Ontario Energy Board

Report of the Board

Report of the Board on 2nd Generation Incentive Regulation for Ontario's Electricity Distributors

Addendum for Smart Metering Rates

January 29, 2007

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1 Introduction

1. Purpose

This is an addendum (the "Addendum") to the “Report of the Board on Cost of Capital and 2nd Generation Incentive Regulation for Ontario’s Electricity Distributors”[1]. In that report, the Board stipulated that the 2006 smart metering rate adder is to be removed from the calculation of 2007 rates. This Addendum provides guidance on how to apply for a new smart metering rate adder for 2007. It also outlines how the Board intends to address a number of issues in respect to the recovery of costs related to implementing the smart metering initiative.

The target date for filing 2007 rate applications is January 26, 2007. If you have already filed an application, you may file an amendment seeking a smart metering rate adder. If your application has not yet been filed, you may include the smart metering rate adder in your application. In either case, you must file no later than **February 9, 2007**, to ensure inclusion of a smart metering rate adder in your 2007 rates. A filing model, as described in Appendix A, is available on the Board’s website[2] to assist in the preparation of your application.

Distributors may apply for one of two types of smart metering rate adders. The smart metering rate adder for distributors who have plans to install smart meters in 2007 will be based on the application submitted. Distributors who do not have specific plans for 2007 meter installation may apply for a standard (uniform) smart metering rate adder. This adder is not directly related to costs of smart meter implementation, but provides funding for future implementation and is intended to minimize future rate impacts.

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[1] Available on the Board’s website at http://www.oeb.gov.on.ca/documents/cases/EB-2006-0088/report_of_the_board_201206.pdf

[2] http://www.oeb.gov.on.ca/html/en/industryrelations/ongoingprojects_smartmeters.htm

The provision of the smart meter rate adder is a funding mechanism – not a review of costs. A review of the cost of implementing the smart metering initiative needs to be addressed before the Board can finalize rate recovery. To do this, the Board will hold a combined proceeding of all distributors that have applied for a specific smart metering rate adder. As such, distributors remain at risk for the funds provided until such time as the Board reviews the costs and determines that these costs were prudently incurred. It is the Board's intention to initiate the combined proceeding shortly, and as outlined below.

2. Organization of this Addendum

Section 2 of this Addendum reviews the regulatory framework for the smart metering initiative and outlines the Board's consideration of what distribution activities are eligible for cost recovery.

Section 3 provides a summary review of the Smart Meter Investment Plans filed in December 2006.

Section 4 provides a summary of the regulatory treatment for smart meters.

Section 5 provides information for applying for a smart metering rate adder to be effective May 1, 2007.

Section 6 sets out the process that will be used by the Board after May 1, 2007 to provide a long-term cost-recovery framework for issues related to the smart metering initiative.

Section 7 addresses electricity distribution rates in 2008 and later.

Appendices provide accounting information and detailed descriptions of how the smart metering rate adders are calculated.

3. Contact Information

For questions or clarification on **Rates and Cost Recovery** please contact:

Ontario Energy Board

Market Operations Hotline

Phone: 416-440-7604

Email: market.operations@oeb.gov.on.ca

For questions or clarification on **Meter Data Management** please contact:

IESO

Dacia Rohlehr

Phone: 905-855-4306

Email: Dacia.Rohlehr@smi-ieso.ca

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2 Smart Metering Initiative

2.1 The Regulatory Framework

The Province of Ontario has committed to have smart electricity meters installed in 800,000 homes and small businesses by the end of 2007 and throughout Ontario by the end of 2010. The Province has enacted legislation[3] and issued regulations to enable the implementation of its smart metering initiative.

2.1.1 Roles and Responsibilities

Distributors are responsible for putting in place an Advanced Metering Infrastructure (AMI). The AMI is the infrastructure within which date- and time-stamped hourly meter reads will be remotely collected and transmitted daily to a distributor's control computer. The AMI includes the hardware from the meter to the controlling computer and the software required to run the AMI system. The Province of Ontario has established standards which set a minimum level of functionality for an AMI system[4] for residential and general service customers where demand metering is not required.

The legislation[5] contemplates regulations being issued regarding the recovery of amounts relating to meters owned before January 1, 2006 (stranded assets associated with the undepreciated cost of accumulation meters).

The legislation prohibits discretionary metering activities as defined in the legislation[6] and modified by regulation[7]. Non-discretionary metering activities are those required to meet Measurement Canada requirements, and include the necessary meter testing and new installations as set by the Government of Canada. Smart meter pilot projects

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[3] Bill 21, *Energy Conservation and Responsibility Act, 2006.*
[4] Ontario Regulation (O. Reg) 425/06 references Functional Specification for an Advanced Metering Infrastructure, July 14, 2006.
[5] Section 28.4 of the *Ontario Energy Board Act, 1998*.
[6] Section 53.18 of the *Electricity Act, 1998*.
[7] O. Reg. 427/06.

funded under conservation and demand management plans approved by the Board are also allowed under the regulation.

The Independent Electricity System Operator (IESO) is responsible for planning, managing and implementing the smart metering initiative[8], including the development of a database that collects, manages, stores and retrieves smart metering data. The centralized Meter Data Management and Meter Data Repository (MDM/R) will provide a common infrastructure for receiving meter reads from all AMIs in Ontario, process the readings to produce billing-quality consumption data, store and manage data and provide interested parties with access to such data.

