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111 Horton Street
P.O. Box 2700
London, Ont.
N6A 4H6

May 29, 2012

Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, Ontario M4P 1E4

Attention: Ms. Kirsten Walli. – Board Secretary

Re: London Hydro Application for Smart Meter Cost Recovery for Rates Effective May 1st, 2012 Board File: EB-2012-0187

On March 24, 2012, London Hydro Inc. ("London Hydro") filed an Application for Smart Meter Cost Recovery (the "Application"), effective for May 1, 2012 rates with the Ontario Energy Board ("OEB" or the "Board"). On April 18, 2012, the Board issued its Letter of Direction and Notice of Application in respect to the above-captioned proceeding. In the Notice of Application, the Board directs that written interrogatories shall be filed with the Board and delivered to London Hydro on or before May 16, 2012.

London Hydro received interrogatories from the Board staff on May 14, 2012. Interrogatories received from the Vulnerable Energy Consumers Coalition ("VECC") were delivered on May 16, 2012. Accompanying this letter, London Hydro respectfully submits its responses to interrogatories from Board staff and VECC.

Two hard copies of the responses are being submitted by courier.

We would be pleased to provide any further information or details that you may require relative to this application.

Yours truly,

LONDON HYDRO INC.

Original signed by Mike Chase

Mike Chase
Director of Finance and Regulatory

cc: David Arnold, Chief Financial Officer, London Hydro
cc: Mr. Michael Janigan, Council for VECC
cc: Ms. Shelly Grice, Econalysis Consulting Services

EB-2012-0187

ONTARIO ENERGY BOARD

IN THE MATTER OF the Ontario Energy Board Act, 1998, S.O. 1998, c15 (Sched. B), as amended;

AND IN THE MATTER OF an application by London Hydro Inc. for an Order or Orders pursuant to the Ontario Energy Boards Act, 1998, approving or fixing just and reasonable rates and other charges with respect to smart meter cost recoveries and related matters, effective May 1, 2012.

London Hydro Inc. ("London Hydro")

RESPONSES TO BOARD STAFF INTERROGATORIES

DELIVERED: May 29, 2012

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Responses to Board Staff Interrogatories

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 London Hydro Inc. ("London Hydro") 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 London Hydro 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 London Hydro intends to respond.

Response:

London Hydro confirms, to date, it has not received any letters of comment regarding this proceeding.

2. **Ref: Manager's Summary, page 12 – Conventional Meter Disposal**

On page 28, London Hydro states that:

> Honeywell [is] administrating the disposal of the meters consolidated the process and record keeping efforts and provided cost savings. London Hydro received from Honeywell, a copy report from Greenport outlining the disposals. This report also included the amount of scrap value that was credited to Honeywell, which in turn Honeywell credited to London Hydro.

a) Please document the scrap value credited to Honeywell and to London Hydro.

b) Please state how London Hydro is taking these amounts into account. Will they be used to offset the remaining net book value of stranded meters for when London Hydro seeks disposition in its next Cost of Service rebasing application? If not, please explain any alternative treatment.

Response:

a) As identified in the Application, page 28, Green-Port Environmental Managers Ltd. was the successful tender as to London Hydro's RFQ. to provide efficiency and cost savings, the managing of the disposal of scrap meters was in turn sub-contracted to our smart meter installation vendor, Honeywell Inc.

Green-Port Environmental issued a $107,661.36 credit to Honeywell for conventional meters disposed as per their Credit Summary document, and reflected in response 2b) below. As specified in contract arrangements, London Hydro received 60% of the credit value from Honeywell. The total credit amount provided to London Hydro amounts to $61,003.42 (including taxes).

b) London Hydro has applied the disposal credit against the net book of the stranded meter costs, for which London Hydro will seek recovery in the next Cost of Service rebasing application (scheduled for 2013 rates). A listing of the container shipments and associated credits is shown in the table below.

