THUNDER BAY HYDRO

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April 11, 2012

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

Dear Ms. Walli:

Re: Responses to Board Staff Interrogatories; Thunder Bay Hydro Electricity Distribution Inc. Smart Meter Cost Recovery Application EB-2012-0015

This letter acknowledges receipt of the Board Staff Interrogatories dated March 27, 2012. Thunder Bay Hydro Electricity Distribution Inc. submits two (2) paper copies of its responses to the Board Staff Interrogatories for the Smart Meter Cost Recovery Application and encloses the following:

- Responses to the Board Staff Interrogatories
- Appendix A – 2012 Smart Meter Model_FINAL_2.17_20120411.xls
- Appendix B – Bill Impacts

An electronic copy has been submitted through the Ontario Energy Board's RESS on-line filing system and via email, including a copy to all Intervenors.

Should you require any additional information, please do not hesitate to contact the undersigned.

Yours truly,

Cindy Speziale

Cindy Speziale, CA
Vice President, Finance

Encl.

cc: Robert Mace, President, Thunder Bay Hydro Electricity Distribution Inc.
Michael Buonaguro, Counsel for Vulnerable Energy Consumers Coalition (VECC)

Thunder Bay Hydro Electricity Distribution Inc. ("Thunder Bay")
2012 Smart Meter Cost Recovery
EB-2012-0015
Board Staff Interrogatories

1. Letters of Comment

Following publication of the Notice of Application, the Board has not received any letters of comment to date.

a. Please confirm whether Thunder Bay has received letters of comment, and if so, please file a copy of the letters of comment.

b. Please confirm whether a reply to the letter was sent from Thunder Bay. If confirmed, please file the reply with the Board. Please ensure that the author's contact information except for the name is **redacted**.

c. If not confirmed, please explain why a response was not sent and confirm if Thunder Bay intends to respond.

Responses

a. Thunder Bay confirms that it has not received any letter of comment to date.

b. Not Applicable

c. Not Applicable

2. Audited Balances

Thunder Bay stated on page 3 that the December 31, 2010 have been audited, and the 2011 balances are estimated. The Board in its Guideline G-2011-0001 *Smart Meter Funding and Cost Recovery - Final Disposition* December 15, 2011 said:

> "When applying for the recovery of smart meter costs, a distributor should ensure that historical cost information has been audited including the smart meter related deferral account balances up to the distributor's last Audited Financial Statements. A distributor may also include historical costs that are not audited and estimated costs, corresponding to a stub period or to a forecast for the test rate year. The Board expects that the majority (i.e. 90% or more) of the total program costs for which the distributor is seeking recovery will be audited. This threshold should be assessed against total program costs and not the costs in any individual application. In all cases, the Board expects that the distributor will document and explain any differences between unaudited or forecasted amounts and audited costs in its application."

a. What percentage of the total costs does the audited 2010 balance represent?

b. If the 2011 audited balances are now available, please provide them.

c. If the audited costs are not available, please provide an explanation of the estimated 2011 balances over the audited 2010 balances.

Responses

a. Thunder Bay has audited balances for the smart meter program up to December 31, 2010 life-to-date ("LTD"). The 2011 balances have been reviewed by the Auditors and Thunder Bay's Audit Committee; however, official approval from our Board of Directors approval will be sought at our April 26th Board meeting. Nevertheless, Thunder Bay's audited balances represent 90% of the total smart meter program costs that have been requested for disposition. Please note that in its original application dated January 13, 2012 for EB-2012-0015, Thunder Bay's 2011 balances included actuals to December 22, 2011 year-to-date ("YTD") with the remainder of the year being forecasted. Please see the chart below for the calculation which includes unaudited balances for December 31, 2011 YTD which are reflected in the revised Smart Meter Model (see **Appendix A**):

	Dec. 31/10 LTD Audited	2011 Unaudited	Total
Capital	$7,890,896	$240,744	$8,131,640
Operating	$891,129	$715,124	$1,606,253
Total	$8,782,026	$955,868	$9,737,893
%	90%	10%	100%

b. As mentioned above, the audited financial statements for December 31, 2011 are not expected to be approved until our April 26th Board meeting.

c. The table below compares the 2011 forecast to the 2010 audited actuals. Explanations are provided as well.

RATE FILING	A 2010 Actual & Audited	B 2011 Forecast & Unaudited	B - A Variance
Total Meters Installed: 49.485			
Smart Meter Unit Costs (Advanced Metering Infrastructure (/	$60,956	$62,302	$1,346
Smart Meter Other Unit Costs	$80,985	$14,539	-$66,446
Smart Meter Installation Costs	$155,347	$81,725	-$73,623
Smart Meter Other Costs	$62,753	$73,481	$10,728
Smart Meter Unit Costs	$360,041	$232,046	-$127,995
AMI Computer Hardware Costs	$72,472	$2,408	-$70,064
AMI Computer Software Costs	$0	$0	$0
Other Computer Hardware Costs	$0	$0	$0
Other Computer Software Costs	$0	$0	$0
Computer Hardware/Software Costs	$72,472	$2,408	-$70,064
Incremental AMI O&M Expenses	$183,760	$271,900	$88,140
Incremental AMI Admin Expenses	$0	$0	$0
Incremental Other O&M Expenses	$0	$11,307	$11,307
Incremental Other Admin Expenses	$403,510	$386,668	-$16,842
Incremental O&M and Admin Costs	$587,269	$669,875	$82,606
Recoverable/Rate Adder Costs:	$1,019,782	$904,329	-$115,454
Deferrable Cost:			
Utility Safety & Mtce Capital Budget	$2,198	$0	-$2,198
Meter Data Management Repository (MDMR) Cost:			
Time-of-Use (TOU) Billing Budget	$764	$51,539	$50,775
TOTAL SMART METER COST:	**$1,022,745**	**$955,868**	**-$66,877**

The explanations of the significant variances relating to the $66,877 favourable variance between the unaudited 2011 actuals and 2010 actual costs include:

- Smart Meter Other Unit Costs include $44,000 for the Wide- Area-Network ("WAN") activation fees in 2010 with no similar capital costs in 2011. Also 2010 included $19,000 for ancillary collector costs.
- Smart Meter Installation Costs included $72,000 for internal labour costs for meter installations and ancillary costs. The majority of the installations occurred in 2009 and 2010 resulting in decreased capital costs in 2011.
- AMI Computer Hardware Costs in 2010 included $54,000 in incremental labour costs required to implement the AMI system. No similar costs were incurred in 2011 resulting in a favourable variance.
- Incremental AMI O&M Expenses are $83,000 unfavourable given that 2011 represents a full year of monthly Operational-Data-Storage ("ODS") and cellular communication charges versus a half year in 2010.
- The TOU Billing Budget is $30,000 unfavourable due to TOU customer education and $21,000 for incremental labour required for TOU bill print modifications in 2011.

3. Smart Meter Cost Variances

Thunder Bay provided a variance table on page 7 which shows the differences between the budgeted and actual expenditures as of 2011, based on its expenditures for smart meters from 2008 to 2011. Listed below the table are explanations of the variances. Board staff would like additional information on this table.

a. The line descriptions for smart meters and computer hardware/software state that the costs are unit costs. However, the table entries appear to be total costs. Please confirm that the table represents total costs for the component entries.

b. Thunder Bay states that "the Smart Meter Other Unit Costs for ancillary collector costs are unfavourable in the amount of $212,000." Board staff notes that in total that the Smart Meter Other Unit Costs are an unfavourable balance of $189,535. Please state detailed reasons for the $212,000 unfavourable variance.

c. Thunder Bay describes $131,000 of internal project management costs that were originally operating costs as now being classified as smart meter capital costs. Board staff interprets this statement as saying that previously approved operating costs, which formed previously approved revenue requirements for Thunder Bay, are now included as a cost of smart meters capital expenses. If this is the case, please remove these costs from the smart meter costs for recovery. If this is not the case, and the rates at the time did not recover these costs, please explain in full.

d. Thunder Bay also describes that $116,000 of AMI Computer Hardware Costs is for internal labour. As above, Board staff interprets this statement as saying that previously approved operating costs, which form previously approved revenue requirements for Thunder Bay, are now included as a cost of smart meters capital expenses. If this is the case, please remove these costs from the smart meter costs for recovery. If this is not the case, and the rates at the time did not recover these costs, please explain in full.

e. Please provide a more detailed explanation of the $609,000 favourable variance due to MDM/R costs not being incurred.

f. Thunder Bay also states that internal resources required for TOU modifications were less than anticipated resulting in a favourable variance of $40,000. Were the costs of these internal resources included previously approved in Thunder Bay's 2009 revenue requirement, thereby underpinning Thunder Bay's rates, or are they incremental to the revenue requirement of 2009? If these costs are not incremental, please explain your reasons for including them in smart meter cost recovery.

Responses

a. Thunder Bay confirms that the table represents total costs for the component entries.

b. The $212,000 unfavourable variance in the Smart Meter Other Unit Costs component includes the following: $95,000 for internal labour and ancillary parts to install 14 additional collectors that were not anticipated to be required; $88,000 in the capitalization of the testing of the cellular communication between the collector and AMI network which was originally budgeted as operational in the incremental AMI O&M expenses but was required to get the systems to a usable state; and $29,000 for inspector handheld units that were not budgeted for but deemed necessary in the daily operations with the collectors.

c. The internal project management costs for smart meters are incremental costs and were not included in Thunder Bay's 2009 revenue requirement. The costs have been deferred in the smart meter Uniform System of Accounts ("USoA") 1555 and 1556. In the Smart Meter Initiative Budget, Thunder Bay had originally deemed these costs to be operational in nature; however, once the project was underway, it was recognized that $131,000 of these costs were incurred to place capital assets for the smart meter program to an operational state.

d. The $116,000 in internal labour costs that were capitalized under the AMI Computer Hardware Costs are incremental and were not included in Thunder Bay's 2009 revenue requirement and have appropriately been deferred in the smart meter Uniform System of Account ("USoA") 1555. In the Smart Meter Initiative Budget, Thunder Bay had originally considered these costs to be operational in nature; however, once the project was underway, it was recognized that $116,000 of the labour costs were incurred to install and place the Metering Automation Server ("MAS") to an operational state, and thus, was capitalized.

e. In its original budget, Thunder Bay included MDM/R costs it estimated to incur from the province's Smart Metering Entity, the IESO, for recovery of the costs of development and implementation of the system storing and processing the electricity consumption data. The MDM/R stores and processes all of the province's electricity consumption data which makes it possible for local distribution companies such as Thunder Bay to charge time-of-use rates. As of December 2011, Thunder Bay had not incurred any such costs to date and did not forecast these costs for 2012 since at the time of filing, the IESO had not put forth a rate application for recovery of these costs, and thus, is not practical to include in Thunder Bay's SMIRR calculation

f. The internal labour required for TOU modifications were less than originally anticipated but were incremental to Thunder Bay's 2009 revenue requirement. Additional resources were required within the Billing department to maintain the regular operations while other staff was dedicated specifically to TOU modifications. Therefore, these costs have been appropriately deferred.

4. Smart Meter Operating Costs

On page 14 of its Application, Thunder Bay lists smart meter operating costs in Table 4 Budget to Actual Cost Summary.

a. For each of the items, 2.1 - 2.5, please state the nature of the costs.

b. Please identify any of the costs that are Thunder Bay's staff salary and related costs.

c. If there are Thunder Bay staffing costs included, please state if they are incremental costs, and why they are considered incremental costs.

d. If they are not incremental costs, please provide a rationale for including them.