2.1.2 The Board's Role

The Board understands the distributors' need for a measure of certainty in recovering costs associated with the smart metering initiative. At the same time, the Board must balance that need with its responsibility for ensuring the prudence and cost effectiveness of those expenditures.

The smart metering initiative is established by legislation and regulation. The minimum functionality standards for meters, the meter data management and repository and the target for meter installations are established by the Province of Ontario. The Board has the responsibility to ensure that only the prudently incurred costs of implementing and operating smart metering are recovered in rates[9]. There are three general areas in which a distributor may incur costs for the smart metering initiative:

- AMI costs
    - Procurement costs of the AMI system;
    - Costs for extra functionality beyond the minimum functional specification; and
    - Cost of installing and testing the AMI system (capitalized and expensed);

[8] O. Reg. 452/06.
[9] The requirement for allowing prudently incurred costs to be recovered is set out in O.Reg 426/06.

- Other LDC costs
    - CIS costs
        - Costs of customer information system changes;
        - Costs of interfaces with the MDM/R to enable billing;
    - Incremental operating and administration costs;
    - Costs associated with changes to ancillary systems due in whole or in part to the smart metering initiative; and
    - Stranded assets associated with the undepreciated cost of existing accumulation meters.
- MDM/R – recovery of future fees for services provided

2.1.3 Meters Exceeding Provincial Specifications

Ontario Regulation 426/06 allows distributors to recover the procurement costs, subject to final approval of the Board, of an AMI meeting the minimum functionality of the AMI specification established by regulation. Distributors who acquire an AMI which exceeds this functionality must receive Board approval for the recovery of any associated incremental costs.

The Regulations require that meters, metering equipment, systems and technology and associated equipment systems and technologies meet the criteria specified in the *Functional Specification for Advanced Metering Infrastructure*[10] (the "AMI specification"). The Board will provide for recovery of incremental costs associated with meters which exceed the AMI specification where, in addition to other matters the Board may consider appropriate, the distributor can provide evidence that the functionality that exceeds the minimum functionality adopted in O.Reg. 425/06 benefits the distributor's consumers. The specification for an AMI does not apply to meters for consumers that require demand metering (usually GS over 50 kW of monthly demand).

[10] Dated July 14, 2006 and available on the Ministry of Energy's website.

2.1.4 Customer Information Systems, Billing and the MDM/R

Legislation prohibits distributors[11] from recovery of costs[12] for meter data functions to be performed within the MDM/R. The IESO is the designated project manager for development of the MDM/R. The IESO is working with certain distributors to begin implementation and testing of the MDM/R. Distributors should discuss with the IESO any CIS system changes which are being considered, to ensure that these are compliant with MDM/R technical requirements and IESO implementation time frames. Without such discussions the distributor may invest in equipment, software, and systems which will be at risk of non-recovery.

[11] O.Reg. 426/06 s. 2(4) provides an exception for distributors named in O.Reg. 428/06: Chatham-Kent Hydro Inc., Middlesex Power Distribution Corporation, Milton Hydro Distribution Inc., Newmarket Hydro Ltd., and Tay Hydro Electric Distribution Company Inc.
[12] O.Reg. 426/06.

3 2006 Smart Meter Investment Plans

3.1 2006 Generic Decision

In the 2006 Generic Decision[13](EB-2005-0529), the Board allowed a preliminary smart metering rate adder to provide initial funding for smart meter investment and to help smooth potential rate impacts associated with replacing undepreciated meters. When this decision was released on March 21, 2006, the regulations on minimum functional specifications, cost recovery and discretionary metering activities had not been issued. Now that the regulations have been issued the Board will proceed on the basis of the regulatory framework outlined in section 2.

3.1.1 2006 Smart Meter Investment Plan Filings

In the 2006 Generic Decision, the Board indicated that it would, at some future date, require distributors to update their smart meter plans. In October 2006, and subsequent to the regulations on minimum smart meter requirements being issued, the Board requested that these plans be filed by December 15, 2006. These filings were for information purposes only and do not form part of the 2007 rate applications.

The Board asked that the distributors' filings report the forecast number of meters to be installed, together with the capital expenditures and operating expenses, by customer class and by year. Those plans filed in response that included meter installations in 2007 show considerable variation in the installed and operating cost per smart meter unit. In addition, the level of detail provided in the plans varied considerably. This variability precluded the creation of a meaningful comparison of costs broken out by the cost areas listed in section 2.1.2.

The overall capital costs (including smart meter purchase price and installation cost) reported by distributors whose plans showed meter installations in 2007 ranged from

[13] http://www.oeb.gov.on.ca/documents/cases/EB-2005-0529/Board/Decision/decision_210306.pdf

$110 to $560 per unit. The average capital cost was $175 and the median was $140. While the sample size was small and the figures indicate some outliers, three groupings could be made around $110, $140 and $180 per metered end point. These figures are approximations only.

The reported incremental annual operations and maintenance costs ranged from $5 per unit to $42 per unit. The average was $14 and the median was $8. These figures are approximations only.