Green-Port credit summary												
Date	Invoice	Container	Quantity	Amount	GST / HST	Total Credit including taxes	Credit to London Hydro (60%) - incl. taxes	Less GST/HST on credit	Offset credit to the NBV of stranded meters (net of taxes)	Stranded Meters NBV - Acct 1555.400 Residential	Stranded Meters NBV - Acct 1555.401 GS<50
12-Jan-2010		CAIU4109	7,394	$ (5,463.66)	$ (273.18)	$ (5,736.84)	$ (3,442.11)	$ 163.91	$ (3,278.20)		
4-Feb-2010		CAIU4210	5,176	$ (3,178.81)	$ (158.94)	$ (3,337.75)	$ (2,002.65)	$ 95.36	$ (1,907.29)		
18-Feb-2010		CAIU4104	6,013	$ (3,879.65)	$ (193.98)	$ (4,073.63)	$ (2,444.18)	$ 116.39	$ (2,327.79)		
19-Jan-2010		CAIU4110	5,716	$ (4,162.46)	$ (208.12)	$ (4,370.58)	$ (2,622.35)	$ 124.87	$ (2,497.48)		
1-Mar-2010		CAIU4120	5,781	$ (4,012.09)	$ (200.60)	$ (4,212.69)	$ (2,527.62)	$ 120.36	$ (2,407.25)		
18-Mar-2010		CAIU4036	5,685	$ (3,956.00)	$ (197.80)	$ (4,153.80)	$ (2,492.28)	$ 118.68	$ (2,373.60)		
23-Mar-2010		CAIU4110	5,470	$ (3,914.06)	$ (195.70)	$ (4,109.76)	$ (2,465.86)	$ 117.42	$ (2,348.44)		
Subtotal	5221332447		41,235	$ (28,566.73)	$ (1,428.34)	$ (29,995.07)	$ (17,997.04)	$ 857.00	$ (17,140.04)	$ (16,709.30)	$ (430.74)
8-Mar-2010		CAIU4104	5,859	$ (4,105.08)	$ (205.25)	$ (4,310.33)	$ (2,586.20)	$ 123.15	$ (2,463.05)		
1-Apr-2010		Trailer	5,636	$ (4,314.54)	$ (215.73)	$ (4,530.27)	$ (2,718.16)	$ 129.44	$ (2,588.72)		
6-Apr-2010		CAIU4098	6,044	$ (3,971.26)	$ (198.56)	$ (4,169.82)	$ (2,501.89)	$ 119.14	$ (2,382.76)		
19-Apr-2010		CAIU4115	5,498	$ (4,151.32)	$ (207.57)	$ (4,358.89)	$ (2,615.33)	$ 124.54	$ (2,490.79)		
11-Mar-2010		CAIU4109	5,598	$ (3,722.75)	$ (186.14)	$ (3,908.89)	$ (2,345.33)	$ 111.68	$ (2,233.65)		
27-Apr-2010		CAIU4024	5,968	$ (4,470.10)	$ (223.51)	$ (4,693.61)	$ (2,816.16)	$ 134.10	$ (2,682.06)		
4-May-2010		CAIU4045	6,521	$ (4,412.21)	$ (220.61)	$ (4,632.82)	$ (2,779.69)	$ 132.37	$ (2,647.33)		
12-May-2010		CAIU4006	5,457	$ (3,643.66)	$ (182.18)	$ (3,825.84)	$ (2,295.51)	$ 109.31	$ (2,186.20)		
Subtotal	5221358074		46,581	$ (32,790.92)	$ (1,639.55)	$ (34,430.47)	$ (20,658.28)	$ 983.73	$ (19,674.55)	$ (19,080.69)	$ (593.86)
2-Feb-2010		CAIU4113	5,405	$ (3,572.52)	$ (464.43)	$ (4,036.95)	$ (2,422.17)	$ 278.66	$ (2,143.51)		
14-Apr-2010		CAIU4060	5,310	$ (4,209.93)	$ (547.29)	$ (4,757.22)	$ (2,854.33)	$ 328.37	$ (2,525.96)		
19-May-2010		CAIU4024	5,647	$ (3,769.06)	$ (489.98)	$ (4,259.04)	$ (2,555.42)	$ 293.99	$ (2,261.44)		
27-May-2010		CAIU4032	5,222	$ (3,446.17)	$ (448.00)	$ (3,894.17)	$ (2,336.50)	$ 268.80	$ (2,067.70)		
Subtotal	5221462857		21,584	$ (14,997.68)	$ (1,949.70)	$ (16,947.38)	$ (10,168.43)	$ 1,169.82	$ (8,998.61)	$ (8,485.27)	$ (513.34)
26-Aug-2010		Van Trailer	4,925	$ (4,229.67)	$ (549.86)	$ (4,779.53)	$ (2,867.72)	$ 329.91	$ (2,537.80)		
15-Nov-2010		SSIU4001	6,423	$ (6,854.48)	$ (891.08)	$ (7,745.56)	$ (4,647.34)	$ 534.65	$ (4,112.69)		
Subtotal	522174782		11,348	$ (11,084.15)	$ (1,440.94)	$ (12,525.09)	$ (7,515.05)	$ 864.56	$ (6,650.49)	$ (6,157.80)	$ (492.69)
11-Jun-2010		CAIU4099	5,412	$ (3,451.78)	$ (448.73)	$ (3,900.51)	$ (2,340.31)	$ 269.24	$ (2,071.07)		
26-Aug-2010		CAIU4126	6,148	$ (4,849.02)	$ (630.37)	$ (5,479.39)	$ (3,287.64)	$ 378.22	$ (2,909.41)		
21-Jun-2010		CAIU4029	5,752	$ (3,879.19)	$ (504.29)	$ (4,383.48)	$ (2,630.09)	$ 302.58	$ (2,327.51)		
1-Jul-2011	final adjustment for cost of trips - actual versus anticipated						$ 3,593.41	$ (413.40)	$ 3,180.01		
Subtotal	5222283008		17,312	$ (12,179.99)	$ (1,583.40)	$ (13,763.39)	$ (4,664.62)	$ 536.64	$ (4,127.98)	$ (3,822.17)	$ (305.81)
TOTALS			**138,060**	**$ (99,619.47)**	$ (8,041.92)	**$ (107,661.39)**	**$ (61,003.42)**	$ 4,411.75	**$ (56,591.67)**	**$ (54,255.23)**	**$ (2,336.44)**