Responses

Thunder Bay believes the page and table reference referred to in these questions are incorrect, and thus, is unable to provide a response at this time.

5. Costs Beyond Minimum Functionality

On page 13 of its Application, Thunder Bay has stated that it has not incurred costs beyond minimum functionality. However elsewhere it has stated that it has incurred costs related to costs such as MDM/R and TOU rates. The Board's G-2011-0001 Guideline Smart Meter Funding and Cost Recovery - Final Disposition December 15, 2011 (the "Guideline) at page 17 states the following:

> "*Costs for CIS systems, TOU rate implementation, etc. are beyond minimum functionality…"*
>
> and
>
> "*Costs for other matters such as CIS changes or TOU bill presentment may be recoverable, but the distributor will have to support these costs and will have to demonstrate how they are required for the smart meter deployment program and that they are incremental to the distributor's normal operating costs.*"

a. Please state the level of costs and describe the costs incurred for beyond minimum functionality making specific reference to MDM/R, web presentment,

   CIS changes, TOU rates, business process changes, training and customer education costs.

b. Please state the reasons that these costs are required for Thunder Bay's smart meter programme, and how they are incremental to Thunder Bay's normal course of business.

c. Please restate Tab 2, Smart Meter Costs of the Smart Meter Model Version 2.17 (the "Model"), separating any costs beyond minimum functionality into items 2.6.1, 2.6.2, and 2.6.3. If the costs found in Tab 2 of the Model are not final 2011 costs, please provide an update, and state whether the update is final or not.

d. State the total costs for beyond minimum functionality, and then state the costs again as an average unit costs per smart meter.

e. What is the annual impact on OM&A for beyond minimum functionality?

Responses

a. As per the Board's G-2011-0001 Guideline: Smart Meter Funding and Cost Recovery – Final Disposition December 15, 2011, Thunder Bay has segregated its costs for recovery in its application to identify costs beyond minimum functionality. In its Application on page 11, Thunder Bay identified that its 2012 forecast included costs for web presentment which have been estimated to be $10,000 on Tab 2 of the Smart Meter Costs of the Smart Meter Model Version 2.17 (the "Model"). Since the original application, Thunder Bay has completed additional research and now believes $23,000 to be a more accurate forecast for the web presentment costs, and thus, has revised its 2012 balance accordingly.

   Upon review of Thunder Bay's costs during the interrogatory process, Thunder Bay has identified additional costs that should be reported as beyond minimum functionality. These costs include changes it has requested from its CIS software provider, Sunguard, in development of a TOU module for billing purposes, TOU customer education sessions, and incremental internal labour required for the integration with the MDM/R. The cost of the TOU module is to be shared equally with Halton Hills Hydro, Guelph Hydro, and North Bay Hydro who all use the same software for billing purposes and is required to bill its customers with the new TOU billing structure. These costs have been reallocated on Tab 2 to the section that relates to costs beyond minimum functionality (see **Appendix A**).

b. Thunder Bay believes that all the costs beyond minimum functionality are required for Thunder Bay's smart meter program and are incremental to Thunder Bay's normal course of business.

   - In order to provide maximum customer support for the Province's TOU initiative, Thunder Bay believes that web presentment of TOU meter readings is critical. This communication channel will be key in the

continued education of customers on both the TOU rates and in particular their individual consumption patterns. Thunder Bay needs to put the decision making into the customers' hands allowing them to decide to conserve or shift consumption based on electricity rates. Being able to securely log in and monitor usage gives the customer the control they need. Smart meters are a conservation tool and customers understand this and are demanding access to the meter readings. In this electronic web based age customers desire quicker and faster access to pretty much everything. Giving them web based access to meter readings is the answer for those customers and ultimately for the Province in its efforts to drive behavioural change. The cost of implementing this tool is an addition to Thunder Bay's daily operations, and thus, is incremental to Thunder Bay's regular business.

- Thunder Bay developed a comprehensive TOU education campaign for 2011 and well into 2012. The purpose of the plan was to build on the successful public relations campaign related to the roll out and implementation of the smart meters themselves. Customers knew they had the meters and had been inquiring since 2009 as to when the TOU rates would begin. Thunder Bay's TOU campaign has been incredibly successful and this was seen in the fact that its call centre saw only a very minimal increase in call volumes related to TOU bills. The costs associated with the TOU education campaign are separate from Thunder Bay's revenue requirement set by rates, and thus, are incremental in nature.

- Staff time for MDM/R integration was the critical final and legislated piece to the smart metering project. Significant staff time was allocated to ensuring the integrity, validity and accuracy of the meter data to and from the MDM/R as this data eventually flows through to customer bills. These labour costs were outside of Thunder Bay's revenue requirement set by rates and staff's regular duties had to be back-filed, and thus, are incremental in nature.

- In order to bill its customers TOU rates, Thunder Bay along with 3 other utilities using the same software required the vendor, Sungard, to develop a TOU module within the program to facilitate this change. Thunder Bay realized a cost savings as it was able to split the cost of this CIS module change by sharing the costs of the modification equally amongst 3 other utilities.

c. Thunder Bay has revised the Model as mentioned in response a) to separate costs beyond minimum functionality in Tab 2 and has updated the 2011 costs with actuals up to December 31, 2011. Please note the 2011 balances have been reviewed by the auditors and Thunder Bay's Audit Committee on April 9,

2012; however, the Board of Directors meeting on April 26, 2012 will be when the audited financial statements will receive formal approval, thus, cannot be stated as final until such time.

d. The total costs in the smart meter program that Thunder bay will incur for beyond minimum functionality is summarized as follows:

Smart Meter Installations as at Dec. 31, 2011		49,485
Total costs beyond minimum functionality		
	Total	Per unit
Capital	$21,362.38	$0.43
OM&A	$114,912.33	$2.32
	$136,274.71	$2.75

e. For the costs recognized as beyond minimum functionality in response b), the annual impact on OM&A are as follows:

- Web presentment – estimated service fees $3,000 per year
- TOU education campaign – no additional annual costs to be incurred from initial campaign spending; however, cost savings are likely due to the potential for less calls to the customer service department.
- Staff time for MDM/R integration – no additional annual costs to be incurred since the MDM/R integration is complete.
- CIS TOU module – no additional annual costs to be incurred.

6. Customer Repairs

The Board in the Guidelines stated:

> "*The actual costs for materials and parts to repair or replace any customer-owned equipment should be expensed and also tracked separately in a different sub-account of the Smart Meter OM&A Variance Account 1556 until disposition is ordered by the Board following a review for prudence of the smart meter costs. As the meter base remains the property of the customer, the Board determined that it would not be appropriate to have it form part of the distributor's rate base.*

a. Please state the total costs of any repairs or replacements of customer-owned equipment.

b. Are there any meter bases included in these costs? If so, please state the total amount.

c. Please confirm that these costs were recorded in a different sub-account of the Smart Meter OM&A Variance Account 1556.

Responses

a. The total material costs to repair or replace customer-owned equipment are $9,194.

b. The total material costs to repair or replace customer-owned equipment of $9,194 are for meter base repairs.

c. Thunder Bay confirms that these costs were recorded in a different sub-account of the Smart Meter OM&A Variance Account 1556.

7. Smart Meter Model - Taxes/PILs

Thunder Bay has used the maximum taxes/PILs rates input on Tab 3 Cost of Service Parameters, for the years 2006, 2007, 2008, 2009, 2010, 2011 and 2012 and beyond. These are summarized in the following table:

Year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012 and beyond**
Aggregate Federal and provincial	36.12%	36.12%	33.50%	33.00%	31.00%	28.25%	26.25%

Please confirm that these are the tax rates underpinning Thunder Bay's rates for each of the respective years. This should be readily available from taxes/PILs calculations or spreadsheets used in annual cost of service or Incentive Regulation Mechanism ("IRM") rates applications. In the alternative, please correct if needed.

Response

During the interrogatory process, Thunder Bay reviewed its annual cost of service and IRM rate applications to confirm the corporate tax rates underpinning Thunder Bay's rates. As a result, Thunder Bay has revised the corporate tax rate for 2009 through to 2012 to incorporate the impact of the apprenticeship tax credit.

Year	2006	2007	2008	2009	2010	2011	2012
Aggregate Federal and Provincial Income Tax Rate	36.12%	36.12%	33.50%	32.83%	29.61%	25.74%	23.91%

8. Smart Meter Model - Tab 7; Taxes PILs

Thunder Bay Hydro has documented on page 2 that the smart meter project was funded by debt. As a result, there is no equity in its capitalization for this smart meter project. While this reflects the actual funding for the smart meter project, it does not reflect the Board's Decision on Thunder Bay's costs of capital in it's 2009 COS application, EB-2008-0248.

Thunder Bay Hydro has used a customized Smart Meter Model to account for its method of financing for its smart meter project. The customization reflects the fact that no equity was used, and allows for the inclusion of actual interest paid. In calculating PILs, the Smart Meter Model uses the return on equity capital as the starting point for net income before taxes, to which depreciation expense is added back and Capital Cost Allowance ("CCA") is deducted. Due to half-year rule treatment and differences between depreciation and CCA rates, the CCA allowance in some early years is much greater than the depreciation rate. As a result, with no return on equity, the model calculates a negative income before taxes and hence a negative taxes/PILs.

The PILs implication of Thunder Bay's use of 100% debt financing is seen in the table below, which was created from the PILs line on Tab 7; Taxes PILs:

Calculated PILs

2009	($ 28,899.45)
2010	($ 56,495.65)
2011	($ 18,811.04)
2012	$ 12,168.00

The calculation of negatives taxes/PILs may be a proxy for favourable tax treatment that the utility might have realized in each year, where the adjustments would have been used to lower the taxable income and hence the actual taxes/PILs paid by the utility for its entire rate base and revenues.

a. Does Thunder Bay consider that the tax/PILs treatment as factored in the Smart Meter model is a reasonable proxy of the tax treatment it received from 2009 to 2011? In the alternative, please provide a proposal that would be more representative of how smart meter capital costs were treated for tax purposes in each year. Please provide adequate support for your proposal.

b. Please file a copy of the smart meter model, version 2.17, that incorporates the capital structure and related interest and return on equity as approved in Thunder Bay's 2009 COS application.

Responses

a. As stated on page 2 and 3 of Thunder Bay's application, the rationale for adjusting the Smart Meter Model was to reflect what would have been recovered in "Distribution Rates" had the "Smart Meter Project" been included in rate base and revenue requirement. Thunder Bay is not attempting to be advantaged in any way, we are simply reflecting what we believe is the appropriate revenue requirement based on our 2009 Cost of Service application. As such, Thunder Bay believes that the model as filed would reflect a fair proxy. For PILs filing purposes, Thunder Bay has reflected the smart meters and all of the associated funding and costs in the computation as

though they had in fact been included in rate base. The PILs reflected in the model does not reflect the tax treatment that Thunder Bay received over the years 2009 through 2011 given that the funding adder and the Revenue Requirement do not match.

b. As discussed on page 2 of Thunder Bay's 2012 Smart Meter Cost Recovery Application, Thunder Bay operates on the rate minimization model and as such does not have the flexibility to take on a capital project of such magnitude and finance such internally in the debt/equity ratio that matches the deemed capital structure (40% equity) as set out by the Board. Incorporating the capital structure and related interest and return on equity as approved in its 2009 COS application leaves Thunder Bay in a material underfunded position. Thunder Bay's customers have benefitted from lower Distribution Rates over the years since market opening in 2002 as a result of the "Rate Minimization Model". Thunder Bay's rate of return on both equity and debt (ROE and ROD respectively) has been well below the maximum allowed ROE and ROD. Thunder Bay is not seeking to benefit from our anomaly situation; we are simply fairly reproducing the deferred historical revenue requirement. As stated in this application and in our 2009 Cost of Service application, Thunder Bay is reflecting what would have been had the Smart Meter Assets been purchased in normal course of operations and treated as such in Rate Base.

