the revenue requirement. A final rebalancing of rates might be necessary but it should not be significant.

Wirebury contends that this hybrid would more fairly align costs and benefits of the program than either of the options put forward in the draft report. This approach is not without precedent and is similar to the treatment used with the Direct Purchase Administration Charge used by gas utilities to recover the incremental cost of managing the direct purchase market.

The Board may also wish to consider the appropriateness of the level of the charge i.e. whether \$4 per month represents a reasonable credit to the cost of service, considering the overall program cost or whether a slightly higher cost, in the \$5-6 range may be more appropriate. To put this in perspective, if there were a 5 cent differential between off-peak and peak commodity pricing a \$5 per month charge would be recovered through a 100 kWh shift in consumption. A higher charge could help fund some of the early adopters discussed previously.

#### **4. Smart Metering System Minimum Requirements**

Wirebury believes that there are aspects of the system requirements that it needs to comment on. Wirebury notes that the report recommends that distributors choose systems that have a proven track record having at least 10,000 units installed and working. Such a requirement seems inconsistent with the Board's recommendation to eliminate a requirement for bi-directional communication because it would result in the disqualification of viable systems. It would seem that the restriction to 10,000 units would also eliminate new and innovative systems that may be viable and practical but do not yet have the required minimum scale. One could also argue whether 10,000 units are

indicative of the scalability of the technology that is required for the Ontario requirements of five million meters.

In Wirebury's view the Board should concentrate on ensuring that any systems have the capability and requirement to time stamp and have a data register at the meter. Failure to achieve this could result in issues with Measurement Canada by pushing measurement Canada jurisdiction upstream of the meter into the collectors and data systems. This is not a desirable objective as it would complicate current and future certification requirements and potentially jeopardize the roll-out schedule.

Section 2.5.7 of the report identified circumstances where the Board would grandfather existing installations. Wirebury believes that there may be additional circumstances where grandfathering may be required. There are a number of current interval meter installations. Depending on the final system requirements the Board adopts some of these existing installations may not conform to the Board standards. The Board should resist finalizing the list of systems that meet grandfathering criteria until after it finalizes its technology standards.

At Section 4.4.1 the Board Report indicates that information on the previous days use must be available by 8:00 am each morning. While this is a reasonable goal Wirebury does not believe that based, upon current technologies, this requirement is achievable at the scale that will be required in Ontario. It does expect that future technological improvements will enable this requirement but the timetable to achieve this is currently an unknown.

There are also risks associated with providing the mass market with raw data that is still subject to editing and rebuilding. Changing data that has already been presented to customers is likely to result in customer confusion and the creation of perceptions that the data is unreliable and suspect. Customers will also try to relate raw data to their bills so does it become important that they be presented "bill ready" data? The question the Board needs to address is what is more important, accuracy or timeliness. To a certain

extent the answer to this question lies in how the Board expects customers to make use of this information after the fact. Will their use today, in the absence of day ahead pricing, be affected by having information of their usage yesterday any more than having information on their usage three days earlier or the past week or month? Understanding the difference between raw and bill ready data differs amongst classes of customers with the larger customers better able to understand the technology that makes estimating and rebuilding of data necessary so waiting for bill ready data may not be as important for these customers.

## **5. Non-Commodity Time of Use Rates**

The Smart Meter initiative as envisioned by the Provincial government is a means to develop and maintain a conservation culture in Ontario. Clearly the deployment of interval meters is an enabling technology. However, the technology has limited value unless there are price signals to go along with it. To some extent commodity pricing that has elements for daily and monthly price variability will help drive changes in consumer behavior. How such behavior change depends on the price differential and individuals response to those signals. Are the price signals large enough to alter behavior? It is not necessary to go too far away from our daily lives to see that consumers will respond to price differentials. Regular changes in gasoline prices changes the manner in which gasoline is purchased. Discounts on food and any variety of consumer goods result in behavior changes. Admittedly the change in behavior is largely around discretionary use so part of the challenge in the electricity industry is educating consumers as to what their discretionary electricity use is but more importantly the discretion they have in their total usage (demand) at one time..