3. **Ref: Manager's Summary, page 82 and 83 – Stranded Meter Costs**

On page 82 of its Application, London Hydro states that it is not seeking disposition of stranded meter costs in this Application, but will seek recovery in its next Cost of Service rebasing application. London Hydro states that the NBV of stranded meters as of December 31, 2011 is $3,511,000 and that it continues to amortize the stranded meters. Please provide London Hydro's estimate of the NBV of the stranded meters as of December 31,

2012, including any adjustment for the scrap or salvage value of replaced conventional meters, if applicable, as discussed in Board staff interrogatory #2 above.

Response:

The net book value (NBV) of the stranded meter costs is estimated at $3,153,415 as of December 31, 2012. All adjustments from proceeds of disposals and amortization of the stranded meter value are applied to 1555 Smart Meter Capital and Recovery Offset Variance Account, Sub-account "Stranded Meters".

4. **Ref: Manager's Summary, 61 – Cost Beyond Minimum Functionality, Operational Data Store ("ODS")**

O. Reg. 426/06 s. 2(1) states that:

> *"No distributor shall recover any costs associated with meter data functions to be performed by the Smart Meter Entity".*

O. Reg. 393/07 defines the exclusive authority of the Smart Meter Entity to, among other functions, conduct all services performed on smart metering data to produce billing quantity data, validation, estimating and editing services.