For distributors who plan to install in 2007, there was also a large variation in the number of meters, both in absolute terms and as a percentage of its customer class. For example, some distributors will be converting their entire residential customer base to smart meters while others will be converting only a percentage of their customer base.

Some of the variation in smart meter costs may be due to distributors purchasing systems with extra functionality beyond the minimum AMI specification. As noted earlier, distributors will be required to justify these expenditures to the Board in order to recover them in rates. Some of the variation may also be due to the fact that some distributors appear to be including ancillary work and system upgrades in their costs and these costs may not be entirely associated with the smart metering initiative.

The Board intends to hold a combined proceeding involving all distributors who are defined (see section 5 of this Addendum) as Named Distributors and Active Distributors. The combined proceeding will, among other things, examine the reasons for the apparent variations in smart meter purchases, installation and operations and maintenance costs. The objective of the combined proceeding is discussed in section 6 of this Addendum.

4 Regulatory Treatment for Smart Meters

4.1 Regulatory Treatment

Funding assets in rates prior to those assets being placed in service is not the common regulatory rate making practice. This section explains how the Board has modified generally accepted regulatory practice to accommodate the smart meter initiative.

4.1.1 Cost recovery for assets acquired under cost of service regulation

The generally accepted practice by which a distributor will fund capital programs is through retained profits or the issuance of new debt or equity. Typically during the period of construction and until new assets are included in the rate base, no return is provided to the distributor on the cost of those assets. In a cost of service proceeding the regulator typically reviews test year capital plans and approves the inclusion of various projects in the utility rate base.

Once the new assets are placed in service and incorporated into rate base, in addition to the operating costs, two components of return are included in rates: a return of the capital cost incurred to build the asset (depreciation or amortization); and, a return on the capital invested in the assets (allowed return on rate base). Both the return of capital and return on capital are included in an approved revenue requirement which rates will be set to recover. The capital related costs of the asset are thus apportioned to ratepayers over the service life of the assets in question.

4.1.2 Cost recovery for assets acquired under incentive rates

The consideration of costs for assets acquired during an incentive rate plan is markedly different. In an incentive rate plan, for example a price cap plan, there is no direct relationship between the cost of assets in service and rates.

The proposed incentive rate scheme set out in the "Report of the Board on Cost of Capital and 2nd Generation Incentive Regulation for Ontario's Electricity Distributors"

de-links utility costs from rates and, if the utility finds efficiencies, it can maintain or increase margins. Further, capital additions made during the period of the incentive rate plan are included in rates only at the time of rebasing. Smart meters will fall into this category.

4.1.3 Smart Meter Funding

The Board recognizes there is a need for special consideration of the assets acquired under the Province's smart meter policy because smart meters will not be included in rate base until a future year when rebasing occurs. In the 2006 rate setting proceedings, a number of distributors indicated that they might have difficulty implementing the announced meter installation targets without financial assistance. To address this need the Board is providing advance funding in the form of a smart metering rate adder in the years before rebasing.

As well as providing advance funding, the adder also phases in the effect on consumer rates that could otherwise arise if the cost of the meters was brought into the rate base all at once in a future year. The rate adder is removed once smart meter asset balances are included in approved rate base and their costs incorporated into a re-based revenue requirement.

4.1.4 Recognition of Smart Meter Assets in Rate Base

In respect to capital additions related to implementing the smart meter program, there are two issues – one is in respect to when capital additions are recognized in rates; the other is in respect to what amounts are recognized. The Board has established variance accounting which allows both issues to be addressed at a future date.

Distributors that file applications compliant with the Board's incentive rate making guidelines will have a mechanistic adjustment beginning in May 2007. Under the current rate plan only one-third of distributors will have rates set in 2008 on a new

rebased revenue requirement. Also to be considered is the fact that a utility may implement the change-over to smart meters over a number of years.

The smart metering rate adder addresses the timing mismatch between when smart meter assets go into service and when the asset is recognized as part of the calculation of a new re-based revenue requirement. It does so by providing a stream of funds which are subsequently compared to returns that will be allowed on the depreciated smart meter assets once they are recognized in rates at the time of rebasing.

When the Board established the variance accounting as part of 2006 rates it did so in the absence of details as to how the smart meter policy was to be implemented, most importantly metering standards. Other than some initial pilots, distributors had little or no experience with smart meters. The estimates for implementing the program provided by distributors were therefore based on limited information. The variance accounts established by the Board at that time allow for a review of all subsequent costs incurred to implement the program.

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5 Rate Adders for 2007 Electricity Distribution Rates

5.1 Categories of Distributors

The Board is aware that the level of participation of distributors in the roll-out of the smart metering initiative is not uniform. Some distributors have indicated in the plans filed with the Board that they intend to install smart meters in 2007 while others have no smart meter related plans until after 2008. Distributors' plans for 2007 meter implementation is an important consideration in determining the appropriate smart metering rate adder for 2007. The Board has defined three categories of distributors for the purpose of considering its treatment of smart metering rate adders. The categories are described below.