   Given the foregoing, Thunder Bay believes that the smart meter model as filed (see **Appendix A**) calculates the proxy for the "distribution revenues" that would have occurred if the assets and operating costs were incorporated into the rate base and revenue requirement and does not feel that the model calculated in the manner requested would meet this.

9. Smart Meter Model - Tab 5; Smart Meter Revenue Requirement

Thunder Bay on page 2 of its evidence pointed out that in EB-2008-0248, it had stated that the smart meter project would be financed entirely by debt in its response to Board staff's Supplemental Interrogatory 15b. To reflect this, Thunder Bay has a modified Smart Meter Model, in which it could input its actual debt costs for the smart meter project.

a. Please confirm that the interest for 2008 through to and including 2011 on Tab 5: Smart Meter Revenue Requirement Line Debt Financing Expenses (Thunder Bay Hydro-specific) are the actual interest paid.
b. Please show the calculation for the forecast 2012 Debt Financing Expense.

Response

a. Thunder Bay confirms that the interest for 2008 to and including 2011 on Tab 5: Smart Meter Revenue Requirement: Debt Financing Expenses is the actual interest paid. Please note an adjustment of $1,399 in an increase was made to 2011 to reflect the change in the opening and closing accruals for interest paid.

b. Thunder Bay's smart meter program was 100% financed, and thus, the creditor has provided an amortization schedule that provides the monthly interest charges to be paid. The Forecasted 2012 interest charges to be recognized are $362,546.

10. Smart Meter Model - Update

Board staff has addressed a number of concerns in the above set of interrogatories which may require revising the Model. If any of these questions results in changes to the inputs to the Model please update and re-file its Model in working Microsoft Excel format.

Response

Thunder Bay has made revisions to its Smart Meter Model for the changes as mentioned in its responses to Board Staff's interrogatories and the Model has been included as **Appendix A** along with an excel version of the file.

11. Rate Riders - Update

Similarly, if Thunder Bay has made revisions to its Smart Meter Model as a result of the above question 9, please update its proposed class-specific SMDRs, and class-specific SMIRRs.

Response

The proposed class – specific SMDR and SMIRR have been recalculated and can be seen in Thunder Bay's response to VECC's Question #7d. Also, Thunder Bay has revised and included the Bill Impacts for the Residential and GS < 50 kW customers in **Appendix B**.

12. Stranded Meters

On page 13 Thunder Bay states that it is not seeking disposition of its stranded meter costs in this Application. Thunder Bay continues to recover these costs by including the net book value of stranded meters in its rate base. Please provide Thunder Bay's estimate of the NBV of stranded meters as of December 31, 2012.

Response

Thunder Bay confirms that it is not seeking disposition of its stranded meters costs in this application but plans to do so in its 2013 Cost of Service Application. Thunder Bay estimates its NBV as at December 31, 2012 to be $1,567,441.

V 2.17TB

Ontario Energy Board

Smart Meter Model

Choose Your Utility:

Thunder Bay Hydro Electricity Distribution Inc.
Tillsonburg Hydro Inc.

Application Contact Information

Name:	Jenni Pajala
Title:	Supervisor of Regulatory Affairs
Phone Number:	807-343-1016
Email Address:	jpajala@tbhydro.on.ca
We are applying for rates effective:	May 1, 2012
Last COS Re-based Year	2009

Legend

DROP-DOWN MENU

INPUT FIELD

CALCULATION FIELD

Copyright

While this model has been provided in Excel format and is required to be filed with the applications, the onus remains on the applicant to ensure the accuracy of the data and the results. The use of any models and spreadsheets does not automatically imply Board approval. The onus is on the distributor to prepare, document and support its application. Board-issued Excel models and spreadsheets are offered to assist parties in providing the necessary information so as to facilitate an expeditious review of an application. The onus remains on the applicant to ensure the accuracy of the data and the results.

Ontario Energy Board

Smart Meter Model

Thunder Bay Hydro Electricity Distribution Inc.

Distributors must enter all incremental costs related to their smart meter program and all revenues recovered to date in the applicable tabs except for those costs (and associated revenues) for which the Board has approved on a final basis, i.e. capital costs have been included in rate base and OM&A costs in revenue requirement.

For 2012, distributors that have completed their deployments by the end of 2011 are not expected to enter any capital costs. However, for OM&A, regardless of whether a distributor has deployments in 2012, distributors should enter the forecasted OM&A for 2012 for all smart meters in service.

Smart Meter Capital Cost and Operational Expense Data	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast	Total
Smart Meter Installation Plan								
Actual/Planned number of Smart Meters installed during the Calendar Year								
Residential	0	0	0	43,168	1,400	323	0	44891
General Service < 50 kW	0	0	0	3,781	671	142	0	4594
Actual/Planned number of Smart Meters installed (Residential and GS < 50 kW onl	0	0	0	46949	2071	465	0	49485
Percentage of Residential and GS < 50 kW Smart Meter Installations Completed	0.00%	0.00%	0.00%	94.88%	99.06%	100.00%	0.00%	100.00%
Actual/Planned number of GS > 50 kW meters installed	0	0	0	0	0	0	0	0
Other (please identify)	0	0	0	0	0	0	0	0
Total Number of Smart Meters installed or planned to be installe	0	0	0	46949	2071	465	0	49485

1 Capital Costs

1.1 ADVANCED METERING COMMUNICATION DEVICE (AMCD)	Asset Type (Asset type must be selected to enable calculations)	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast	Total
1.1.1 Smart Meters *(may include new meters and modules, etc.)*	Smart Meter				5,649,205	60,956	62,302		$ 5,772,463
1.1.2 Installation Costs *(may include socket kits, labour, vehicle, benefits, etc.)*	Smart Meter				665,347	174,796	74,923		$ 915,065
1.1.3a Workforce Automation Hardware *(may include fieldwork handhelds, barcode hardware, etc.)*	Computer Hardware				28,529				$ 28,529
1.1.3b Workforce Automation Software *(may include fieldwork handhelds, barcode hardware, etc.)*	Computer Software				46,767	233			$ 47,000
Total Advanced Metering Communications Devices (AMCD)		$ -	$ -	$ -	$ 6,389,848	$ 235,985	$ 137,224	$ -	$ 6,763,057

1.2 ADVANCED METERING REGIONAL COLLECTOR (AMRC) (includes LAN)	Asset Type	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast	Total
1.2.1 Collectors	Smart Meter				204,436				$ 204,436
1.2.2 Repeaters *(may include radio licence, etc.)*	Smart Meter					4,693			$ 4,693
1.2.3 Installation *(may include meter seals and rings, collector computer hardware, etc.)*	Smart Meter				386,589	-5,451	6,269		$ 387,407
Total Advanced Metering Regional Collector (AMRC) (Includes LAN)		$ -	$ -	$ -	$ 591,026	-$ 758	$ 6,269	$ -	$ 596,537

1.3 ADVANCED METERING CONTROL COMPUTER (AMCC)	Asset Type	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast	Total
1.3.1 Computer Hardware	Computer Hardware								$ -
1.3.2 Computer Software	Computer Software								$ -
1.3.3 Computer Software Licences & Installation (includes hardware and software) *(may include AS/400 disk space, backup and recovery computer, UPS, etc.)*	Computer Software				172,961	72,472	2,408		$ 247,840
Total Advanced Metering Control Computer (AMCC)		$ -	$ -	$ -	$ 172,961	$ 72,472	$ 2,408	$ -	$ 247,840

1.4 WIDE AREA NETWORK (WAN)	Asset Type	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast	Total
1.4.1 Activiation Fees	Smart Meter				38,784	44,441			$ 83,225
Total Wide Area Network (WAN)		$ -	$ -	$ -	$ 38,784	$ 44,441	$ -	$ -	$ 83,225

1.5 OTHER AMI CAPITAL COSTS RELATED TO MINIMUM FUNCTIONALITY	Asset Type	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast	Total
1.5.1 Customer Equipment *(including repair of damaged equipment)*	Smart Meter				29,910	14,560			$ 44,470
1.5.2 AMI Interface to CIS	Computer Software								$ -
1.5.3 Professional Fees	Smart Meter				63,210		70,000		$ 133,210
1.5.4 Integration	Smart Meter								$ -
1.5.5 Program Management	Smart Meter				162,549	23,848	3,481		$ 189,878
1.5.6 Other AMI Capital	Smart Meter				19,946	32,115			$ 52,061
Total Other AMI Capital Costs Related to Minimum Functionality		$ -	$ -	$ -	$ 275,615	$ 70,523	$ 73,481	$ -	$ 419,620
Total Capital Costs Related to Minimum Functionality		$ -	$ -	$ -	$ 7,468,233	$ 422,663	$ 219,382	$ -	$ 8,110,278

1.6 CAPITAL COSTS BEYOND MINIMUM FUNCTIONALITY *(Please provide a descriptive title and identify nature of beyond minimum functionality costs)*	Asset Type	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast	Total
1.6.1 Costs related to technical capabilities in the smart meters or related communications infrastructu that exceed those specified in O.Reg 425/06	Smart Meter								$ -
1.6.2 Costs for deployment of smart meters to customers other than residential and small general service	Applications Software								$ -
1.6.3 Costs for TOU rate implementation, CIS system upgrades, web presentation, integration with the MDM/R, etc.	Computer Software						21,362		$ 21,362
Total Capital Costs Beyond Minimum Functionality		$ -	$ -	$ -	$ -	$ -	$ 21,362	$ -	$ 21,362
Total Smart Meter Capital Costs		$ -	$ -	$ -	$ 7,468,233	$ 422,663	$ 240,744	$ -	$ 8,131,640