London Hydro's Application describes a MDUS-compliant Operational Data Store ("ODS") functionality (at page 61) that "presented the lowest long term ownership costs, the least risk… and the greatest flexibility for the future Smart Grid vision".

a) Are there any features of London Hydro'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.

c) What portion of the total capital and OM&A costs are specifically related to the ODS?

d) What is the in-service date for the ODS?

Responses:

a) No, London Hydro's ODS implementation does not duplicate the functionality performed by the provincial MDMR. The ODS was required for complementary purpose that includes support for TOU and Operations.

With respect to Smart Metering operations, the London Hydro ODS complements the MDM/R to address exceptions that can't be handled by the MDM/R (e.g. Need Validation and Estimate or NVE). ODS automates the exception process to avoid manual effort that would otherwise be required on daily basis.

To explain, on a daily basis, the provincial MDM/R will return hundreds of "Need Validation and Estimation (NVE's)". The NVE needs to be addressed to ensure that missing interval data is provided in a timely fashion to provide accurate data for the MDM/R for web presentment and generation of billing determinants.

Utilizing the ODS reduces the need for additional full time resources to address the daily NVE transactions that are raised by the provincial MDM/R and need to be addressed to ensure timely and accurate data is available for customer web presentment and important billing purposes. Delays in the processing can result in delays in billing of customers, collections, cash flow and increased call activity to our customer service center. Customer confidence in the smart metering program is critical and could be jeopardized if data is not accurate, missing and/or unavailable for customer viewing.

Normal daily operations with the provincial MDM/R generate two specific sets of operational issues that need to be dealt with. The first set of issues deal with interval data. The MDM/R generates an average of 150 Need Validation and Estimation (NVE) transactions on a daily basis. If these items are not addressed in a timely fashion, billing activity can be delayed impacting customers time of use web presentment, customer billing and invoicing, London Hydro revenue recognition and collection.

The second set of operational issues is related to normal meter life cycle events. New meter installation, exchange, disconnect, reconnect, and power failure events generate on average 50 exceptions a day. Data synchronization issues can occur when the provincial MDM/R schedules upgrades and maintenance activities. NVE and exception activity can increase significantly during price changes, weather

storms and other outage events. We estimated an *incremental 25-30 person hours a day of smart meter work load* will be avoided using this ODS (this is in fact equivalent to 3-4 FTEs).

Other functionality identified in the ODS roadmap pertains to London Hydro's specific operational services and customer care needs:

- potentially storing meter data every 15 minutes and providing most recent hourly consumption data to customers;
- forecasting of consumption during the billing period to help customers shift and reduce load based the most current data;
- on-demand readings during a customer calls, customer care for both TOU and non-TOU users;
- smart meter alarm management (e.g. tamper alarm, overcurrent)
- replacement for MV90; and
- repository for AMI analytics and HAN messages

b) As per response in section a) there is no duplicate functionality and no associated costs.

c) The ODS cost approximates $862,000 which represents 3.46% of the total smart meter capital costs. Further, the part of the ODS associated with betterment to the smart meter project was achieved in 2011. Therefore, the capital investment in ODS are based on actual costs.

The two-year software maintenance costs, for years 2011 and 2012, for the ODS system is $102,000 or about 6.59% of the total incremental OM&A expenses. The second year of this maintenance is identified in our 2012 forecast.

d) The Itron Enterprise Edition ODS is multi-faceted project and involves several phases with milestone payments attached to successful completion of each phase. However, the portion of the ODS associated with the smart meter project was in service during 2011.

5. **Ref: Manager's Summary, page 44 –Itron Enterprise Edition solution** On page 44 London Hydro states that: "given the combined purpose of this product [the Itron Enterprise Edition solution], London Hydro has elected to recover part of the investment costs under the Smart-meter rate rider and the remaining part of the investment under a cost of service application".

a) Is this product fully in service now? Please explain your response.

b) With respect to the functions provided by the ODS as described on pages 43 to 46 of London Hydro's Application, please indicate, in tabular format:

i) the functions are related to smart meter activities and which are related to other operational requirements, such as Smart Grid;

ii) the functions London Hydro is seeking recovery for as part of this Application. If London Hydro is seeking recovery of non-smart meter function costs as part of this Application, or is deferring recovery of smart meter-related costs to its cost of service application, please explain;

iii) the costs of the functions that London Hydro is seeking recovery of in this Application, and the percentage that this represents of the total actual or forecasted costs for the Itron Enterprise Edition solution.