5.1.1 Named Distributors

The Province has, by way of Ontario Regulation 427/06, specifically authorized 12 distributors[14] to actively pursue discretionary metering activities[15] that are otherwise prohibited under section 53.18 of the *Electricity Act, 1998*. Ontario Regulation 427/06 also prescribed criteria that other distributors must meet in order to actively pursue discretionary metering activities. As an example, if a distributor's metering system is procured on its behalf by Hydro One Networks Inc. or one of the six distributors named in subsection 1(1) paragraph 3 of Ontario Regulation 427/06 (the Coalition of Large Distributors), then that distributor is authorized to conduct metering activities. Only one distributor, Hydro One Networks, has informed the Board that it is procuring meters on behalf of another distributor, Hydro One Brampton. Thus the 12 distributors who are named in Ontario Regulations 427/06 and 428/06 plus Hydro One Brampton constitute the group of 13 Named Distributors and are listed in Appendix C to this Addendum.

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[14] Ontario Regulation 427/06 names seven distributors and includes an authorization in section 1(1)7 for metering activities conducted by distributors for the five service areas identified as priority installations by Ontario Regulation 428/06. These are the 12 distributors referred to in this Report.
[15] As defined in subsection 53.18(2) of the *Electricity Act, 1998*.

Any distributor, other than Hydro One Brampton, that has had smart meters acquired by one of the seven distributors named in Ontario Regulation 427/06, should bring this to the Board's attention in its 2007 application. It should be noted that Ontario Regulation 427/06 requires that the smart meters be procured by one of the seven distributors listed in Ontario Regulation 427/06. It does not authorize discretionary metering for distributors who acquire smart meters directly from a meter provider.

5.1.2 Active Distributors

Based on a review of the plans filed with the Board in December 2006, several distributors, other than the 13 Named Distributors discussed above, appear to be pursuing smart metering activities in 2007, either as pilot programs or a roll-out of a smart meter program. These are defined as Active Distributors for the purposes of this Addendum. Appendix C includes a list of distributors the Board has identified as Active Distributors based on a review of the plans submitted in December 2006.

The Board understands that the IESO is preparing a coordinated enrolment of distributors for data management. The Board urges both Named and Active Distributors to contact the IESO, who is the smart metering initiative project manager, to ensure that their implementation plans fit within the IESO's intended timeframes. Contact information is provided in section 1 of this document.

5.1.3 Inactive Distributors

Many distributors have indicated to the Board that they will not be undertaking any smart metering activities until at least 2008. These distributors have been identified by the Board as Inactive Distributors in Appendix C. These distributors may, but are not required to, file for a smart metering rate adder. Monies so collected, and any associated costs, will be booked into the existing variance accounts attracting interest for disposition against future smart meter costs.

5.2 Rate Adders for Categories of Distributors

5.2.1 2007 Rate Adder for Named and Active Distributors

The Board recognizes that it is important for distributors to have timely funding to facilitate achievement of the smart metering implementation targets established by the Province. In order to fund the smart meter installations forecasted by distributors, the Named and Active Distributors will be provided with funding in an amount that is consistent with the number of meters that each is installing.

The preliminary smart metering rate adder for each distributor for 2007 rates should reflect the legislative framework and the implementation plans of the distributor. In developing its policies on smart meter funding and cost recovery, the Board has been informed by the plans filed by distributors. However, Named and Active Distributors are not required to utilize the cost estimates provided in their December 2006 plan filings. It is incumbent on distributors to ensure their implementation plans conform to the legislation and the expectations of the IESO.

Distributors' variance accounts should continue to record the full amount recovered through the rate adder and the full amount of incremental expenses. A review of the prudence of smart metering costs will be conducted in the combined proceeding described in section 6 which will, among other things, test individual distributor's evidence with respect to costs and will compare the costs incurred by the various distributors.

The Board will set 2007 smart metering rate adders based on the applications of the Named and Active Distributors. The Board expects these distributors to apply for a specific adder which has been calculated using the model available on the Board's website. A description of, and an excerpt from, the model are provided in Appendix A.

If a distributor plans to apply for a specific adder which is calculated without the use of the model provided, the distributor should contact Board staff at the number provided in section 1 of this paper.

It is important to note that this smart metering rate adder has not been set to guarantee the recovery of costs, nor at a level that is deemed to be prudent. The Board will examine the evidence in the combined proceeding which is described in section 6. The rate adder provides a cash flow stream which is to be used to facilitate the acquisition and installation of smart meters. It does not imply nor provide approval for these costs.

5.2.2 2007 Smart Metering Rate Adder for Inactive Distributors

The Board is of the view that nominal funding should continue in rates for distributors who are not actively installing meters in 2007. These distributors will have a compressed period (2008 to 2010) to install smart meters for all their residential and GS less than 50 kW customers. The nominal rate adder collected in 2006 and 2007 by distributors will help to fund rapid deployment and avoid potential future rate shock for their customers. The amounts collected are to be booked into the variance accounts which attract a carrying charge at a Board approved rate[16].

A 2007 smart metering rate adder is not required for Inactive Distributors but the Board expects that Inactive Distributors will file for a smart metering rate adder that reflects $0.30 per residential customer per month for 2007. As in the Generic Decision, this will be allocated to all metered customers and recovered through the monthly service charges.

