

## **Response to Board Staff Interrogatories 2012 Smart Meter Cost Disposition and Recovery EB-2012-0036**

### **Interrogatory 1**

#### **1. Responses to Letters of Comment**

Following publication of the Notice of Application, the Board has, to date, received no letters of comment. Please confirm whether NOTL has received any letters of comment. If so, please file a copy of any letters of comment. For each, please confirm whether a reply was sent from NOTL to the author of the letter. If confirmed, please file that reply with the Board. Please ensure that the author's contact information except for the name is redacted. If not confirmed, please explain why a response was not sent and confirm if NOTL intends to respond.

### **Response 1**

*NOTL has not received any letters of comment to date.*

**Interrogatory 2**

**2. Ref: Application, page 3 – Stranded Meter Costs**

On page 3 of its application, NOTL states that it is not currently seeking to recover stranded meter costs and that it expects to seek recovery of stranded meter costs in its next cost of service application. NOTL is scheduled to rebase its rates through a Cost of Service application for the 2014 rate year. Please provide NOTL's estimate of the net book value of the stranded meters as of December 31, 2013.

**Response 2**

*NOTL's estimate of the net book value of the stranded meters as of December 31, 2013 is \$133,000.*

### Interrogatory 3

#### 3. Ref: Application, page 6 – Operational Data Store (ODS) Functionality

On page 6 of the application, NOTL states:

With the implementation of the AMI system a need was recognized for an application that supported full integration with the MDM/R and enabled staff to audit, validate, interact with and gain valuable business information from the wealth of meter data that was being collected. The AMI system, while fully capable of collecting meter read data and forwarding that raw data to the MDM/R, does not provide all of the functionality necessary to interpret and/or leverage the information it is providing in an educated and meaningful fashion.

- a) Are there any features of NOTL's ODS which are duplicative of functions performed (or to be performed) by the provincial MDM/R?

- b) If the answer to a) is in the affirmative, please identify what features of the ODS are duplicative of functions performed by the MDM/R, the associated costs and the reasons for having this functionality.

### Response 3

#### 3a)

*Although the data stored by the MDM/R and the ODS is similar, the MDM/R stores meter data for only a short period of time whereas the ODS has a long term storage capacity which is beneficial as an operational and planning tool. As a result, the function of the MDM/R and the ODS is completely different. The data stored by the MDM/R is used for billing however, the data stored by the ODS is not only used to assist with exceptional reporting and to verify the MDM/R data but is a cost effective source of long term data which can be used for operational and planning purposes such as feeder and phase balancing and transformer load analysis.*

*It was important to have accumulated ODS stored customer data in place for our initial TOU billing periods. Given that the MDM/R initially had no historical customer data, the ODS was vital to providing accurate data for 'gaps' requiring estimation during initial. The ODS has also been utilized to check the*

*Communication Service Level for AMI reads to ensure we are obtaining reading percentages in line with our Sensus Service Level Agreement (SLA). The ODS is currently used to assist with exception reporting. The release of MDM/R version 7.2 in the next few months, promises to have an increased level of functionality and as a result, the role of the ODS as a support tool in this regard will diminish.*

*NOTL Hydro selected the Kinetiq ODS system after an extensive review. The ODS had superior functionality but was very low cost both upfront and for ongoing support. Costs included a one-time set up fee (\$2000), an annual maintenance (support) fee of approximately \$6000 and per meter fees equating to \$2400 per year. We did not pay an additional fee to have estimating and reporting functions available in the ODS software. Further, this added functionality was crucial to ensuring the accuracy of customer bills during the initial stage of TOU billing.*

**3b)**

*Not applicable*

**Interrogatory 4**

**4. Ref: Application, page 10 – Annual Security Audit**

On page 10 of the application, NOTL provides a description of its annual security audit as well as the procurement process used to select an audit partner. NOTL states:

Going forward, annual security audit has been budgeted, as this is a prudent approach to satisfying the due diligence requirements for protection not only of the customer information, but also to ensure that access to the infrastructure is properly protected, thereby securing against unwanted modifications to data collection and/or load control functionality.

Please provide the budgeted amount for the annual security audit for 2012.

**Response 4**

*Phase 1 of the security audit was recently completed and was crucial to identifying potential security risks. Phase 2 of the audit will be conducted later in 2012 to assess whether the Phase 1 issues and recommendations were resolved. The contract over the 2 years commits our company to a total of approximately \$12,061 based on 32 participating LDCs. Our costs to date have been \$9,281 and we have therefore budgeted \$2,780 for 2012.*

### Interrogatory 5

**5. Ref: Application, pages 12 and 13– Capital Expenditures: New CIS System**

On page 12 of the application, NOTL states:

The UCS group is a partnership currently consisting of nine Ontario LDCs that share a Harris Northstar CIS software system, hardware, support and its associated operating costs. While the overall cost of UCS membership, conversion and operation to date has been exceeded the estimated COS overhaul cost, we are very pleased that we migrated to the UCS system with a powerful TOU bill-ready system that has allowed us to meet our regulatory obligations.

Earlier on page 12, NOTL states that it initially received an estimate of \$170,000 from its then CIS vendor, COS Computer Systems, to make its CIS system ready for time of use pricing. NOTL later states that the cost for the UCS system selected exceeded the estimate from COS Computer Systems.