2 OM&A Expenses

2.1 ADVANCED METERING COMMUNICATION DEVICE (AMCD)		Audited Actual	Audited Actual	Audited Actual	Audited Actual	Audited Actual	Unaudited Actual	Forecast	
2.1.1 Maintenance *(may include meter reverification costs, etc.)*					7,021	2,198	533		$ 9,752
2.1.2 Other *(please specify)*									$ -
Total Incremental AMCD OM&A Costs		$ -	$ -	$ -	$ 7,021	$ 2,198	$ 533	$ -	$ 9,752
2.2 ADVANCED METERING REGIONAL COLLECTOR (AMRC) (includes LAN)									
2.2.1 Maintenance									$ -
2.2.2 Other *(please specify)*	Cellular communication to AMI Network fees					33,025	77,571	70,000	$ 180,596
Total Incremental AMRC OM&A Costs		$ -	$ -	$ -	$ -	$ 33,025	$ 77,571	$ 70,000	$ 180,596
2.3 ADVANCED METERING CONTROL COMPUTER (AMCC)									
2.3.1 Hardware Maintenance *(may include server support, etc.)*									$ -
2.3.2 Software Maintenance *(may include maintenance support, etc.)*					4,772	49,591	87,563	140,016	$ 281,941
2.3.2 Other *(please specify)*									$ -
Total Incremental AMCC OM&A Costs		$ -	$ -	$ -	$ 4,772	$ 49,591	$ 87,563	$ 140,016	$ 281,941
2.4 WIDE AREA NETWORK (WAN)									
2.4.1 WAN Maintenance									$ -
2.4.2 Other *(please specify)*									$ -
Total Incremental AMRC OM&A Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2.5 OTHER AMI OM&A COSTS RELATED TO MINIMUM FUNCTIONALITY									
2.5.1 Business Process Redesign									$ -
2.5.2 Customer Communication (may include project communication, etc.)									$ -
2.5.3 Program Management				52,193	-5,536	51,111	25,256	8,800	$ 131,824
2.5.4 Change Management (may include training, etc.)									$ -
2.5.5 Administration Costs							11,307	8,000	$ 19,307
2.5.6 Other AMI Expenses *(please specify)*				7,167	225,432	464,157	482,716	453,570	$ 1,633,041
Total Other AMI OM&A Costs Related to Minimum Functionality		$ -	$ -	$ 59,360	$ 219,896	$ 515,268	$ 519,280	$ 470,370	$ 1,784,173
TOTAL OM&A COSTS RELATED TO MINIMUM FUNCTIONALITY		$ -	$ -	$ 59,360	$ 231,688	$ 600,081	$ 684,947	$ 680,386	$ 2,256,462
2.6 OM&A COSTS RELATED TO BEYOND MINIMUM FUNCTIONALITY *(Please provide a descriptive title and identify nature of beyond minimum functionality costs)*		Audited Actual	Audited Actual	Audited Actual	Audited Actual	Audited Actual	Unaudited Actua		
2.6.1 Costs related to technical capabilities in the smart meters or related communications infrastructu that exceed those specified in O.Reg 425/06									$ -
2.6.2 Costs for deployment of smart meters to customers other than residential and small general service									$ -
2.6.3 Costs for TOU rate implementation, CIS system upgrades, web presentation, integration with the MDM/R, etc.							30,177	84,736	$ 114,912
Total OM&A Costs Beyond Minimum Functionality		$ -	$ -	$ -	$ -	$ -	$ 30,177	$ 84,736	$ 114,912
Total Smart Meter OM&A Costs		$ -	$ -	$ 59,360	$ 231,688	$ 600,081	$ 715,124	$ 765,121	$ 2,371,374

3 Aggregate Smart Meter Costs by Category

3.1	**Capital**								
3.1.1	Smart Meter	$ -	$ -	$ -	$ 7,219,977	$ 349,958	$ 216,974	$ -	$ 7,786,909
3.1.2	Computer Hardware	$ -	$ -	$ -	$ 28,529	$ -	$ -	$ -	$ 28,529
3.1.3	Computer Software	$ -	$ -	$ -	$ 219,728	$ 72,705	$ 23,770	$ -	$ 316,203
3.1.4	Tools & Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3.1.5	Other Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3.1.6	Applications Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3.1.7	**Total Capital Costs**	**$ -**	**$ -**	**$ -**	**$ 7,468,233**	**$ 422,663**	**$ 240,744**	**$ -**	**$ 8,131,640**
3.2	**OM&A Costs**								
3.2.1	**Total OM&A Costs**	**$ -**	**$ -**	**$ 59,360**	**$ 231,688**	**$ 600,081**	**$ 715,124**	**$ 765,121**	**$ 2,371,374**


Ontario Energy Board

Smart Meter Model

Thunder Bay Hydro Electricity Distribution Inc.

	2006	2007	2008	2009	2010	2011	2012 and later
Cost of Capital							
Capital Structure[1]							
Deemed Short-term Debt Capitalization			0.0%				
Deemed Long-term Debt Capitalization			100.0%	100.0%	100.0%	100.0%	100.0%
Deemed Equity Capitalization	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Preferred Shares							
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of Capital Parameters							
Deemed Short-term Debt Rate							
Long-term Debt Rate (actual/embedded/deemed)[2]		0.00%					
Target Return on Equity (ROE)		0.00%					
Return on Preferred Shares							
WACC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Working Capital Allowance							
Working Capital Allowance Rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
(% of the sum of Cost of Power + controllable expenses)							
Taxes/PILs							
Aggregate Corporate Income Tax Rate	36.12%	36.12%	33.50%	32.83%	29.61%	25.74%	23.91%
Capital Tax (until July 1st, 2010)	0.30%	0.225%	0.225%	0.225%	0.075%	0.00%	0.00%
Depreciation Rates							
(expressed as expected useful life in years)							
Smart Meters - years	15	15	15	15	15	15	15
- rate (%)	6.67%	6.67%	6.67%	6.67%	6.67%	6.67%	6.67%
Computer Hardware - years	5	5	5	5	5	5	5
- rate (%)	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Computer Software - years	5	5	5	5	5	5	5
- rate (%)	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Tools & Equipment - years	10	10	10	10	10	10	10
- rate (%)	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Other Equipment - years	10	10	10	10	10	10	10
- rate (%)	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
CCA Rates							
Smart Meters - CCA Class	47	47	47	47	47	47	47
Smart Meters - CCA Rate	8%	8%	8%	8%	8%	8%	8%
Computer Equipment - CCA Class	50	50	50	50	50	50	50
Computer Equipment - CCA Rate	55%	55%	55%	55%	55%	55%	55%
General Equipment - CCA Class	8	8	8	8	8	8	8
General Equipment - CCA Rate	20%	20%	20%	20%	20%	20%	20%
Applications Software - CCA Class							
Applications Software - CCA Rate							

Assumptions

[1] *Planned smart meter installations occur evenly throughout the year.*

[2] *Fiscal calendar year (January 1 to December 31) used.*

3 *Amortization is done on a striaght line basis and has the "half-year" rule applied.*

Ontario Energy Board

Smart Meter Model

Thunder Bay Hydro Electricity Distribution Inc.

	2006	2007	2008	2009	2010	2011	2012 and later
Net Fixed Assets - Smart Meters							
Gross Book Value							
Opening Balance		$ -	$ -	$ -	$ 7,219,977	$ 7,569,935	$ 7,786,909
Capital Additions during year (from Smart Meter Costs)	$ -	$ -	$ -	$ 7,219,977	$ 349,958	$ 216,974	$ -
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	$ 7,219,977	$ 7,569,935	$ 7,786,909	$ 7,786,909
Accumulated Depreciation							
Opening Balance		$ -	$ -	$ -	-$ 240,666	-$ 733,663	-$ 1,245,558
Amortization expense during year	$ -	$ -	$ -	-$ 240,666	-$ 492,997	-$ 511,895	-$ 519,127
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	-$ 240,666	-$ 733,663	-$ 1,245,558	-$ 1,764,685
Net Book Value							
Opening Balance	$ -	$ -	$ -	$ -	$ 6,979,311	$ 6,836,272	$ 6,541,351
Closing Balance	$ -	$ -	$ -	$ 6,979,311	$ 6,836,272	$ 6,541,351	$ 6,022,224
Average Net Book Value	$ -	$ -	$ -	$ 3,489,655	$ 6,907,791	$ 6,688,811	$ 6,281,787
Net Fixed Assets - Computer Hardware							
Gross Book Value							
Opening Balance		$ -	$ -	$ -	$ 28,529	$ 28,529	$ 28,529
Capital Additions during year (from Smart Meter Costs)	$ -	$ -	$ -	$ 28,529	$ -	$ -	$ -
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	$ 28,529	$ 28,529	$ 28,529	$ 28,529
Accumulated Depreciation							
Opening Balance	$ -	$ -	$ -	$ -	-$ 2,853	-$ 8,559	-$ 14,264
Amortization expense during year	$ -	$ -	$ -	-$ 2,853	-$ 5,706	-$ 5,706	-$ 5,706
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	-$ 2,853	-$ 8,559	-$ 14,264	-$ 19,970
Net Book Value							
Opening Balance	$ -	$ -	$ -	$ -	$ 25,676	$ 19,970	$ 14,264
Closing Balance	$ -	$ -	$ -	$ 25,676	$ 19,970	$ 14,264	$ 8,559
Average Net Book Value	$ -	$ -	$ -	$ 12,838	$ 22,823	$ 17,117	$ 11,411
Net Fixed Assets - Computer Software (including Applications Software)							
Gross Book Value							
Opening Balance		$ -	$ -	$ -	$ 219,728	$ 292,433	$ 316,203
Capital Additions during year (from Smart Meter Costs)	$ -	$ -	$ -	$ 219,728	$ 72,705	$ 23,770	$ -
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	$ 219,728	$ 292,433	$ 316,203	$ 316,203
Accumulated Depreciation							
Opening Balance	$ -	$ -	$ -	$ -	-$ 21,973	-$ 73,189	-$ 134,052
Amortization expense during year	$ -	$ -	$ -	-$ 21,973	-$ 51,216	-$ 60,864	-$ 63,241
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	-$ 21,973	-$ 73,189	-$ 134,052	-$ 197,293
Net Book Value							
Opening Balance	$ -	$ -	$ -	$ -	$ 197,755	$ 219,244	$ 182,151
Closing Balance	$ -	$ -	$ -	$ 197,755	$ 219,244	$ 182,151	$ 118,910
Average Net Book Value	$ -	$ -	$ -	$ 98,878	$ 208,500	$ 200,697	$ 150,530
Net Fixed Assets - Tools and Equipment							
Gross Book Value							
Opening Balance		$ -	$ -	$ -	$ -	$ -	$ -
Capital Additions during year (from Smart Meter Costs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Accumulated Depreciation							
Opening Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Amortization expense during year	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Book Value							
Opening Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closing Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Average Net Book Value	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Fixed Assets - Other Equipment							
Gross Book Value							
Opening Balance		$ -	$ -	$ -	$ -	$ -	$ -
Capital Additions during year (from Smart Meter Costs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Accumulated Depreciation							
Opening Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Amortization expense during year	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Retirements/Removals (if applicable)							
Closing Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Book Value							
Opening Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closing Balance	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Average Net Book Value	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Ontario Energy Board

Smart Meter Model

Thunder Bay Hydro Electricity Distribution Inc.