[16] http://www.oeb.gov.on.ca/html/en/industryrelations/ongoingprojects_smartmeters.htm

6 Smart Metering Costs – Combined Proceeding

6.1 Combined Proceeding

To ensure that the overall impact of the smart metering initiative on customers is appropriately balanced, both the treatment of smart meter costs and the disposition of the undepreciated cost of meters replaced need to be considered together. Currently the Board has established two variance accounts to capture the amount recovered by the smart metering rate adder and all of the capital and incremental operating costs. This means that costs incurred in implementing smart meters are subject to a future Board review. Disallowance of any of the costs would result in an adjustment to future rates. The reason for this regulatory treatment is set out in section 4.

A concern raised by distributors with this approach is that it leaves the entire amount of smart metering costs at risk until a future proceeding of the Board. The Board intends to deal with this issue, and any other issues related to the recovery of cost for the smart meter initiative, at a combined proceeding of all Named and Active Distributors. This combined proceeding is expected to begin by May 1, 2007.

6.1.1 Proceeding Issues

In the combined proceeding, the Board will consider such issues as:

- the reasons for variation in costs among distributors as indicated by those that filed Smart Meter Investment Plans in December 2006;
- cost recovery for metering functionality which exceeds criteria required by Ontario Regulation 425/06 and specified in the *Functional Specification for Advanced Metering Infrastructure*;
- the establishment of criteria, benchmarks or other mechanisms to minimize uncertainty as to the recovery of smart meter costs incurred prior to re-basing of distribution rates;
- a consideration of any changes to regulatory accounting that may be needed to support long-term regulatory requirements;
- the treatment of the undepreciated capital cost of stranded assets; and

- a consideration of incentives for the cost-efficient implementation of smart meters.

One of the issues that will be addressed at the combined proceeding will be whether the Board should establish a per smart meter installation amount which is not subject to future review (a standard cost benchmark). The Board may decide on one or more benchmark levels depending on the circumstances of each respective distributor. The Board might also consider whether any benchmark should undergo periodic review to take into consideration new cost information based on later smart meter implementation phases.

If a decision is issued in this combined proceeding that sets a benchmark level of expenditure which is determined to be prudent, then:

- cost associated with the installation of smart meters at the benchmark cost would not be subject to a further review;
- variance accounts would be authorized for clearing in relation to that benchmark; and
- the disposition of the rate adder amounts associated with that benchmark would be resolved.

6.1.2 Proceeding Filings

Those Named and Active Distributors who apply for a 2007 smart metering rate adder will be combined by the Board for a proceeding to resolve these issues. The Board may combine other distributors to this proceeding if it believes this necessary for a clearer understanding of the costs of implementing the smart metering initiative. After 2007 rate applications are received, the Board will make provisions for the combined proceeding, including a preliminary issues list and additional filing requirements. The Board will expect distributors in the combined proceeding to file evidence sufficient in form and content to enable the Board to understand the source of the variation between their costs and those of other distributors. At a minimum, this information should

provide sufficient detail to allow costs to be categorized into the general categories set out in section 2 of this report.

Following the release of the Decision from the combined proceeding, distributors may choose to apply to vary their 2007 rate adders.

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7 2008 Electricity Distribution Rates and Beyond

Distributors that are rebasing in 2008 will follow the method to be established in the combined proceeding to clear the variance accounts of amounts that are different from the benchmark. At the time of rebasing, the Board will adjust the rate base for both stranded assets and new meters.

Distributors that are continuing on 2nd generation IRM rates will continue to have a smart metering rate adder until there is an opportunity to incorporate the assets into the rebased revenue requirement.

Appendix A: 2007 Smart Metering Rate Adder Model

Calculating the May 1, 2007, Smart Metering Rate Adder

The rate adder is calculated to equal the returns *of* capital and *on* capital that would be earned on an equivalent fixed asset as if it were in fact added to rate base, plus amounts for incremental operations, maintenance and administration. Details follow.

The same cost of capital and debt and equity ratios that were used in the 2006 EDR applications for each distributor are to be applied to the forecast smart meter investments. Capital investments are averaged to determine the dollar amount on which to base the return calculations. A working capital allowance has been included in light of the inclusion of incremental operating, maintenance and administration expenses. Tax rates are those applicable to 2007.

Depreciation or amortization recovery in the fiscal year of installation is assumed to be one-half of the annual amount. Smart meters are assumed to have a service life of 15 years. Computer hardware useful life is assumed to be 5 years and computer software is amortized over 3 years. For the income tax or PILs calculation, the capital cost allowance follows the half-year rule. Class 47, 8% rate, has been used for smart meters. Class 45, 45% rate, has been used for computer hardware and software.

The rate adder will be derived applying the above calculation based on the distributor forecast number of installed meters. The 2007 smart meter adder will be applied to all metered customers as described in the 2006 Generic Decision and will be added to the fixed charge rate by class of customer.