- a) Please identify the total costs incurred in the migration to the UCS system.
- b) Please identify if there are any differences between the functionality provided by the chosen UCS system with the functionality that would have been provided by the CIS changes estimated by COS Computer Systems.

### Response 5

**a)**

*The total contract price from Harris Computer Corporation for Northstar, the CIS system used by UCS group members, was \$190,140 plus out-of-pocket expenses. The actual invoiced costs were as per the contract.*

*Please note that NOTL assessed and ranked proposals from other vendors (SAP, Daffron and COS Computer Systems) as well as the Harris Northstar solution, using a number of assessment factors, including cost. The Harris proposal was the highest ranked overall. The COS Computer Systems proposal at \$170,000 was the lowest cost but was not viable for the reasons set out in b) below. The Harris proposal was the lowest cost of all other solutions.*

**b)**

*One of our primary reasons for migrating to UCS system was the fact that we had concerns with the long-term viability of our then current CIS vendor in the utility market. With only one other LDC client and the owner and programmer nearing retirement with no succession plan in place, we were at*

*great risk of not meeting our regulatory commitments. Based on the company's previous track record, we had little faith that the necessary functionality changes could be completed on schedule and on budget. Our new vendor (Harris) supports as much as half the Ontario market and the UCS group consists of 10 members.*



## Interrogatory 6

### 6. Ref: Application, page 14 – Internal Cost Savings (Credit)

On page 14 of the application, NOTL states:

The automated meter reading process of the new AMI system has resulted in a sizeable reduction of our meter reading costs. We have calculated an operational credit of \$33,420 attributed to the new AMI technology.

- a) Please confirm whether NOTL has factored the reduction in meter reading costs into its Smart Meter Incremental Revenue Requirement calculation (i.e. that the operating expenses shown for 2012 are incremental to its OM&A expenses recovered through its base Board-approved distribution rates).
- b) If so, please explain how this reduction in OM&A is reflected in cost data provided by NOTL in its Smart Meter Model and the proposed SMIRRs and/or SMDRs.

## Response 6

**a)**

*NOTL confirms that the reduction is factored into the SMIRR calculation, as explained in b) below.*

**b)**

*The Smart Meter model shows a total cost in line 2.6.3 of \$45,733 from 2006 to 2012. The line 2.6.3 cost in 2012 is shown as \$7,852. The breakdown of this total cost by vendor is shown in the Smart Meter Cost Summary (Addendum 9 in the submission). The total cost and 2012 costs by vendor are summarized in the table below. The meter reading savings are shown in the "internal vendor" row. This table confirms that the meter reading cost savings of \$33,420 are reflected in Sheet 2 of the model and therefore flow through to the rider calculations in the model.*

<u>Line 2.6.3 of OEB Model</u>			
<u>Vendor</u>	<u>2006 to 2011</u>	<u>2012</u>	<u>Total in Smart Meter Cost Summary</u>
Internal	\$ -	\$ (33,420)	\$ (33,420)
Kinetiq	\$ 27,708	\$ 14,395	\$ 42,104
Northstar	\$ -	\$ 3,622	\$ 3,622
UtilAssist/UCS	\$ 7,538	\$ 21,125	\$ 28,663
ITM	\$ 2,634	\$ 2,130	\$ 4,764
Total	\$ 37,880	\$ 7,852	\$ 45,733





### Interrogatory 8

#### 8. Ref: Excel Smart Meter Model, Version 2.17 – Sheet 2

Board staff has prepared the following table to calculate the average per meter cost for installed smart meters, on both a capital expenditures and total (capital and operating costs) basis. Note that capital and operating costs above minimum functionality were included in the calculations.

	2006	2007	2008	2009	2010	2011	2012	Total
Capital	\$ 2,435	\$ 22,147	\$ 61,380	\$ 542,226	\$ 938,881	\$ 264,994	\$ 60,880	\$ 1,892,943
OM&A				\$ 3,811	\$ 48,598	\$ 73,214	\$ 39,667	\$ 165,290
Number of Smart Meters				159	7242	282	165	7848

	Total	Average per meter
Total (capex + opex)	\$ 2,058,233	\$ 262.26
Capex only	\$ 1,892,943	\$ 241.20

- Please confirm or correct these numbers.
- In applications to date, smart meter costs have typically averaged below \$200 per meter on even a total cost (capex plus opex) basis. This is particularly so when smart meter deployment only involves the Residential and GS < 50 kW (i.e., there are no deployments "beyond minimum functionality" for other metered customer classes like GS > 50 kW). Please provide further explanation of NOTL's circumstances that support its higher than average costs, and of efforts that NOTL took during its smart meter deployment to control its capital and operating costs for the program.

### Response 8

a)

The number of meters in 2010 in the submitted OEB model is 7,472. The table in the interrogatory does not match the submission, as it shows 7,242. Thus the total number of meters as submitted is 8,078, not 7,848.