	2006	2007	2008	2009	2010	2011	2012 and Later
Average Net Fixed Asset Values (from Sheet 4)							
Smart Meters	$ -	$ -	$ -	$ 3,489,655	$ 6,907,791	$ 6,688,811	$ 6,281,787
Computer Hardware	$ -	$ -	$ -	$ 12,838	$ 22,823	$ 17,117	$ 11,411
Computer Software	$ -	$ -	$ -	$ 98,878	$ 208,500	$ 200,697	$ 150,530
Tools & Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Net Fixed Assets	**$ -**	**$ -**	**$ -**	**$ 3,601,371**	**$ 7,139,114**	**$ 6,906,626**	**$ 6,443,729**
Working Capital							
Operating Expenses (from Sheet 2)	$ -	$ -	$ 59,360	$ 22,776	$ 196,572	$ 328,456	$ 402,576
Working Capital Factor (from Sheet 3)	15%	15%	15%	15%	15%	15%	15%
Working Capital Allowance	$ -	$ -	$ 8,904	$ 3,416	$ 29,486	$ 49,268	$ 60,386
Incremental Smart Meter Rate Base	**$ -**	**$ -**	**$ 8,904**	**$ 3,604,787**	**$ 7,168,600**	**$ 6,955,894**	**$ 6,504,115**
Return on Rate Base							
Capital Structure							
Deemed Short Term Debt	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Deemed Long Term Debt	$ -	$ -	$ 8,904	$ 3,604,787	$ 7,168,600	$ 6,955,894	$ 6,504,115
Equity	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Preferred Shares	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Capitalization	$ -	$ -	$ 8,904	$ 3,604,787	$ 7,168,600	$ 6,955,894	$ 6,504,115
Return on							
Deemed Short Term Debt	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Deemed Long Term Debt	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Equity	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Preferred Shares	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Return on Capital	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Expenses	$ -	$ -	$ 59,360	$ 22,776	$ 196,572	$ 328,456	$ 402,576
Debt Financing Expenses (Thunder Bay Hydro-specific)				$ 208,912	$ 403,510	$ 386,668	$ 362,546
Amortization Expenses (from Sheet 4)							
Smart Meters	$ -	$ -	$ -	$ 240,666	$ 492,997	$ 511,895	$ 519,127
Computer Hardware	$ -	$ -	$ -	$ 2,853	$ 5,706	$ 5,706	$ 5,706
Computer Software	$ -	$ -	$ -	$ 21,973	$ 51,216	$ 60,864	$ 63,241
Tools & Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Amortization Expense in Year	$ -	$ -	$ -	$ 265,492	$ 549,919	$ 578,464	$ 588,074
Incremental Revenue Requirement before Taxes/PILs	$ -	$ -	$ 59,360	$ 497,180	$ 1,150,000	$ 1,293,588	$ 1,353,195
Calculation of Taxable Income							
Incremental Operating Expenses	$ -	$ -	$ 59,360	$ 22,776	$ 196,572	$ 328,456	$ 402,576
Amortization Expense	$ -	$ -	$ -	$ 265,492	$ 549,919	$ 578,464	$ 588,074
Interest Expense	$ -	$ -	$ -	$ 208,912	$ 403,510	$ 386,668	$ 362,546
Net Income for Taxes/PILs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grossed-up Taxes/PILs (from Sheet 7)	$ -	$ -	$ -	-$ 28,553.52	-$ 52,558.82	-$ 16,395.39	$ 10,931.92
Revenue Requirement, including Grossed-up Taxes/PILs	$ -	$ -	$ 59,360	$ 468,626	$ 1,097,441	$ 1,277,192	$ 1,364,127

For PILs Calculation

UCC - Smart Meters

	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast
Opening UCC	$ -	$ -	$ -	$ -	$ 6,931,177.51	$ 6,712,643.08	$ 6,383,926.71
Capital Additions	$ -	$ -	$ -	$ 7,219,976.57	$ 349,958.09	$ 216,974.04	$ -
Retirements/Removals (if applicable)							
UCC Before Half Year Rule	$ -	$ -	$ -	$ 7,219,976.57	$ 7,281,135.60	$ 6,929,617.12	$ 6,383,926.71
Half Year Rule (1/2 Additions - Disposals)	$ -	$ -	$ -	$ 3,609,988.29	$ 174,979.05	$ 108,487.02	$ -
Reduced UCC	$ -	$ -	$ -	$ 3,609,988.29	$ 7,106,156.56	$ 6,821,130.10	$ 6,383,926.71
CCA Rate Class	47	47	47	47	47	47	47
CCA Rate	8%	8%	8%	8%	8%	8%	8%
CCA	$ -	$ -	$ -	$ 288,799.06	$ 568,492.52	$ 545,690.41	$ 510,714.14
Closing UCC	$ -	$ -	$ -	$ 6,931,177.51	$ 6,712,643.08	$ 6,383,926.71	$ 5,873,212.57

UCC - Computer Equipment

	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast
Opening UCC	$ -	$ -	$ -	$ -	$ 179,985.98	$ 133,704.93	$ 77,400.47
Capital Additions Computer Hardware	$ -	$ -	$ -	$ 28,528.68	$ -	$ -	$ -
Capital Additions Computer Software	$ -	$ -	$ -	$ 219,727.85	$ 72,705.15	$ 23,770.00	$ -
Retirements/Removals (if applicable)							
UCC Before Half Year Rule	$ -	$ -	$ -	$ 248,256.53	$ 252,691.14	$ 157,474.93	$ 77,400.47
Half Year Rule (1/2 Additions - Disposals)	$ -	$ -	$ -	$ 124,128.26	$ 36,352.58	$ 11,885.00	$ -
Reduced UCC	$ -	$ -	$ -	$ 124,128.26	$ 216,338.56	$ 145,589.93	$ 77,400.47
CCA Rate Class	50	50	50	50	50	50	50
CCA Rate	55%	55%	55%	55%	55%	55%	55%
CCA	$ -	$ -	$ -	$ 68,270.55	$ 118,986.21	$ 80,074.46	$ 42,570.26
Closing UCC	$ -	$ -	$ -	$ 179,985.98	$ 133,704.93	$ 77,400.47	$ 34,830.21

UCC - General Equipment

	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast
Opening UCC	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capital Additions Tools & Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capital Additions Other Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Retirements/Removals (if applicable)							
UCC Before Half Year Rule	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Half Year Rule (1/2 Additions - Disposals)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reduced UCC	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CCA Rate Class	8	8	8	8	8	8	8
CCA Rate	20%	20%	20%	20%	20%	20%	20%
CCA	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closing UCC	$ -	$ -	$ -	$ -	$ -	$ -	$ -

PILs Calculation

	2006 Audited Actual	2007 Audited Actual	2008 Audited Actual	2009 Audited Actual	2010 Audited Actual	2011 Unaudited Actual	2012 and later Forecast
INCOME TAX							
Net Income	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Amortization	$ -	$ -	$ -	$ 265,491.54	$ 549,918.86	$ 578,464.12	$ 588,073.58
CCA - Smart Meters	$ -	$ -	$ -	-$ 288,799.06	-$ 568,492.52	-$ 545,690.41	-$ 510,714.14
CCA - Computers	$ -	$ -	$ -	-$ 68,270.55	-$ 118,986.21	-$ 80,074.46	-$ 42,570.26
CCA - Applications Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CCA - Other Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in taxable income	$ -	$ -	$ -	-$ 91,578.07	-$ 137,559.87	-$ 47,300.75	$ 34,789.19
Tax Rate (from Sheet 3)	36.12%	36.12%	33.50%	32.83%	29.61%	25.74%	23.91%
Income Taxes Payable	$ -	$ -	$ -	-$ 30,065.08	-$ 40,731.48	-$ 12,175.21	$ 8,318.10
ONTARIO CAPITAL TAX							
Smart Meters	$ -	$ -	$ -	$ 6,979,310.69	$ 6,836,271.74	$ 6,541,351.00	$ 6,022,223.75
Computer Hardware	$ -	$ -	$ -	$ 25,675.81	$ 19,970.08	$ 14,264.34	$ 8,558.60
Computer Software (Including Application Software)	$ -	$ -	$ -	$ 197,755.06	$ 219,244.13	$ 182,150.53	$ 118,909.93
Tools & Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rate Base	$ -	$ -	$ -	$ 7,202,741.56	$ 7,075,485.95	$ 6,737,765.87	$ 6,149,692.29
Less: Exemption							
Deemed Taxable Capital	$ -	$ -	$ -	$ 7,202,741.56	$ 7,075,485.95	$ 6,737,765.87	$ 6,149,692.29
Ontario Capital Tax Rate (from Sheet 3)	0.300%	0.225%	0.225%	0.225%	0.075%	0.000%	0.000%
Net Amount (Taxable Capital x Rate)	$ -	$ -	$ -	$ 16,206.17	$ 5,306.61	$ -	$ -
Change in Income Taxes Payable	$ -	$ -	$ -	-$ 30,065.08	-$ 40,731.48	-$ 12,175.21	$ 8,318.10
Change in OCT	$ -	$ -	$ -	$ 16,206.17	$ 5,306.61	$ -	$ -
PILs	$ -	$ -	$ -	-$ 13,858.91	-$ 35,424.86	-$ 12,175.21	$ 8,318.10

Gross Up PILs

Tax Rate	36.12%	36.12%	33.50%	32.83%	29.61%	25.74%	23.91%
Change in Income Taxes Payable	$ -	$ -	$ -	-$ 44,759.68	-$ 57,865.43	-$ 16,395.39	$ 10,931.92
Change in OCT	$ -	$ -	$ -	$ 16,206.17	$ 5,306.61	$ -	$ -
PILs	**$ -**	**$ -**	**$ -**	**-$ 28,553.52**	**-$ 52,558.82**	**-$ 16,395.39**	**$ 10,931.92**


Ontario Energy Board

Smart Meter Model

Thunder Bay Hydro Electricity Distribution Inc.

This worksheet calculates the funding adder revenues.