An excerpt from the Board's filing model is provided below. The model is available on the Board's website.
http://www.oeb.gov.on.ca/html/en/industryrelations/ongoingprojects_smartmeters.htm

Appendix A1: 2007 EDR Smart Meter Rate Adders Application Filing Information

For purposes of the 2007 Smart Meter Rate Adder application the following information is required to be input by the distributor into the OEB Smart Meter Rate Calculation model found on the OEB Website

Smart Meter Unit Cost

	Per Unit	
Smart Meter Unit Cost *Enter the invoiced cost per smart meter purchased* *Please provide details in Manager's Summary*	$ 110.00	A
Smart Meter Other Unit Cost *Enter the invoiced other costs per smart meter unit purchased* *Please provide details in Manager's Summary*	$ -	B
Smart Meter Installation Cost per Unit *Enter the time and material cost per smart meter unit installed* *Please provide details in Manager's Summary*	$ -	C
Smart Meter Other Cost per Unit *Enter the other cost per smart meter unit installed* *Please provide details in Manager's Summary*	$ -	D
Total Unit cost per Smart Meter	**$ 110.00**	E = A + B + C + D

AMI Capital Cost

	2006	2007	2008	2009	2010	Total
AMI Computer Hardware Costs *Enter the estimated capital costs for AMI related Computer Hardware* *Please provide details in Manager's Summary*	$ 3,437,500	$ -	$ -	$ -	$ -	$ 3,437,500
	2006	2007	2008	2009	2010	
AMI Computer Software Costs *Enter the estimated capital costs for AMI related Computer Software* *Please provide details in Manager's Summary*	$ 5,156,250	$ 5,156,250	$ -	$ -	$ -	$ 10,312,500
Total AMI Capital Cost	**$ 8,593,750**	**$ 5,156,250**	**$ -**	**$ -**	**$ -**	**$ 13,750,000**

Other Capital Cost

	2006	2007	2008	2009	2010	Total
Other Computer Hardware Costs *Enter the estimated capital costs for other related Computer Hardware* *Please provide details in Manager's Summary*	$ -	$ -	$ -	$ -	$ -	$ -
	2006	2007	2008	2009	2010	
Other Computer Software Costs *Enter the estimated capital costs for other related Computer Software* *Please provide details in Manager's Summary*	$ -	$ -	$ -	$ -	$ -	$ -
Total Other Capital Cost	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Incremental AMI Operational Expenses

	2006	2007	2008	2009	2010	Total
Incremental AMI O&M Expenses *Enter the estimated incremental AMI related O&M expenses* *Please provide details in Manager's Summary*	$ 83,333	$ 166,667	$ 250,000	$ 333,333	$ 416,667	$ 1,250,000
Incremental AMI Admin Expenses *Enter the estimated incremental AMI related Admin expenses* *Please provide details in Manager's Summary*	$ 83,333	$ 166,667	$ 250,000	$ 333,333	$ 416,667	$ 1,250,000
Total Incremental AMI Operation Expenses	**$ 166,667**	**$ 333,333**	**$ 500,000**	**$ 666,667**	**$ 833,333**	**$ 2,500,000**

Incremental Other Operational Expenses

	2006	2007	2008	2009	2010	Total
Incremental Other O&M Expenses *Enter the estimated incremental Other related O&M expenses* *Please provide details in Manager's Summary*	$ -	$ -	$ -	$ -	$ -	$ -
Incremental Other Admin Expenses *Enter the estimated incremental Other related Admin expenses* *Please provide details in Manager's Summary*	$ -	$ -	$ -	$ -	$ -	$ -
Total Incremental Other Operation Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

AMI - Advanced Metering Infrastructure
Other - Cost or expenses not AMI but does not include stranded assets

Appendix A2: 2007 EDR Smart Meter Rate Adders Application Filing Information

For purposes of the 2007 Smart Meter Rate Adder application the following information is required to be input by the distributor into the OEB Smart Meter Rate Calculation model found on the OEB Website

2006 EDR Data Information

Deemed Debt (from 2006 EDR Sheet "3-2 COST OF CAPITAL (Input)" Cell C 18)	55%
Deemed Equity (from 2006 EDR Sheet "3-2 COST OF CAPITAL (Input)" Cell C 19)	45%
Weighted Debt Rate (from 2006 EDR Sheet "3-2 COST OF CAPITAL (Input)" Cell C 25)	6.00%
Proposed ROE (from 2006 EDR Sheet "3-2 COST OF CAPITAL (Input)" Cell E 32)	9.00%
Weighted Average Cost of Capital	7.35%

2006 EDR Total Metered Customers

Sum of Residential, General Service, and Large User *from 2006 EDR Sheet "7-1 ALLOCATION - Base Rev. Req." Cells H16 thru H93*	600,000

2006 EDR Tax Rate

Corporate Income Tax Rate *(from 2006 PILs Sheet "Test Year PILs,Tax Provision" Cell D 14)*	36.12%

Installation Plan: *(From Smart Meter Plan filed December 15, 2006)*

assume calendar year installation	2006	2007	2008	2009	2010	Total
Planned number of Residential smart meters to be installed by year	75,000	75,000	75,000	75,000	75,000	375,000
Planned number of General Service Less Than 50 kW smart meters to be installed by year	25,000	25,000	25,000	25,000	25,000	125,000
Planned Meter Installation (Residential and Less Than 50 kW only)	100,000	100,000	100,000	100,000	100,000	500,000
Planned Meter Installation Completed before January 1, 2008		200,000				

Capital Data:

	2006	2007	2008	2009	2010	Total
Smart meter including installation ($110 times Planned Meters Installed)	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 55,000,000
Computer Hardware Costs *2. Smart Meter Data AMI plus Other*	$ 3,437,500	$ -	$ -	$ -	$ -	$ 3,437,500
Computer Software Costs *2. Smart Meter Data AMI plus Other*	$ 5,156,250	$ 5,156,250	$ -	$ -	$ -	$ 10,312,500
Total Front End Computer Costs	$ 19,593,750	$ 16,156,250	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 68,750,000