As per the amended smart meter model submitted on February 4, 2012 (e-filing reference 15728), the total cost and capex cost were amended as follows:

- Capex only = \$1,887,650
- Total capex + opex = \$2,052,940

*With these corrections to the interrogatory, the average costs per meter are as follows:*

- Total (capex + opex) = \$2,052,940/ 8078 = \$254.17*
- Capex only = \$1,887,650/ 8078 = \$233.68*

***b)***

*NOTL Hydro cooperated with 8 other 'NEPA' LDC's to reduce our AMI costs. Our communication towers and 'head end' AMI system are jointly shared by all 8 partners thus reducing our capital cost and ongoing system operating cost. RFP's for AMI vendor, AMI installation, disposal and security audit were jointly conducted by NEPA members and in some cases (security audit) by a majority of Ontario Sensus users through a common consultant Util-Assist. The NEPA members also held a number of joint training sessions with Sensus.*

*NOTL Hydro inherited a large rural area (>100 square km) from Ontario Hydro in a 1983 purchase. A majority of these customers are farm-related operations that continue to be supplied with a 'central' metering arrangement. Further, NOTL is a tourist-based town with a disproportionately large number of small commercial accounts to residential. As a result, we have approximately 1250 general service <50 kW customers compared to 6650 residential customers. Central meters, polyphase and network smart meters are generally much more expensive to purchase and to install. Additionally, NOTL Hydro has virtually completed all of our smart meter installations, including these more difficult and expensive general service accounts. Further, our meter purchase contract with Sensus required payment in U.S. funds. Our largest meter orders were completed in 2010 when the exchange cost approached 8% on one order.*

*NOTL Hydro was required to install approximately 260 transformer type meters. A vast majority of the central meter sites consisted of an older '4 Jaw' arrangement that lacked a safety feature known as 'self shorting' capability which allows the meter to be safely pulled off live and replaced. The new generation of transformer type meters (including the Sensus form 3S) come with a 5th jaw arrangement to accommodate the self shorting. In order to install the 5 Jaw meters on several hundred 4 Jaw bases, NOTL Hydro was required to first insert a conversion kit (\$9.51) and in many cases a crew was required to temporarily disconnect the high voltage supply. The retail cost of the Sensus (form 3) 5 Jaw transformer type meter was U.S. \$140.05. The total cost of such an installation with the meter, conversion kit and additional labour would range between \$300-\$400. NOTL Hydro was required to install over 200 'network' type meters (form 12S) which are common in multi-unit condominium type installations. The purchase price alone of these smart meters was U.S. \$147.15 per unit. Currently, Sensus does not manufacture a polyphase meter. To meet our regulatory*

*requirement of installing smart meters on all GS<50 kW customers, we found it necessary to purchase polyphase meters from General Electric and Elster Metering and have a Sensus 'Flexnet' radio installed under glass. A total of 14 General Electric meters for 600V installations were purchased for \$820 and the flexnet radio was purchased/installed for an additional cost of U.S. \$180 for a total of \$1000 per customer. Installation of 600 volt meters is also more expensive with additional expertise necessary to ensure safety. More than 300 Elster polyphase meters were required (form 9S and 12S) that ranged in price from U.S. \$350 to \$450 per meter with the cost of the flexnet radio included. To summarize, NOTL Hydro was required to install approximately 750 smart meters (9.5% of all meters) on much more expensive general service accounts at an average cost of approximately \$400 per installation.*

*Please note that our total cost per meter also includes approximately \$20/customer for the cost of migrating to a new smart meter/TOU ready CIS system.*

**Interrogatory 9**

**9. Ref: Excel Smart Meter Model, Version 2.17, Sheet 2 – Smart Meter Costs**

On sheet 2 of the Smart Meter Model, NOTL has provided the costs incurred in the installation of smart meters, per year, for their smart meter deployment.

- a) Column S of sheet 2 forms the basis for the calculation of the SMIRR. In column S, NOTL has shown \$60,880 in capital costs and \$39,667 in OM&A expenses for 2012. Please provide a table summarizing the amounts entered in column S that are one-time (i.e. 2012 only) expenses and amounts that are ongoing expenses for meters installed, as of December 31, 2011. Please use a format similar to column S of sheet 2 of the Smart Meter Model.

*[There is no IR 9.b]*

**Response 9**

*The table on the next page summarizes the requested information. The format is similar to column S of Sheet 2 of the model, but rows with zero amounts are hidden. [If required by OEB staff, the electronic Excel file used for this table can be provided].*