Account 1555 - Sub-account Funding Adder Revenues

Interest Rates	Approved Deferral and Variance Accounts	CWIP	Date	Year	Quarter	Opening Balance (Principal)	Funding Adder Revenues	Interest Rate	Interest	Closing Balance	Annual amounts	Board Approved Smart Meter Funding Adder (from Tariff)
2006 Q1			Jan-06	2006	Q1	$ -		0.00%	$ -	$ -		
2006 Q2	4.14%	4.68%	Feb-06	2006	Q1	$ -		0.00%	$ -	$ -		
2006 Q3	4.59%	5.05%	Mar-06	2006	Q1	$ -		0.00%	$ -	$ -		
2006 Q4	4.59%	4.72%	Apr-06	2006	Q2	$ -		4.14%	$ -	$ -		
2007 Q1	4.59%	4.72%	May-06	2006	Q2	$ -	$ 587.46	4.14%	$ -	$ 587.46		
2007 Q2	4.59%	4.72%	Jun-06	2006	Q2	$ 587.46	$ 6,566.57	4.14%	$ 2.03	$ 7,156.06		
2007 Q3	4.59%	5.18%	Jul-06	2006	Q3	$ 7,154.03	$ 10,982.38	4.59%	$ 27.36	$ 18,163.77		
2007 Q4	5.14%	5.18%	Aug-06	2006	Q3	$ 18,136.41	$ 14,470.34	4.59%	$ 69.37	$ 32,676.12		
2008 Q1	5.14%	5.18%	Sep-06	2006	Q3	$ 32,606.75	$ 11,975.49	4.59%	$ 124.72	$ 44,706.96		
2008 Q2	4.08%	5.18%	Oct-06	2006	Q4	$ 44,582.24	$ 13,215.19	4.59%	$ 170.53	$ 57,967.96		
2008 Q3	3.35%	5.43%	Nov-06	2006	Q4	$ 57,797.43	$ 13,749.97	4.59%	$ 221.08	$ 71,768.48		
2008 Q4	3.35%	5.43%	Dec-06	2006	Q4	$ 71,547.40	$ 12,170.66	4.59%	$ 273.67	$ 83,991.73	$ 84,606.82	
2009 Q1	2.45%	6.61%	Jan-07	2007	Q1	$ 83,718.06	$ 15,052.17	4.59%	$ 320.22	$ 99,090.45		
2009 Q2	1.00%	6.61%	Feb-07	2007	Q1	$ 98,770.23	$ 11,154.70	4.59%	$ 377.80	$ 110,302.73		
2009 Q3	0.55%	5.67%	Mar-07	2007	Q1	$ 109,924.93	$ 15,066.21	4.59%	$ 420.46	$ 125,411.60		
2009 Q4	0.55%	4.66%	Apr-07	2007	Q2	$ 124,991.14	$ 11,618.32	4.59%	$ 478.09	$ 137,087.55		
2010 Q1	0.55%	4.34%	May-07	2007	Q2	$ 136,609.46	$ 15,877.34	4.59%	$ 522.53	$ 153,009.33		
2010 Q2	0.55%	4.34%	Jun-07	2007	Q2	$ 152,486.80	$ 12,301.38	4.59%	$ 583.26	$ 165,371.44		
2010 Q3	0.89%	4.66%	Jul-07	2007	Q3	$ 164,788.18	$ 14,189.22	4.59%	$ 630.31	$ 179,607.71		
2010 Q4	1.20%	4.01%	Aug-07	2007	Q3	$ 178,977.40	$ 12,946.82	4.59%	$ 684.59	$ 192,608.81		
2011 Q1	1.47%	4.29%	Sep-07	2007	Q3	$ 191,924.22	$ 10,592.08	4.59%	$ 734.11	$ 203,250.41		
2011 Q2	1.47%	4.29%	Oct-07	2007	Q4	$ 202,516.30	$ 14,163.62	5.14%	$ 867.44	$ 217,547.36		
2011 Q3	1.47%	4.29%	Nov-07	2007	Q4	$ 216,679.92	$ 13,795.35	5.14%	$ 928.11	$ 231,403.38		
2011 Q4	1.47%	4.29%	Dec-07	2007	Q4	$ 230,475.27	$ 11,543.64	5.14%	$ 987.20	$ 243,006.11	$ 165,834.97	
2012 Q1	1.47%	4.29%	Jan-08	2008	Q1	$ 242,018.91	$ 16,018.68	5.14%	$ 1,036.65	$ 259,074.24		
2012 Q2	1.47%	4.29%	Feb-08	2008	Q1	$ 258,037.59	$ 11,640.01	5.14%	$ 1,105.26	$ 270,782.86		
2012 Q3		4.29%	Mar-08	2008	Q1	$ 269,677.60	$ 12,192.00	5.14%	$ 1,155.12	$ 283,024.72		
2012 Q4		4.29%	Apr-08	2008	Q2	$ 281,869.60	$ 14,338.87	4.08%	$ 958.36	$ 297,166.83		
			May-08	2008	Q2	$ 296,208.47	$ 13,045.01	4.08%	$ 1,007.11	$ 310,260.59		
			Jun-08	2008	Q2	$ 309,253.48	$ 14,480.28	4.08%	$ 1,051.46	$ 324,785.22		
			Jul-08	2008	Q3	$ 323,733.76	$ 14,691.11	3.35%	$ 903.76	$ 339,328.63		
			Aug-08	2008	Q3	$ 338,424.87	$ 10,897.02	3.35%	$ 944.77	$ 350,266.66		
			Sep-08	2008	Q3	$ 349,321.89	$ 13,660.77	3.35%	$ 975.19	$ 363,957.85		
			Oct-08	2008	Q4	$ 362,982.66	$ 13,492.53	3.35%	$ 1,013.33	$ 377,488.52		
			Nov-08	2008	Q4	$ 376,475.19	$ 12,290.12	3.35%	$ 1,050.99	$ 389,816.30		
			Dec-08	2008	Q4	$ 388,765.31	$ 13,649.79	3.35%	$ 1,085.30	$ 403,500.40	$ 172,683.49	
			Jan-09	2009	Q1	$ 402,415.10	$ 14,420.31	2.45%	$ 821.60	$ 417,657.01		
			Feb-09	2009	Q1	$ 416,835.41	$ 10,429.47	2.45%	$ 851.04	$ 428,115.92		
			Mar-09	2009	Q1	$ 427,264.88	$ 17,182.86	2.45%	$ 872.33	$ 445,320.07		
			Apr-09	2009	Q2	$ 444,447.74	$ 12,002.90	1.00%	$ 370.37	$ 456,821.01		
			May-09	2009	Q2	$ 456,450.64	$ 12,323.68	1.00%	$ 380.38	$ 469,154.70		
			Jun-09	2009	Q2	$ 468,774.32	$ 14,742.13	1.00%	$ 390.65	$ 483,907.10		
			Jul-09	2009	Q3	$ 483,516.45	$ 25,762.44	0.55%	$ 221.61	$ 509,500.50		
			Aug-09	2009	Q3	$ 509,278.89	$ 72,838.60	0.55%	$ 233.42	$ 582,350.91		
			Sep-09	2009	Q3	$ 582,117.49	$ 166,920.98	0.55%	$ 266.80	$ 749,305.27		
			Oct-09	2009	Q4	$ 749,038.47	$ 141,021.06	0.55%	$ 343.31	$ 890,402.84		
			Nov-09	2009	Q4	$ 890,059.53	$ 105,171.46	0.55%	$ 407.94	$ 995,638.93		
			Dec-09	2009	Q4	$ 995,230.99	$ 102,353.10	0.55%	$ 456.15	$ 1,098,040.24	$ 700,784.59	
			Jan-10	2010	Q1	$ 1,097,584.09	$ 101,005.31	0.55%	$ 503.06	$ 1,199,092.46		
			Feb-10	2010	Q1	$ 1,198,589.40	$ 75,747.45	0.55%	$ 549.35	$ 1,274,886.20		
			Mar-10	2010	Q1	$ 1,274,336.85	$ 119,231.13	0.55%	$ 584.07	$ 1,394,152.05		
			Apr-10	2010	Q2	$ 1,393,567.98	$ 96,310.52	0.55%	$ 638.72	$ 1,490,517.22		
			May-10	2010	Q2	$ 1,489,878.50	$ 85,619.84	0.55%	$ 682.86	$ 1,576,181.20		
			Jun-10	2010	Q2	$ 1,575,498.34	$ 106,622.69	0.55%	$ 722.10	$ 1,682,843.13		
			Jul-10	2010	Q3	$ 1,682,121.03	$ 92,941.15	0.89%	$ 1,247.57	$ 1,776,309.75		
			Aug-10	2010	Q3	$ 1,775,062.18	$ 92,248.54	0.89%	$ 1,316.50	$ 1,868,627.22		
			Sep-10	2010	Q3	$ 1,867,310.72	$ 102,447.63	0.89%	$ 1,384.92	$ 1,971,143.27		
			Oct-10	2010	Q4	$ 1,969,758.35	$ 81,718.59	1.20%	$ 1,969.76	$ 2,053,446.70		
			Nov-10	2010	Q4	$ 2,051,476.94	$ 103,388.94	1.20%	$ 2,051.48	$ 2,156,917.36		
			Dec-10	2010	Q4	$ 2,154,865.88	$ 91,336.51	1.20%	$ 2,154.87	$ 2,248,357.26	$ 1,162,423.56	
			Jan-11	2011	Q1	$ 2,246,202.39	$ 103,472.03	1.47%	$ 2,751.60	$ 2,352,426.02		
			Feb-11	2011	Q1	$ 2,349,674.42	$ 80,028.51	1.47%	$ 2,878.35	$ 2,432,581.28		
			Mar-11	2011	Q1	$ 2,429,702.93	$ 115,180.73	1.47%	$ 2,976.39	$ 2,547,860.05		

This worksheet calculates the funding adder revenues.

Account 1555 - Sub-account Funding Adder Revenues

Interest Rates	Approved Deferral and Variance Accounts	CWIP	Date	Year	Quarter	Opening Balance (Principal)	Funding Adder Revenues	Interest Rate	Interest	Closing Balance	Annual amounts	Board Approved Smart Meter Funding Adder (from Tariff)
			Apr-11	2011	Q2	$ 2,544,883.66	$ 79,882.59	1.47%	$ 3,117.48	$ 2,627,883.73		
			May-11	2011	Q2	$ 2,624,766.25	$ 105,224.63	1.47%	$ 3,215.34	$ 2,733,206.22		
			Jun-11	2011	Q2	$ 2,729,990.88	$ 101,688.50	1.47%	$ 3,344.24	$ 2,835,023.62		
			Jul-11	2011	Q3	$ 2,831,679.38	$ 102,902.03	1.47%	$ 3,468.81	$ 2,938,050.22		
			Aug-11	2011	Q3	$ 2,934,581.41	$ 92,413.22	1.47%	$ 3,594.86	$ 3,030,589.49		
			Sep-11	2011	Q3	$ 3,026,994.63	$ 104,060.60	1.47%	$ 3,708.07	$ 3,134,763.30		
			Oct-11	2011	Q4	$ 3,131,055.23	$ 91,262.82	1.47%	$ 3,835.54	$ 3,226,153.59		
			Nov-11	2011	Q4	$ 3,222,318.05	$ 103,998.80	1.47%	$ 3,947.34	$ 3,330,264.19		
			Dec-11	2011	Q4	$ 3,326,316.85	$ 80,508.29	1.47%	$ 4,074.74	$ 3,410,899.88	$ 1,201,535.51	
			Jan-12	2012	Q1	$ 3,406,825.14	$ 125,039.16	1.47%	$ 4,173.36	$ 3,536,037.66		
			Feb-12	2012	Q1	$ 3,531,864.30	$ 81,304.99	1.47%	$ 4,326.53	$ 3,617,495.82		
			Mar-12	2012	Q1	$ 3,613,169.29	$ 69,171.67	1.47%	$ 4,426.13	$ 3,686,767.09		
			Apr-12	2012	Q2	$ 3,682,340.96	$ 79,882.59	1.47%	$ 4,510.87	$ 3,766,734.42		
			May-12	2012	Q2	$ 3,762,223.55	$ 105,224.63	1.47%	$ 4,608.72	$ 3,872,056.90		
			Jun-12	2012	Q2	$ 3,867,448.18	$ 91,519.65	1.47%	$ 4,737.62	$ 3,963,705.45		
			Jul-12	2012	Q3	$ 3,958,967.83	$ -	0.00%	$ -	$ 3,958,967.83		
			Aug-12	2012	Q3	$ 3,958,967.83	$ -	0.00%	$ -	$ 3,958,967.83		
			Sep-12	2012	Q3	$ 3,958,967.83	$ -	0.00%	$ -	$ 3,958,967.83		
			Oct-12	2012	Q4	$ 3,958,967.83	$ -	0.00%	$ -	$ 3,958,967.83		
			Nov-12	2012	Q4	$ 3,958,967.83	$ -	0.00%	$ -	$ 3,958,967.83		
			Dec-12	2012	Q4	$ 3,958,967.83	$ -	0.00%	$ -	$ 3,958,967.83	$ 578,925.92	
			Total Funding Adder Revenues Collected				**$ 3,958,967.83**		**$ 107,827.03**	**$ 4,066,794.86**	**$ 4,066,794.86**	

Ontario Energy Board

Smart Meter Model

Thunder Bay Hydro Electricity Distribution Inc.

This worksheet calculates the interest on OM&A and amortization/depreciation expense, based on monthly data.