LDC Amortization Policy:

Smart Meter Amortization Rate *Enter Amortization Policy*	15	Years
Computer Hardware Amortization Rate *Enter Amortization Policy*	5	Years
Computer Software Amortization Rate *Enter Amortization Policy*	3	Years

Operating Expense Data:

	2006	2007	2008	2009	2010	Total
Incremental O&M Expenses *2. Smart Meter Data AMI plus Other*	$ 83,333	$ 166,667	$ 250,000	$ 333,333	$ 416,667	$ 1,250,000
Incremental Admin Expenses *2. Smart Meter Data AMI plus Other*	$ 83,333	$ 166,667	$ 250,000	$ 333,333	$ 416,667	$ 1,250,000
Total Incremental Operating Expense	$ 166,667	$ 333,333	$ 500,000	$ 666,667	$ 833,333	$ 2,500,000

Per Meter Cost Split:

	Per Meter	Installed	Investment	% of Invest
Smart meter including installation	$ 110.00	500,000	$ 55,000,000	77%
Computer Hardware Costs	$ 6.88	500,000	$ 3,437,500	5%
Computer Software Costs	$ 20.63	500,000	$ 10,312,500	14%
Smart meter incremental operating expenses	$ 5.00	500,000	$ 2,500,000	4%
Total Smart Meter Capital Costs per meter	$ 142.50		$ 71,250,000	100%

Appendix A3: Smart Meter Rate Calculation

For purposes of the 2007 Smart Meter Rate Adder application the following information is created by the input the distributor enters into the OEB Smart Meter Rate Calculation model found on the OEB Website

Average Asset Values	**2007**			
Net Fixed Assets Smart Meters	$ 15,583,333			
Net Fixed Assets Computer Hardware	$ 2,750,000			
Net Fixed Assets Computer Software	$ 5,585,938			
Total Net Fixed Assets	$ 23,919,271	$ 23,919,271		*A*
Working Capital				
Operation Expense	$ 333,333			
15 % Working Capital	$ 50,000	$ 50,000		*B*
Smart Meters included in Rate Base		$ 23,969,271		*C = A + B*
Return on Rate Base				
Deemed Debt	55.0%	$ 13,183,099		*D = C * Deemed Debt*
Deemed Equity	45.0%	$ 10,786,172		*E = C * Deemed Equity*
		$ 23,969,271		
Weighted Debt Rate	6.0%	$ 790,986		*F = D * Weighted Debt Rate*
Proposed ROE	9.0%	$ 970,755		*G = E * Proposed ROE*
Return on Rate Base		$ 1,761,741	$ 1,761,741	*H = F + G*
Operating Expenses				
Incremental Operating Expenses			$ 333,333	*I*
Amortization Expenses				
Depreciation Expenses - Smart Meters		$ 1,100,000		
Depreciation Expenses - Computer Hardware		$ 687,500		
Depreciation Expenses - Computer Software		$ 2,578,125		
Total Amortization Expenses			$ 4,365,625	*J*
Revenue Requirement Before PILs			$ 6,460,700	*K = H + I + J*
Calculation of Taxable Income				
Incremental Operating Expenses			-$ 333,333	*I*
Depreciation Expenses			-$ 4,365,625	*J*
Interest Expense			-$ 790,986	*F*
Taxable Income For PILs			$ 970,755	*L = K - I - J - F*
Grossed up PILs			$ 29,708	*M*
Revenue Requirement Before PILs			$ 6,460,700	*K*
Grossed up PILs			$ 29,708	*M*
Revenue Requirement for Smart Meters			**$ 6,490,407**	*N = K + M*
2007 Smart Meter Rate Adder				
Revenue Requirement for Smart Meters			$ 6,490,407	*N*
2006 EDR Total Metered Customers			600,000	*O = 2006 EDR Total Metered Customers*
Annualized amount required per metered customer			$ 10.82	*P = N / O*
Number of months in year			12	*Q*
2007 Smart Meter Rate Adder			**$ 0.90**	*R = P / Q*

Appendix B: Variance and Deferral Accounting

Variance Accounts for Smart Meter Costs and Smart Metering Rate Adder

To make the smart metering rate adder function as intended, various matters need to be specified. These include the basis for calculating the smart metering rate adder, the accounting to be done to accumulate the costs of the smart meters until rebasing, and, the process for rolling approved remaining balances into rate base and clearing the accounts.

The Board has authorized variance accounts to capture the associated costs arising from investments in new smart meters, and the recovery arising from the smart metering rate adder.

These accounts are needed for two purposes:

- To provide a means by which smart meter costs and rate recoveries can be isolated for future disposition of the balances, and if so approved by the Board, into rate base, rates and the incomes of the distributor (occurs when the costs and rates of the distributor are rebased in a future proceeding); and

- To facilitate prudence review by the Board in a future proceeding.