	2012 and later		
Smart Meter Capital Cost and Operational Expense Data	Forecast	One-Time	Ongoing
<b>1 Capital Costs</b>			
<b>1.1 ADVANCED METERING COMMUNICATION DEVICE (AMCD)</b>	Forecast		
1.1.1 Smart Meters <i>(may include new meters and modules, etc.)</i>	15,223	15,223	
1.1.2 Installation Costs <i>(may include socket kits, labour, vehicle, benefits, etc.)</i>	900	900	
<b>Total Advanced Metering Communications Devices (AMCD)</b>	\$ 16,123	\$ 16,123	\$ -
<b>1.5 OTHER AMI CAPITAL COSTS RELATED TO MINIMUM FUNCTIONALITY</b>	Forecast		
1.5.3 Professional Fees	28,860	28,860	
<b>Total Other AMI Capital Costs Related to Minimum Functionality</b>	\$ 28,860	\$ 28,860	\$ -
<b>Total Capital Costs Related to Minimum Functionality</b>	\$ 44,984	\$ 44,984	\$ -
<b>1.6 CAPITAL COSTS BEYOND MINIMUM FUNCTIONALITY</b>	Forecast		
<i>(Please provide a descriptive title and identify nature of beyond minimum functionality costs)</i>			
1.6.3 Costs for TOU rate implementation, CIS system upgrades, web presentation, integration with the MDM/R, etc.	15,896	15,896	
<b>Total Capital Costs Beyond Minimum Functionality</b>	\$ 15,896	\$ 15,896	\$ -
<b>Total Smart Meter Capital Costs</b>	\$ 60,880	\$ 60,880	\$ -
<b>2 OM&amp;A Expenses</b>			
<b>2.3 ADVANCED METERING CONTROL COMPUTER (AMCC)</b>			
2.3.2 Software Maintenance <i>(may include maintenance support, etc.)</i>	27,147		27,147
<b>Total Incremental AMCC OM&amp;A Costs</b>	\$ 27,147	\$ -	\$ 27,147
<b>2.5 OTHER AMI OM&amp;A COSTS RELATED TO MINIMUM FUNCTIONALITY</b>			
2.5.3 Program Management	3,168	3,168	
2.5.6 Other AMI Expenses <i>(please specify)</i>	1,500		1,500
<b>Total Other AMI OM&amp;A Costs Related to Minimum Functionality</b>	\$ 4,668	\$ 3,168	\$ 1,500
<b>TOTAL OM&amp;A COSTS RELATED TO MINIMUM FUNCTIONALITY</b>	\$ 31,815	\$ 3,168	\$ 28,647
<b>2.6 OM&amp;A COSTS RELATED TO BEYOND MINIMUM FUNCTIONALITY</b>			
<i>(Please provide a descriptive title and identify nature of beyond minimum functionality costs)</i>			
2.6.3 Costs for TOU rate implementation, CIS system upgrades, web presentation, integration with the MDM/R, etc.	7,852		7,852
<b>Total OM&amp;A Costs Beyond Minimum Functionality</b>	\$ 7,852	\$ -	\$ 7,852
<b>Total Smart Meter OM&amp;A Costs</b>	\$ 39,667	\$ 3,168	\$ 36,499
<b>3 Aggregate Smart Meter Costs by Category</b>			
<b>3.1</b>			
3.1.1	\$ 44,984	\$ 44,984	\$ -
3.1.3	\$ 15,896	\$ 15,896	\$ -
<b>3.1.7</b>	\$ 60,880	\$ 60,880	\$ -
<b>3.2</b>			
3.2.1	\$ 39,667	\$ 3,168	\$ 36,499



**Interrogatory 10**

**10. Ref: Excel Smart Meter Model, Version 2.17, Sheet 3 – Taxes/PILs Rates**

NOTL has used the maximum taxes/PILs rates input on sheet 3, row 40, 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 income tax rate	38.12%	38.12%	33.50%	33.00%	31.00%	28.25%	28.25%

Please confirm that these are the tax rates corresponding to the taxes or PILs actually paid by NOTL in each of the historical years, and that NOTL forecasts it will pay for 2012. For historical years to 2011, these would be the aggregate rate derived for calculating the taxes/PILs included in the revenue requirement in cost of service applications, or as calculated in taxes/PILs calculations as part of IRM applications. In the alternative, please explain the tax rates entered and their derivation.

**Response 10**

*Due to tax rates being pre-populated in the OEB smart meter model v2.17 as provided by the OEB, these rates were understood to be the rates that should be used. Supporting this understanding, for 2009 to 2012, the rates appeared to be the same as in the OEB Decision and Order on NOTL's 2010 rate application (EB-2009-0237), page 5 as per the yellow highlighted areas below ("Combined federal and Ontario").*



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The following table summarizes past, current and impending tax changes.

<b>Tax Rates</b>						
<b>Federal &amp; Provincial</b>						
<b>As of December 15, 2009</b>						
	Effective January 1, 2009	Effective January 1, 2010	Effective January 1, 2011	Effective January 1, 2012	Effective January 1, 2013	Effective January 1, 2014
<b>Federal income tax</b>						
General corporate rate	38.00%	38.00%	38.00%	38.00%	38.00%	38.00%
Federal tax abatement	-10.00%	-10.00%	-10.00%	-10.00%	-10.00%	-10.00%
Adjusted federal rate	28.00%	28.00%	28.00%	28.00%	28.00%	28.00%
Surtax (4% of line 3)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	28.00%	28.00%	28.00%	28.00%	28.00%	28.00%
Rate reduction	-9.00%	-10.00%	-11.50%	-13.00%	-13.00%	-13.00%
	19.00%	18.00%	16.50%	15.00%	15.00%	15.00%
<b>Ontario income tax</b>	14.00%	13.00%	11.75%	11.25%	10.50%	10.00%
<b>Combined federal and Ontario</b>	<b>33.00%</b>	<b>31.00%</b>	<b>28.25%</b>	<b>26.25%</b>	<b>25.50%</b>	<b>25.00%</b>
<b>Federal &amp; Ontario Small Business</b>						
Federal small business threshold	500,000	500,000	500,000	500,000	500,000	500,000
Ontario Small Business Threshold	500,000	500,000	500,000	500,000	500,000	500,000
Federal small business rate	11.00%	11.00%	11.00%	11.00%	11.00%	11.00%
Ontario small business rate	5.50%	5.00%	4.50%	4.50%	4.50%	4.50%
Ontario surtax claw-back of 4.25% (eliminated July 1, 2010) starts at \$500,000 and eliminates the SBC at \$1,500,000.						
Ontario surtax	4.25%	2.125%	0.00%	0.00%	0.00%	0.00%
<b>Ontario Capital Tax</b>						
Capital deduction	15,000,000	15,000,000	0	0	0	0
Capital tax rate	0.225%	0.075%	0.0%	0.0%	0.0%	0.0%


OCT will be eliminated on July 1, 2010 but tax will be prorated for the first 6 months in 2010.