Account 1556 - Sub-accounts Operating Expenses, Amortization Expenses, Carrying Charges

Prescribed Interest Rates	Approved Deferral and Variance Accounts	CWIP	Date	Year	Quarter	Opening Balance (Principal)	OM&A Expenses	Amortization / Depreciation Expense	Closing Balance (Principal)	(Annual) Interest Rate	Interest (on opening balance)	Cumulative Interest
2006 Q1	0.00%	0.00%	Jan-06	2006	Q1	$ -			-	0.00%	-	-
2006 Q2	4.14%	4.68%	Feb-06	2006	Q1	-			-	0.00%	-	-
2006 Q3	4.59%	5.05%	Mar-06	2006	Q1	-			-	0.00%	-	-
2006 Q4	4.59%	4.72%	Apr-06	2006	Q2	-			-	4.14%	-	-
2007 Q1	4.59%	4.72%	May-06	2006	Q2	-			-	4.14%	-	-
2007 Q2	4.59%	4.72%	Jun-06	2006	Q2	-			-	4.14%	-	-
2007 Q3	4.59%	5.18%	Jul-06	2006	Q3	-			-	4.59%	-	-
2007 Q4	5.14%	5.18%	Aug-06	2006	Q3	-			-	4.59%	-	-
2008 Q1	5.14%	5.18%	Sep-06	2006	Q3	-			-	4.59%	-	-
2008 Q2	4.08%	5.18%	Oct-06	2006	Q4	-			-	4.59%	-	-
2008 Q3	3.35%	5.43%	Nov-06	2006	Q4	-			-	4.59%	-	-
2008 Q4	3.35%	5.43%	Dec-06	2006	Q4	-			-	4.59%	-	-
2009 Q1	2.45%	6.61%	Jan-07	2007	Q1	-			-	4.59%	-	-
2009 Q2	1.00%	6.61%	Feb-07	2007	Q1	-			-	4.59%	-	-
2009 Q3	0.55%	5.67%	Mar-07	2007	Q1	-			-	4.59%	-	-
2009 Q4	0.55%	4.66%	Apr-07	2007	Q2	-			-	4.59%	-	-
2010 Q1	0.55%	4.34%	May-07	2007	Q2	-			-	4.59%	-	-
2010 Q2	0.55%	4.34%	Jun-07	2007	Q2	-			-	4.59%	-	-
2010 Q3	0.89%	4.66%	Jul-07	2007	Q3	-			-	4.59%	-	-
2010 Q4	1.20%	4.01%	Aug-07	2007	Q3	-			-	4.59%	-	-
2011 Q1	1.47%	4.29%	Sep-07	2007	Q3	-			-	4.59%	-	-
2011 Q2	1.47%	4.29%	Oct-07	2007	Q4	-			-	5.14%	-	-
2011 Q3	1.47%	4.29%	Nov-07	2007	Q4	-			-	5.14%	-	-
2011 Q4	1.47%	4.29%	Dec-07	2007	Q4	-			-	5.14%	-	-
2012 Q1	1.47%	4.29%	Jan-08	2008	Q1	-			-	5.14%	-	-
2012 Q2	1.47%	4.29%	Feb-08	2008	Q1	-			-	5.14%	-	-
2012 Q3	0.00%	4.29%	Mar-08	2008	Q1	-	$ 17,168.63		17,168.63	5.14%	-	-
2012 Q4	0.00%	4.29%	Apr-08	2008	Q2	17,168.63	$ 42,191.00		59,359.63	4.08%	58.37	58.37
			May-08	2008	Q2	59,359.63			59,359.63	4.08%	201.82	260.20
			Jun-08	2008	Q2	59,359.63			59,359.63	4.08%	201.82	462.02
			Jul-08	2008	Q3	59,359.63			59,359.63	3.35%	165.71	627.73
			Aug-08	2008	Q3	59,359.63			59,359.63	3.35%	165.71	793.44
			Sep-08	2008	Q3	59,359.63			59,359.63	3.35%	165.71	959.16
			Oct-08	2008	Q4	59,359.63			59,359.63	3.35%	165.71	1,124.87
			Nov-08	2008	Q4	59,359.63			59,359.63	3.35%	165.71	1,290.58
			Dec-08	2008	Q4	59,359.63		$ 1,475.18	60,834.81	3.35%	165.71	1,456.29
			Jan-09	2009	Q1	60,834.81	$ -	$ 53.91	60,888.72	2.45%	124.20	1,580.50
			Feb-09	2009	Q1	60,888.72	$ 428.06	$ 53.91	61,370.69	2.45%	124.31	1,704.81
			Mar-09	2009	Q1	61,370.69	$ 425.22	$ 53.91	61,849.82	2.45%	125.30	1,830.11
			Apr-09	2009	Q2	61,849.82	$ 15,740.49	$ 1,154.51	78,744.82	1.00%	51.54	1,881.65
			May-09	2009	Q2	78,744.82	-$ 9,578.87	$ 8,834.54	78,000.49	1.00%	65.62	1,947.27
			Jun-09	2009	Q2	78,000.49	$ 4,044.90	$ 15,060.23	97,105.62	1.00%	65.00	2,012.27
			Jul-09	2009	Q3	97,105.62	$ 1,884.43	$ 21,961.07	120,951.12	0.55%	44.51	2,056.78
			Aug-09	2009	Q3	120,951.12	$ 5,733.75	$ 26,367.08	153,051.95	0.55%	55.44	2,112.22
			Sep-09	2009	Q3	153,051.95	$ 3,615.91	$ 31,305.21	187,973.07	0.55%	70.15	2,182.36
			Oct-09	2009	Q4	187,973.07	$ 15,343.91	$ 37,116.93	240,433.91	0.55%	86.15	2,268.52
			Nov-09	2009	Q4	240,433.91	$ 3,013.50	$ 39,474.79	282,922.20	0.55%	110.20	2,378.72
			Dec-09	2009	Q4	282,922.20	-$ 13,483.29	$ 38,926.85	308,365.76	0.55%	129.67	2,508.39
			Jan-10	2010	Q1	308,365.76	$ 1,837.73	$ 40,898.56	351,102.05	0.55%	141.33	2,649.72
			Feb-10	2010	Q1	351,102.05	$ 9,323.96	$ 41,292.32	401,718.33	0.55%	160.92	2,810.65
			Mar-10	2010	Q1	401,718.33	$ 7,134.41	$ 40,368.80	449,221.54	0.55%	184.12	2,994.77
			Apr-10	2010	Q2	449,221.54	$ 4,420.37	$ 40,956.52	494,598.43	0.55%	205.89	3,200.66
			May-10	2010	Q2	494,598.43	$ 5,846.27	$ 41,531.42	541,976.12	0.55%	226.69	3,427.35
			Jun-10	2010	Q2	541,976.12	$ 16,498.55	$ 41,997.14	600,471.81	0.55%	248.41	3,675.76
			Jul-10	2010	Q3	600,471.81	$ 17,080.99	$ 42,253.16	659,805.96	0.89%	445.35	4,121.11
			Aug-10	2010	Q3	659,805.96	$ 31,807.70	$ 42,369.24	733,982.90	0.89%	489.36	4,610.46
			Sep-10	2010	Q3	733,982.90	$ 21,626.50	$ 42,513.16	798,122.56	0.89%	544.37	5,154.83
			Oct-10	2010	Q4	798,122.56	$ 25,606.82	$ 42,811.28	866,540.66	1.20%	798.12	5,952.96
			Nov-10	2010	Q4	866,540.66	$ 29,346.99	$ 42,947.38	938,835.03	1.20%	866.54	6,819.50
			Dec-10	2010	Q4	938,835.03	$ 22,665.17	$ 42,845.17	1,004,345.37	1.20%	938.84	7,758.33
			Jan-11	2011	Q1	1,004,345.37	$ 12,028.86	$ 42,987.25	1,059,361.48	1.47%	1,230.32	8,988.65
			Feb-11	2011	Q1	1,059,361.48	$ 27,537.02	$ 43,158.98	1,130,057.48	1.47%	1,297.72	10,286.37
			Mar-11	2011	Q1	1,130,057.48	$ 19,614.44	$ 43,244.31	1,192,916.23	1.47%	1,384.32	11,670.69
			Apr-11	2011	Q2	1,192,916.23	$ 34,195.17	$ 43,244.32	1,270,355.72	1.47%	1,461.32	13,132.02
			May-11	2011	Q2	1,270,355.72	$ 33,391.84	$ 43,376.38	1,347,123.94	1.47%	1,556.19	14,688.20
			Jun-11	2011	Q2	1,347,123.94	$ 17,515.96	$ 43,428.28	1,408,068.18	1.47%	1,650.23	16,338.43
			Jul-11	2011	Q3	1,408,068.18	$ 34,314.13	$ 43,458.62	1,485,840.93	1.47%	1,724.88	18,063.31
			Aug-11	2011	Q3	1,485,840.93	$ 34,159.92	$ 43,507.31	1,563,508.16	1.47%	1,820.16	19,883.47
			Sep-11	2011	Q3	1,563,508.16	$ 22,056.20	$ 43,606.69	1,629,171.05	1.47%	1,915.30	21,798.76
			Oct-11	2011	Q4	1,629,171.05	$ 22,671.46	$ 43,619.24	1,695,461.75	1.47%	1,995.73	23,794.50
			Nov-11	2011	Q4	1,695,461.75	$ 29,948.64	$ 43,686.81	1,769,097.20	1.47%	2,076.94	25,871.44
			Dec-11	2011	Q4	1,769,097.20	$ 41,461.26	$ 43,686.82	1,854,245.28	1.47%	2,167.14	28,038.58
			Jan-12	2012	Q1	1,854,245.28			1,854,245.28	1.47%	2,271.45	30,310.03
			Feb-12	2012	Q1	1,854,245.28			1,854,245.28	1.47%	2,271.45	32,581.48
			Mar-12	2012	Q1	1,854,245.28			1,854,245.28	1.47%	2,271.45	34,852.93
			Apr-12	2012	Q2	1,854,245.28			1,854,245.28	1.47%	2,271.45	37,124.39
			May-12	2012	Q2	1,854,245.28			1,854,245.28	1.47%	2,271.45	39,395.84
			Jun-12	2012	Q2	1,854,245.28			1,854,245.28	1.47%	2,271.45	41,667.29
			Jul-12	2012	Q3	1,854,245.28			1,854,245.28	0.00%	-	41,667.29
			Aug-12	2012	Q3	1,854,245.28			1,854,245.28	0.00%	-	41,667.29
			Sep-12	2012	Q3	1,854,245.28			1,854,245.28	0.00%	-	41,667.29
			Oct-12	2012	Q4	1,854,245.28			1,854,245.28	0.00%	-	41,667.29
			Nov-12	2012	Q4	1,854,245.28			1,854,245.28	0.00%	-	41,667.29
			Dec-12	2012	Q4	1,854,245.28			1,854,245.28	0.00%	-	41,667.29
							$ 608,618.00	$ 1,245,627.28	$ 1,854,245.28			

Ontario Energy Board

Smart Meter Model

Thunder Bay Hydro Electricity Distribution Inc.

This worksheet calculates the interest on OM&A and amortization/depreciation expense, in the absence of monthly data.

Year	**OM&A (from Sheet 5)**	**Amortization Expense (from Sheet 5)**	**Cumulative OM&A and Amortization Expense**	**Average Cumulative OM&A and Amortization Expense**	**Average Annual Prescribed Interest Rate for Deferral and Variance Accounts (from Sheets 8A and 8B)**	**Simple Interest on OM&A and Amortization Expenses**
2006	$ -	$ -	$ -	$ -	4.37%	$ -
2007	$ -	$ -	$ -	$ -	4.73%	$ -
2008	$ 59,359.70	$ -	$ 59,359.70	$ 29,679.85	3.98%	$ 1,181.26
2009	$ 22,776.03	$ 265,491.54	$ 347,627.27	$ 203,493.48	1.14%	$ 2,314.74
2010	$ 196,571.79	$ 549,918.86	$ 1,094,117.92	$ 720,872.60	0.80%	$ 5,748.96
2011	$ 328,455.95	$ 578,464.12	$ 2,001,037.99	$ 1,547,577.95	1.47%	$ 22,749.40
2012	$ 402,575.83	$ 588,073.58	$ 2,991,687.40	$ 2,496,362.69	1.47%	$ 36,696.53

Cumulative Interest to 2011	$ 31,994.35
Cumulative Interest to 2012	$ 68,690.88

****PLEASE SEE THUNDER BAY'S RESPONSE TO VECC'S QUESTION #7d FOR CUSTOMER CLASS-SPECIFIC RATE RIDERS****

Ontario Energy Board

Smart Meter Model

Thunder Bay Hydro Electricity Distribution Inc.