It is Wirebury's belief that conserving electricity is only one part of the province's objective. Managing demand is another. In fact, throughout the report, it discusses the impact of reducing demand on the system. The plan to push interval/demand meters down to the commercial customers would be the first phase of bold initiative to embrace demand management across all market sectors. Interval metering provides the

opportunity to deliver demand management not only at the commercial and industrial level but also at the residential level to quickly advance Ontario's conservation culture.

As the Board's Report rightly points out a primary principal of rate design is cost causality. Leaving asisde commodity costs and pricing which seems to be the main focus of the smart meter initiative the initiative also provides the opportunity to fundamentally change the way all customers pay for and use the distribution and transmission systems.

The main drivers of distribution and transmission costs are customer related and capacity related costs. However, the recover of these costs from the majority of customers, i.e. the residential and smaller general service markets, have historically been through customer charges and commodity based rates. This process has not resulted in either sending the correct price signals or the most equitable cost recovery treatment however it has been accepted because of the high cost of doing it right and previous lack of cost effective metering technology.

Interval meters allow utilites to do it right and they should take advantage of this technology to charge all customer classes on the basis of the demand that they impose on the distribution and transmission system. It is only in the way that consumers will realize that it is not only how much electricity they use, which is important, but how and when they use it.

There has always been a fine line between rate design and social policy. In the past this has manifested itself in cross subsidization between customers of different rate classes. The social policy of today seems to be more closely aligned to cost causality. Consequently, the objective of managing demand would seem to support the use of demand charges across all rate classes.

Wirebury supports the use of demand charges and billing all customer on a demand basis. It believes that with appropriate communication this can result in behavior changes that result in reductions in peak usage. Initial discussions Wirebury has had with customers that are being charged on the basis of demand suggest that many customers accept the



rationale and the basis for such charges and view them as resulting in socially responsible behavior. Customers, through education can have a line of sight between the demand and its contribution to the demand on the generator.

While Wirebury believes that billing using demand charges for distribution and transmission sends appropriate price signals it recognizes that there are a variety of alternatives regarding the definition of demand when used as a billing determinant. In various instances demand has been defined as; instantaneous demand; maximum hourly use; and maximum use in a 5, 15 or 30 minute interval expressed as an hourly rate. The Board should standardize the demand billing determinants for classes of customers across all utilities but it need be standardized across all classes within a utility. This means that all residential consumers being charged for the demand they impose on the system infrastructure know that the demand billing determinant is defined in the same way no matter which utility services them. Similarly industrial customers should know that their demand billing determinant will be the same no matter which utility serves them.

As mentioned earlier rate design can be an instrument of social policy. However, this does not mean that rate design need to be totally disconnected from cost causality. From a social policy perspective the Provincial Government sees a need to manage demand. The rates that are required to achieve this objective need to be understandable by customers, connected to their behavior and reinforce desirable behavior.

Charging all customers for distribution and transmission use based upon their instantaneous demand or their peak hour usage in a billing period is most closely aligned to cost causality and, Wirebury believes, can be communicated to and understood by all customers. Using monthly demand is also the traditional approach to demand charges that has been used in the commercial and industrial market sectors. However the monthly demand as a billing determinant may not adequately reinforce desirable behavior as it rolls out into the residential and general service markets. That is because once a customer sees it has had a high demand hour early in its billing cycle there is no ongoing incentive to manage maximum use below that demand for the balance of the billing period. (There

will continue to be incentives to conserve but not to manage demand). Interval meter technology facilitates new rate offerings that would allow the consumer to be billed based upon their daily peaks thereby providing an incentive to manage demand on a day to day basis (and even be a link for day ahead pricing response). Wirebury believes that the Board might wish to consider such a rate design for the smaller customer classes. While not as closely related to costs as the monthly maximums it is closer than the current use of a total consumption charge.

## **6. Conclusion**

In conclusion Wirebury believes that the Government and the Board is taking the right approach to addressing some of the challenges facing the electricity market in Ontario today. It also allows the Board to make use of technology to take some bold and innovative steps and use rate design as a load management tool.