*However, considering the reference in IR10 to taxes/PILs rates in revenue requirement in NOTL's cost of service applications (2006 and 2009 rates) and IRM applications (2007, 2008, 2010, 2011 and 2012), the required tax rates to be used in the model appear to be as follows (screenshots are from the approved NOTL application models of historical years and the submitted application for 2012):*

**2006 = 29.60%**

	A	B	C	D	E
 <b>Test Year PILs/ Tax Provis</b> Name of Utility: Niagara-on-the-Lake Hydro Inc. Revised on April 11, 2006 for Decision of the Ontario En License Number: ED-2002-0547 File Numbers: RP-2005-0020, EB-2005-0395 Name of Contact: Philip Wormwell Phone Number:					
					Wires Only
1	Regulatory Taxable Income - From 'Test Year Taxable Income'				696,042
2					
3	Corporate Income Tax Rate				29.60%
4	Total Income Taxes				206,062
5	Investment Tax Credits				
6	Miscellaneous Tax Credits				
7	Total Tax Credits				0
8	Corporate PILs/Income Tax Provision for Test Year				206,062
9	Ontario Capital Tax				29,296
10	LCT				0
<b>INCLUSION IN RATES</b>					
11	Income Tax (grossed-up)				292,722
12	Ontario Capital Tax (not grossed-up)				29,296
13	LCT (grossed-up)				0
14	Tax Provision for 2006 EDR Model Rate Recovery (EDR Model Tab "4-2 OUTPUT from PILS MODEL" cell E15)				322,017

**2007 = 29.60%**  
(No change from 2006 as per Sheet 7 below)

	B	C	D	E	F	G	H
 <b>2007 INCENTIVE RATE MECHANISM ADJUSTMENT</b> <b>Niagara-on-the-Lake Hydro Inc.</b> <b>EB-2007-0559, EB-2005-0395</b> <b>Friday, January 19, 2007</b> <b>Sheet 7 - Large Corporation Tax Allowance</b>							
1	Did the applicant receive Board approval for Large Corporation Tax in 2006? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO						
2	For distributors that had a Large Corporation Tax (LCT) allowance approved in their 2006 distribution rates, this sheet will reduce rates to reflect the removal of this allowance in 2007. The reduction in the allowance will be reflected through a percentage decrease in distribution rates calculated by the ratio of 2006 LCT allowance to the 2006 Base revenue requirement. The 2006 Board-approved LCT allowance is found in your Board-approved 2006 PILs model, sheet "Test Year OCT, LCT", cell E181. The 2006 Board-approved base revenue requirement is found in your 2006 Board-approved EDR model, sheet 5-1, cell F22.						
3	Enter your 2006 Approved LCT allowance						
4	Enter your 2006 Base Revenue Requirement						
5	Rate Reduction Ratio						
6	Class	Monthly Service Charge (without smart meter rate adder)	Reduction by Large Corporation Tax Ratio	Adjusted Monthly Service Charge	2006 Volumetric Rate kW / kWh	Reduction by Large Corporation Tax Ratio	Adjusted Volumetric Rate kW / kWh
7	Residential	\$17.34	\$0.00	\$17.34	\$0.0122	\$0.0000	\$0.0122
8	General Service Less Than 50 kW	\$39.59	\$0.00	\$39.59	\$0.0119	\$0.0000	\$0.0119
9	General Service 50 to 4,999 kW	\$460.27	\$0.00	\$460.27	\$3.4413	\$0.0000	\$3.4413
10	Unmetered Scattered Load	\$39.59	\$0.00	\$39.59	\$0.0119	\$0.0000	\$0.0119
11	Sentinel Lighting	\$2.90	\$0.00	\$2.90	\$5.8500	\$0.0000	\$5.8500
12	Street Lighting	\$1.09	\$0.00	\$1.09	\$4.2808	\$0.0000	\$4.2808

**2008 = 26.98%**


2008 INCENTIVE RATE MECHANISM ADJUSTMENT MODEL			
Niagara-on-the-Lake Hydro Inc.			
EB-2007-0813, EB-2007-0559, EB-2005-0395			
Monday, October 15, 2007			
Sheet 6A - 2008 Fed Tax Adjustment Factor			
	2006	2008	Difference
<b>From 2006 PIL's Model</b>			
2006 Regulatory Taxable Income (K-Factor Cell F69)	696,042 A	696,042	
2006 Corporate Income Tax Rate (K-Factor Cell C61)	29.60% B	26.98%	
Corporate PILs/Income Tax Provision for Test Year	206,028 C = A * B	187,826	
Income Tax (grossed-up)	292,654 D = C / (1 - B)	257,242	-35,412 ← Amount to be adjusted
<b>From 2006 EDR Model</b>			
2006 EDR Base Revenue Requirement From Distribution Rates (K-Factor Cell C84)	4,295,823 E	4,295,823	
Grossed up taxes as a % of Revenue Requirement	6.800% F = D / E	6.000%	-0.800%
			2008 Federal Tax Rate Adjustment Factor

This calculates the percentage amount that the distribution rates must be reduced by in order to reflect the change in Federal tax rates. The adjustment is calculated by applying the new 2008 tax rates (cell D9) against the 2006 Regulatory Taxable Income (cell D7).