This worksheet calculates the Smart Meter Disposition Rider and the Smart Meter Incremental Revenue Requirement Rate Rider, if applicable. This worksheet also calculates any new Smart Meter Funding Adder that a distributor may wish to request. However, please note that in many 2011 IRM decisions, the Board noted that current funding adders will cease on April 30, 2011 and that the Board's expectation is that distributors will file for a final review of prudence at the earliest opportunity. The Board also noted that the SMFA is a tool designed to provide advance funding and to mitigate the anticipated rate impact of smart meter costs when recovery of those costs is approved by the Board. The Board observed that the SMFA was not intended to be compensatory (return on and of capital) on a cumulative basis over the term the SMFA was in effect. The SMFA was initially designed to fund future investment, and not fully fund prior capital investment. Distributors that seek a new SMFA should provide evidence to support its proposal. This would include documentation of where the distributor is with respect to its smart meter deployment program, and reasons as to why the distributor's circumstances are such that continuation of the SMFA is warranted. Press the "UPDATE WORKSHEET" button after choosing the applicable adders/riders.

Check if applicable		
	Smart Meter Funding Adder (SMFA)	
X	Smart Meter Disposition Rider (SMDR)	**The SMDR is calculated based on costs to December 31, 2011**
X	Smart Meter Incremental Revenue Requirement Rate Rider (SMIRR)	**The SMIRR is calculated based on the incremental revenue requirement associated with the recovery of capital related costs to December 31, 2012 and associated OM&A.**

	2006	2007	2008	2009	2010	2011	2012 and later	Total
Deferred and forecasted Smart Meter Incremental Revenue Requirement (from Sheet 5)	$ -	$ -	$ 59,359.70	$ 468,626.23	$ 1,097,441.41	$ 1,277,192.34	$ 1,364,126.93	$ 4,266,746.62
Interest on Deferred and forecasted OM&A and Amortization Expense (Sheet 8A/8B) (Check **one** of the boxes below)	$ -	$ -	$ 1,456.29	$ 1,052.10	$ 5,249.94	$ 20,280.25		$ 28,038.58
X Sheet 8A (Interest calculated on monthly balances)	$ -	$ -	$ 1,456.29	$ 1,052.10	$ 5,249.94	$ 20,280.25		$ 28,038.58
Sheet 8B (Interest calculated on average annual balances)								$ -
SMFA Revenues (from Sheet 8)	$ 83,718.06	$ 158,300.85	$ 160,396.19	$ 695,168.99	$ 1,148,618.30	$ 1,160,622.75	$ 552,142.69	$ 3,958,967.83
SMFA Interest (from Sheet 8)	$ 888.76	$ 7,534.12	$ 12,287.30	$ 5,615.60	$ 13,805.26	$ 40,912.76	$ 26,783.23	$ 107,827.03
Net Deferred Revenue Requirement	-$ 84,606.82	-$ 165,834.97	-$ 111,867.50	-$ 231,106.26	-$ 59,732.20	$ 95,937.08	$ 785,201.01	$ 227,990.34
Number of Metered Customers (average for 2012 test year)							49062	

Calculation of Smart Meter Disposition Rider (per metered customer per month)

Years for collection or refunding	2	
Deferred Incremental Revenue Requirement from 2006 to December 31, 2011 plus Interest on OM&A and Amortization	$ 2,930,658.27	
SMFA Revenues collected from 2006 to 2012 test year (inclusive) Plus Simple Interest on SMFA Revenues	$ 4,066,794.86	
Net Deferred Revenue Requirement	-$ 1,136,136.59	
SMDR May 1, 2012 to April 30, 2014	-$ 0.96	Match
Check: Forecasted SMDR Revenues	-$ 1,130,388.48	

Calculation of Smart Meter Incremental Revenue Requirement Rate Rider (per metered customer per month)

Incremental Revenue Requirement for 2012	$ 1,364,126.93	
SMIRR	$ 2.32	Match
Check: Forecasted SMIRR Revenues	$ 1,365,886.08	

Bill Impacts

Customer Class: **Residential**

Consumption **800** **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	**Rate ($)**	**Volume**	**Charge ($)**	**Rate ($)**	**Volume**	**Charge ($)**	**$ Change**	**% Change**
Monthly Service Charge	Monthly	$ 9.8800	1	$ 9.88	$ 9.8800	1	$ 9.88	$ -	0.00%
Smart Meter Rate Adder	Monthly	$ 1.9700	1	$ 1.97		1	$ -	-$ 1.97	-100.00%
Distribution Volumetric Rate	per kWh	$ 0.0124	800	$ 9.92	$ 0.0124	800	$ 9.92	$ -	0.00%
Shared Tax Savings Rider	per kWh	-$ 0.0003	800	-$ 0.24	-$ 0.0003	800	-$ 0.24	$ -	0.00%
LRAM & SSM Rate Rider	per kWh	$ 0.0010	800	$ 0.80	$ 0.0010	800	$ 0.80	$ -	0.00%
Deferral/Variance Account Disposition Rate Rider	per kWh	$ 0.0010	800	$ 0.80	$ 0.0010	800	$ 0.80	$ -	0.00%
Smart Meter Disposition Rider	Monthly			$ -	-$ 0.7800	1	-$ 0.78	-$ 0.78	#DIV/0!
Smart Meter Incremental Revenue Requirement Rider	Monthly			$ -	$ 1.8700	1	$ 1.87	$ 1.87	#DIV/0!
Sub-Total A - Distribution				**$ 23.13**			**$ 22.25**	**-$ 0.88**	**-3.80%**
RTSR - Network	per kWh	$ 0.0058	835.84	$ 4.85	$ 0.0058	835.84	$ 4.85	$ -	0.00%
RTSR - Line and Transformation Connection	per kWh	$ 0.0047	835.84	$ 3.93	$ 0.0047	835.84	$ 3.93	$ -	0.00%
Sub-Total B - Delivery (including Sub-Total A)				**$ 31.91**			**$ 31.03**	**-$ 0.88**	**-2.76%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0052	835.84	$ 4.35	$ 0.0052	835.84	$ 4.35	$ -	0.00%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	835.84	$ 1.09	$ 0.0013	835.84	$ 1.09	$ -	0.00%
			835.84	$ -		835.84	$ -	$ -	
Standard Supply Service Charge	Monthly	$ 0.2500	1	$ 0.25	$ 0.2500	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)		$ 0.0070	835.84	$ 5.85	$ 0.0070	835.84	$ 5.85	$ -	0.00%
Energy Tier 1	per kWh	$ 0.0710	835.84	$ 59.34	$ 0.0710	835.84	$ 59.34	$ -	0.00%
Energy Tier 2	per kWh	$ 0.0830		$ -	$ 0.0830		$ -	$ -	
				$ -			$ -	$ -	
Total Bill (before Taxes)				**$ 102.78**			**$ 101.90**	**-$ 0.88**	**-0.86%**
HST		13%		$ 13.36	13%		$ 13.25	-$ 0.11	-0.86%
Total Bill (including Sub-total B)				**$ 116.15**			**$ 115.15**	**-$ 1.00**	**-0.86%**
Ontario Clean Energy Benefit [1]				**-$ 11.62**			**-$ 11.52**	**$ 0.10**	**-0.86%**
Total Bill (including OCEB)				**$ 104.53**			**$ 103.63**	**-$ 0.90**	**-0.86%**
Loss Factor (%)		4.48%			4.48%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing should cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Bill Impacts

Customer Class: General Service < 50 kW

Consumption 2000 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 17.8900	1	$ 17.89	$ 17.8900	1	$ 17.89	$ -	0.00%
Smart Meter Rate Adder	Monthly	$ 1.9700	1	$ 1.97		1	$ -	-$ 1.97	-100.00%
Distribution Volumetric Rate	per kWh	$ 0.0131	2000	$ 26.20	$ 0.0131	2000	$ 26.20	$ -	0.00%
Shared Tax Savings Rider	per kWh	-$ 0.0002	2000	-$ 0.40	-$ 0.0002	2000	-$ 0.40	$ -	0.00%
LRAM & SSM Rate Rider	per kWh	$ 0.0001	2000	$ 0.20	$ 0.0001	2000	$ 0.20	$ -	0.00%
Deferral/Variance Account Disposition Rate Rider	per kWh	$ 0.0010	2000	$ 2.00	$ 0.0010	2000	$ 2.00	$ -	0.00%
Smart Meter Disposition Rider	Monthly			$ -	-$ 2.8500	1	-$ 2.85	-$ 2.85	#DIV/0!
Smart Meter Incremental Revenue Requirement Rider	Monthly			$ -	$ 6.8400	1	$ 6.84	$ 6.84	#DIV/0!
Sub-Total A - Distribution				**$ 47.86**			**$ 49.88**	**$ 2.02**	**4.22%**
RTSR - Network	per kWh	$ 0.0055	2089.6	$ 11.49	$ 0.0055	2089.6	$ 11.49	$ -	0.00%
RTSR - Line and Transformation Connection	per kWh	$ 0.0044	2089.6	$ 9.19	$ 0.0044	2089.6	$ 9.19	$ -	0.00%
Sub-Total B - Delivery (including Sub-Total A)				**$ 68.55**			**$ 70.57**	**$ 2.02**	**2.95%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0052	2089.6	$ 10.87	$ 0.0052	2089.6	$ 10.87	$ -	0.00%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	2089.6	$ 2.72	$ 0.0013	2089.6	$ 2.72	$ -	0.00%
			2089.6	$ -		2089.6	$ -	$ -	
Standard Supply Service Charge	Monthly	$ 0.2500	1	$ 0.25	$ 0.2500	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)		$ 0.0070	2089.6	$ 14.63	$ 0.0070	2089.6	$ 14.63	$ -	0.00%
Energy Tier 1	per kWh	$ 0.0710	750	$ 53.25	$ 0.0710	750	$ 53.25	$ -	0.00%
Energy Tier 2	per kWh	$ 0.0830	1339.6	$ 111.19	$ 0.0830	1339.6	$ 111.19	$ -	0.00%
				$ -			$ -	$ -	
Total Bill (before Taxes)				**$ 261.44**			**$ 263.46**	**$ 2.02**	**0.77%**
HST		13%		$ 33.99	13%		$ 34.25	$ 0.26	0.77%
Total Bill (including Sub-total B)				**$ 295.43**			**$ 297.71**	**$ 2.28**	**0.77%**
Ontario Clean Energy Benefit [1]				**-$ 29.54**			**-$ 29.77**	**-$ 0.23**	**0.78%**
Total Bill (including OCEB)				**$ 265.89**			**$ 267.94**	**$ 2.05**	**0.77%**
Loss Factor (%)		4.48%			4.48%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing should cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.