The two variance accounts created are as follows:

- Account 1555, Smart Meter Capital and Recovery Offset Variance Account
    - To record capitalized direct costs related to the smart meter program and the recoveries of smart meter funding included in the fixed charges rate for each class of customer
    - Appropriate sub-accounts are to be created by each distributor to segregate costs into various categories of cost
    - Carrying charges apply to the balance at Board prescribed rates

- Account 1556, Smart Meter OM&A Variance Account
    - To record incremental OM&A expenses and amortization related to the smart meter program
    - The offsetting posting is to the OM&A accounts (OM&A contra account 5695) and appropriate sub-accounts are to be maintained within that account for the following categories of expenses: operating, maintenance, administration and depreciation or amortization
    - Carrying charges apply to the balance at Board prescribed rates

Please refer to the Board's website for more information on the smart meter accounts.

Ultimately, when rebasing of distributor costs and rates occurs in the 2008-2010 period, the smart meters will become part of conventional rate base and the smart metering rate adder will become an implicit part of base rates for each distributor. There will be no need for these variance accounts to continue except to the extent that any new funding is provided for continuing investment in the succeeding incentive regulatory regime.

Deferral Account to Address Regulatory Accounting for Meters Being Replaced

The Board has recognized the need to provide a specialized means for addressing in rates the un-recovered costs associated with meters being replaced. As a first step, on January 16, 2007, the Board authorized the creation of an account for use by distributors that wish to capture any such un-recovered cost with the intention of applying to the Board for future recovery.

It is expected that in the combined proceeding beginning sometime after May 1, 2007 the issues concerning disposition of this account will be addressed. In the meantime distributors are already collecting depreciation and earning a return on the associated amounts for replaced meters already included in rate base.

Prior to disposition and for future regulatory treatment, various matters still need to be specified: the amortization period; the potential inclusion of costs of all replaced meters of the same type (not just those taken out of service); the treatment of scrap value; and, the overall impact on customer rates of including an adder in rates for smart meters while amortizing the residual value of meters removed from service. These matters will be addressed in the combined proceeding.

Appendix C: List of Distributors by Category

Named Distributors
Chatham-Kent Hydro Inc.
Enersource Hydro Mississauga Inc.
Horizon Utilities Corporation
Hydro One Brampton Networks Inc.*
Hydro One Networks Inc.
Hydro Ottawa Limited
Middlesex Power Distribution Corporation
Milton Hydro Distribution Inc.
Newmarket Hydro Ltd.
PowerStream Inc.
Tay Hydro Electric Distribution Company Inc.
Toronto Hydro-Electric System Limited
Veridian Connections Inc.
Active Distributors
Burlington Hydro
Cooperative Hydro Embrun Inc.
Festival Hydro Inc.
Guelph Hydro Electric Systems
Halton Hills Hydro Inc.
Hydro 2000 Inc.
London Hydro Inc.
North Bay Hydro Distribution Limited
Ottawa River Power Corporation
Peterborough Distribution Incorporated
Tillsonburg Hydro Inc.
Whitby Hydro Electric Corporation
Inactive Distributors
Atikokan Hydro Inc.
Barrie Hydro Distribution Inc.
Bluewater Power Distribution Corporation
Brant County Power Inc.
Brantford Power Inc.
Cambridge and North Dumfries Hydro Inc. (Energy Plus)
Canadian Niagara Power – Fort Erie
Canadian Niagara Power – Port Colborne
Canadian Niagara Power Eastern Ontario
Chapleau Public Utilities Corporation
Clinton Power Corporation
COLLUS Power Corporation

* Hydro One Brampton Networks Inc.'s metering system is being procured by Hydro One Networks Inc.

Inactive Distributors – cont'd
ELK Energy Inc.
EnWin Powerlines
Erie Thames Powerlines Corporation
Espanola Regional Hydro Distribution Corporation
Essex Powerlines Corporation
Fort Frances Power Corporation
Grand Valley Energy Inc.
Greater Sudbury Hydro Inc.
Grimsby Power Inc.
Haldimand County Hydro Inc.
Hawkesbury Hydro Inc.
Hearst Power Distribution Company Ltd.
Innisfil Hydro Distribution Systems Ltd.
Kenora Hydro Electric Corporation Ltd.
Kingston Electricity Distribution Ltd.
Kitchener-Wilmot Hydro Inc.
Lakefront Utilities Inc.
Lakeland Power Distribution Ltd.
Midland Power Utility Corporation
Niagara Falls Hydro
Niagara-on-the-Lake Hydro
Norfolk Power Inc.
Northern Ontario Wires Inc.
Oakville Hydro Corporation
Orangeville Hydro Ltd.
Orillia Power Corporation
Oshawa PUC Networks Inc.
Parry Sound Power Corporation
Pennisula West Utilities Ltd.
PUC Distribution Inc.
Renfrew Hydro Inc.
Rideau St. Lawrence Distribution Inc.
Sioux Lookout Hydro
St. Thomas Energy Services Inc.
Terrace Bay Superior Wires Inc.
Thunder Bay Hydro
Wasaga Distribution Inc.
Waterloo North Hydro Corporation
Welland Hydro-Electric System Corporation
West Coast Huron Energy Inc.
West Perth Power
Woodstock Hydro Services Inc.
Centre Wellington Hydro Ltd.
Wellington North Power Inc.
Westario Power Holdings Ltd.