**2009 = 31.53%**

REVENUE REQUIREMENT WORK FORM			
Name of LDC: Niagara-on-the-Lake Hydro Inc.			
File Number: EB-2008-0237			
Rate Year: 2009			
Taxes/PILs			
Line No.	Particulars	Application	Per Board Decision
<u>Determination of Taxable Income</u>			
1	Utility net income	\$807,312	\$758,073
2	Adjustments required to arrive at taxable utility income	\$27,206	\$5,634 (1)
3	Taxable income	\$834,518	\$763,707
<u>Calculation of Utility Income Taxes</u>			
4	Income taxes	\$275,391	\$240,834
5	Capital taxes	\$15,166	\$15,428 (2)
6	Total taxes	\$290,557	\$256,262
7	Gross-up of Income Taxes	\$135,640	\$110,928
8	Grossed-up Income Taxes	\$411,031	\$351,762
9	PILs / tax Allowance (Grossed-up Income taxes + Capital taxes)	\$426,197	\$367,190
10	Other tax Credits	\$ -	\$ -
<u>Tax Rates</u>			
11	Federal tax (%)	19.00%	19.00%
12	Provincial tax (%)	14.00%	12.53%
13	Total tax rate (%)	33.00%	31.53%

**2010 = 26.50%**



**Name of LDC:** Niagara-on-the-Lake Hydro Inc.  
**File Number:** EB-2009-0237  
**Effective Date:** Saturday, May 01, 2010

### Z-Factor Tax Changes

Update Sheet

**Summary - Sharing of Tax Change Forecast Amounts**


**1. Tax Related Amounts Forecast from Capital Tax Rate Changes**

	2009	2010
Taxable Capital	\$21,857,012	\$21,857,012
Deduction from taxable capital up to \$15,000,000	\$15,000,000	\$15,000,000
Net Taxable Capital	\$ 6,857,012	\$ 6,857,012
Rate	0.225%	0.150%
Ontario Capital Tax (Deductible, not grossed-up)	\$ 15,428	\$ 5,129

**2. Tax Related Amounts Forecast from Income Tax Rate Changes**

	2009	2010
Regulatory Taxable Income	\$ 763,707	\$ 763,707
Corporate Tax Rate	28.9%	26.5%

2011 = 24.72%



**Name of LDC:** Niagara-on-the-Lake Hydro Inc.  
**File Number:** IRM3  
**Effective Date:** Sunday, May 01, 2011  
**Version :** 1.0

### Z-Factor Tax Changes

Update Sheet

**Summary - Sharing of Tax Change Forecast Amounts**

**1. Tax Related Amounts Forecast from Capital Tax Rate Changes**

	2009	2010	2011
Taxable Capital	\$21,857,012	\$21,857,012	\$21,857,012
Deduction from taxable capital up to \$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000
Net Taxable Capital	\$ 6,857,012	\$ 6,857,012	\$ 6,857,012
Rate	0.225%	0.150%	0.000%
Ontario Capital Tax (Deductible, not grossed-up)	\$ 15,428	\$ 5,100	\$ -

**2. Tax Related Amounts Forecast from Income Tax Rate Changes**

	2009	2010	2011
Regulatory Taxable Income	\$ 763,707	\$ 763,707	\$ 763,707
Corporate Tax Rate	31.05%	28.19%	24.72%

2012 = 22.97%

**Ontario Energy Board**  
**2012 IRM 3 Tax Savings Worksheet**

Niagara-on-the-Lake Hydro Inc. **UPDATE SHEET**

This worksheet calculates the tax sharing amount.  
Step 1: Press the Update Button (this will clear all input cells and reveal your latest cost of service re-basing year).  
Step 2: In the green input cells below, please enter the information related to the last Cost of Service Filing.

**Summary - Sharing of Tax Change Forecast Amounts**

For the 2009 year, enter any Tax Credits from the Cost of Service Tax Calculation (Positive #)

	2009	2012
Taxable Capital	\$ 21,163,511	\$ 21,163,511
Deduction from taxable capital up to \$15,000,000	\$ 15,000,000	\$ 15,000,000
Net Taxable Capital	\$ 6,163,511	\$ 6,163,511
Rate	0.225%	0.000%
Ontario Capital Tax (Deductible, not grossed-up)	\$ 13,868	\$ -

**2. Tax Related Amounts Forecast from Income Tax Rate Changes**

	2009	2012
Regulatory Taxable Income	\$ 1,028,155	\$ 1,028,155
Corporate Tax Rate	24.72%	22.97%

In summary, as requested in IRs 12 and 14, NOTL is resubmitting the smart meter model 2.17 with revised tax rates taken from the models in the above screenshots being inserted in Row 40 of Sheet 3 as shown below:

- 2006 29.60%
- 2007 29.60%
- 2008 26.98%
- 2009 31.53%
- 2010 26.50%
- 2011 24.72%
- 2012 22.97%

	2006	2007	2008	2009	2010	2011	2012 and
<b>Cost of Capital</b>							
Capital Structure <sup>1</sup>							
Deemed Short-term Debt Capitalization			0.0%	4.0%	4.0%	4.0%	4.0%
Deemed Long-term Debt Capitalization	50.0%	50.0%	53.3%	52.7%	56.0%	56.0%	56.0%
Deemed Equity Capitalization	50.0%	50.0%	46.7%	43.3%	40.0%	40.0%	40.0%
Preferred Shares	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<b>Cost of Capital Parameters</b>							
Deemed Short-term Debt Rate			0.00%	1.33%	1.33%	1.33%	1.33%
Long-term Debt Rate (actual or embedded deemed) <sup>2</sup>	6.60%	6.60%	6.60%	6.04%	6.04%	6.04%	6.04%
Target Return on Equity (ROE)	9.0%	9.00%	9.00%	8.00%	8.00%	8.00%	8.00%
Return on Preferred Shares	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
WACC	7.80%	7.80%	7.72%	6.70%	6.64%	6.64%	6.64%
<b>Working Capital Allowance</b>							
Working Capital Allowance Rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
(For the use of Cost of Return is attributable to interest)							
<b>Taxes/Fees</b>							
Aggregate Corporate Income Tax Rate	29.60%	29.60%	26.98%	31.53%	26.50%	24.72%	22.97%
Capital Tax (until July 1st, 2010)	0.30%	0.225%	0.225%	0.225%	0.075%	0.00%	0.00%
<b>Depreciation Rates</b>							

**Interrogatory 11**

**11. Ref: Smart Meter Model – Interest on OM&A and Depreciation Expenses**

In the Smart Meter Model Version 2.17 filed by NOTL, the utility has relied upon sheet 8B to calculate the interest on OM&A and depreciation/amortization expenses. Sheet 8B calculates the interest based on the average annual balance of deferred OM&A and depreciation/amortization expenses based on the annual amounts input elsewhere in the model.

The more accurate and preferred method for calculating the interest on OM&A and depreciation/amortization expense is to input the monthly amounts from the sub-account details of Account 1556, using sheet 8A of the model. This approach is analogous to the calculation of interest on SMFA revenues on sheet 8 of the model.

- a) Please re-file the smart meter model using the monthly OM&A and depreciation/amortization expense data from Account 1556 records.
- b) If this is not possible, please explain.

**Response 11**

**a)**

*The model which is re-filed pursuant to IR12 contains the requested monthly OM&A and amortization expense data in Sheet 8A, with the check box in Sheet 9, cell C35 reflecting this fact.*

**b)**

*Not applicable.*

**Interrogatory 12**

**12. Ref: Smart Meter Model**

If NOTL has changed its data inputs to the Smart Meter Model, Version 2.17 as a result of interrogatories by Board staff and/or the Vulnerable Energy Consumers Coalition, please update and re-file the smart meter model in working Microsoft Excel format.

**Response 12**

*NOTL has made the following changes to data inputs as a result of the Board staff and VECC interrogatories and is re-filing the model accordingly:*

- Tax rates as per response to OEB staff IR10;*
- Monthly interest calculations as per response to OEB staff IR11a.*

*Please also note that the Header for column Q (2011) in Sheet 2 of the originally submitted model was inadvertently left at its default drop-down value of "Audited Actual". The data inputs for 2011 are all actuals but were unaudited at that time. Thus, the 2011 Header has been changed to "Actual" in the re-filed model. The field visit stage of NOTL's 2011 audit has been done in March and the audited financial statements will be completed by April 30, 2012.*



**Interrogatory 13**

**13. Ref: Application, page 15 – Cost Allocation**

On page 15 of its application, NOTL states:

Allocation of the return (deemed interest plus return on equity) and Amortization based on the allocation of Account 1860 in the cost allocation model (CWMC in the cost allocation model).

- a) Please state if NOTL is able to provide separate capital costs for installed smart meters for the residential and GS < 50 kW classes. If not, please explain.
- b) If so, please provide those capital costs. Additionally, please provide updated calculations of the class specific SMDR and SMIRR using the cost allocation approach approved in the Decision and Order from PowerStream's 2011 smart meter cost recovery application (EB-2010-0209).

**Response 13**

**a)**

*NOTL did not track residential and GS costs during the purchase and installation process. We have attempted to estimate the separate costs but are impeded by the fact that the various meter types can generally be found on both rate classes. Our contract mass installer rates varied by meter locations inside, outside, rural and urban which further complicates such a process.*

**b)**

*Not applicable*

**Interrogatory 14**

**14. Ref: Application, Section 16 – Cost Allocation**

- a) If NOTL has made revisions to its Smart Meter Model, Version 2.17 as a result of its responses to interrogatories, please update its proposed class-specific SMDRs.
- b) Similarly, please update the calculation of class-specific SMIRRs.

**Response 14**

**a)**

*As a result of the updated data inputs listed in the response to IR12, NOTL has updated the SMDR calculation (Table 5 on page 2 of the Amendment letter filed on February 4, 2012) as follows:*

Table #5 Updated per IRRs: Smart Meter Disposition Rider ("SMDR")			
Smart Meter Actual Cost Recovery Rate Rider Calculated by Rate Class			
	Total	Residential	GS < 50
<b>Allocators</b>			
CWMC (Account 1860) - Cost Allocation, Tab I6, Row 45	731,095	600,125	130,970
CWMC (Account 1860)	100.00%	82.09%	17.91%
Number of meters installed	8,078	6,816	1,262
Number of meters installed	100.00%	84.38%	15.62%
Revenue Requirement Allocation before PILs - Cost Allocation, Tab O1, Row 35 - Row 27	3,279,037	2,213,619	1,065,418
Revenue Requirement Allocation before PILs	100.00%	67.51%	32.49%
<b>Total Return (deemed interest plus return on equity)</b>	\$ 198,672	\$ 163,082	\$ 35,591
<b>Amortization</b>	\$ 245,858	\$ 201,814	\$ 44,043
<b>OM&amp;A</b>	\$ 125,623	\$ 105,997	\$ 19,626
<b>PILs</b>	-\$ 4,143	-\$ 2,797	-\$ 1,346
<b>Total Revenue Requirement 2006 to 2011</b>	\$ 566,010	\$ 468,096	\$ 97,914
	100.00%	82.70%	17.30%
<b>Smart Meter Rate Adder Revenues</b>	-\$ 344,376		
<b>Carrying Charge</b>	(\$9,305)		
<b>Smart Meter True-up</b>	\$ 212,329	\$ 175,599	\$ 36,731
<b>Metered Customers</b>	8,078	6,816	1,262
<b>Years for collection</b>	2	2	2
<b>Rate Rider to Recover Smart Meter Costs</b>	\$ 1.10	\$ 1.07	\$ 1.21

*The affected PILS and carrying charge totals are highlighted in yellow.*

**b)**

*As a result of the updated data inputs listed in the response to IR12, NOTL has updated the SMIRR calculation (Table 6 on page 3 of the Amendment letter filed on February 4, 2012) as follows:*

Table #6 Updated per IRRs: Smart Meter Incremental Revenue Requirement Rate Rider ("SMIRR")			
Smart Meter Actual Cost Recovery Rate Rider Calculated by Rate Class			
	Total	Residential	GS < 50
<b>Allocators</b>			
CWMC (Account 1860) - Cost Allocation, Tab I6, Row 45	731,095	600,125	130,970
CWMC (Account 1860)	100.00%	82.09%	17.91%
Number of meters installed	8,078	6,816	1,262
Number of meters installed	100.00%	84.38%	15.62%
Revenue Requirement Allocation before PILs - Cost Allocation, Tab O1, Row 35 - Row 27	3,279,037	2,213,619	1,065,418
Revenue Requirement Allocation before PILs	100.00%	67.51%	32.49%
Total Return (deemed interest plus return on equity)	\$ 102,212	\$ 83,902	\$ 18,311
Amortization	\$ 155,788	\$ 127,879	\$ 27,908
OM&A	\$ 39,667	\$ 33,470	\$ 6,197
PILs	\$ 7,714	\$ 5,207	\$ 2,506
Total Revenue Requirement 2006 to 2011	\$ 305,381	\$ 250,459	\$ 54,922
	100.00%	82.02%	17.98%
<b>Smart Meter Rate Adder Revenues</b>			
Carrying Charge			
Smart Meter True-up	\$ 305,381	\$ 250,459	\$ 54,922
<b>Metered Customers</b>	8,078	6,816	1,262
<b>Rate Rider to Recover Smart Meter Costs</b>	\$ 3.15	\$ 3.06	\$ 3.63

*The affected PILS total is highlighted in yellow.*

*The updated variance analysis (see Table 7 on page 3 of the Amendment letter filed on February 4, 2012) resulting from these updates is as follows:*

Table 7 Updated per IRRs: Disposition Rider and Incremental Revenue Requirement Rate Rider			
Residential	30-Apr-12	1-May-12	Variance
Funding Adder to April 30, 2012	\$1.00	\$0.00	(\$1.00)
Disposition Rider	\$0.00	\$1.07	\$1.07
Incremental Revenue Rate Rider	\$0.00	\$3.06	\$3.06
Smart Meter Rate Change	\$1.00	\$4.14	\$3.14
GS<50kW	30-Apr-12	1-May-12	Variance
Funding Adder to April 30, 2012	\$1.00	\$0.00	(\$1.00)
Disposition Rider	\$0.00	\$1.21	\$1.21
Incremental Revenue Rate Rider	\$0.00	\$3.63	\$3.63
Smart Meter Rate Change	\$1.00	\$4.84	\$3.84

*The updated riders effective May 1, 2012 that are different as a result of interrogatories are highlighted in yellow:*

- *Residential SMIRR reduced from \$3.07 to \$3.06*
- *GS<50kW SMDR increased from \$1.20 to \$1.21*
- *GS<50kW SMIRR reduced from \$3.66 to \$3.63*

*~ End ~*