Responses:

a) The Itron Enterprise Edition project with regard to the smart meter project is complete. As noted in 4d) above, this was completed in 2011. London Hydro can enable the loading of historical data to support editing and estimation of data with the MDM/R. Subsequent development has enabled London Hydro to automatically receive and respond to the provincial MDM/R reports and integrate with SAP and Head End systems. The ongoing ODS work is the correction of minor systems integration defects discovered during quality assurance testing, and providing automation and reporting improvements to better respond to and manage the various types of anomaly reports that are generated by the provincial MDM/R.

b)

i) The table below highlights the ODS functions and activities associated in the Smart Meter application and COS application.

Column #1: Smart Meter Cost Recovery Application	**Column #2: Cost of Service Application**
NVE automation Smart meter life cycle management ODS Integration with SAP CIS & MDMR Synchronization with Sensus RNI Monitoring & reporting smart meter operations	Stand Alone Data Repository Alarm Management Foundation for demand reads & forecast Infrastructure for MV90 replacement

ii) London Hydro is seeking recovery in this application for smart meter activities (column #1 of the table above) and deferring all other to the next COS application.

iii) The cost recovery is 52% for Smart Meter and 48% for Cost of Service based on functionality and activities.

6. Ref: Manager's Summary, page 20, - Procurement of Sensus FlexNet AMI – Regional collector investment

On page 20 London Hydro states that London Hydro:

- Opted to host its own Sensus FlexNet RNI master station (as opposed to incurring a recurring OM&A expense to have KTI Limited host the system).

- Opted to obtain its own ratio spectrum and install the associated radio transceivers and antennas throughout its service territory (as opposed to incurring a recurring OM&A expense to have PageNet provide the wireless communications infrastructure).

a) Please identify the total costs, disaggregated by: capital costs, non-recurring operating expenses; and recurring operating expenses, incurred for ownership and operation of the communications network.

b) Please provide a cost-benefit analysis for the above mentioned projects and compare the cost to the OM&A expenses that would have been incurred if London Hydro had decided to have KTI Limited host the system.

Responses:

a)

Capital costs - 1.2 Advanced Metering Regional Collector (AMRC) includes LAN

	2011 YTD Actual Costs	2012 Forecasted Costs	Total Costs in Rate Application
1.2.1 Collectors (15-year life assets)	1,239,678	-	1,239,678
1.2.2 Repeaters including Radio licensing, Antennas, and Installation (15-year life assets)	922,498	63,600	986,098
1.2.3 Repeaters including Towers (35-yr life assets)	518,256	53,700	571,956
	2,680,432	**117,300**	**2,797,732**

Recurring OM&A Costs - 2.2 Advanced Metering Regional Collector (AMRC) includes LAN

Annual fees	2010 Actual Costs	2011 Actual Costs
Annual fees including Radio license renewal fees, CFPL attachment fees, Sensus Flexnet licences, and RNI Technology licensing and maintenance fees	**114,138**	**170,561**
Add estimated annual amortization		
- 15-year life assets		148,385
- 35-year life assets		16,342
		164,727
Total recurring OM&A Costs - annual fees plus amortization		**335,288**

As per above Table, capital costs total $2,797,732, and recurring operating costs, including amortization, totals $335,288 per year. There are no non-recurring costs associated with ownership and operation of this communications network.

With respect to the 900 MHz wireless local area network (LAN) component of the overall Sensus FlexNet AMI system, the KTI Limited / Sensus proposal included several ownership models for consideration by the LDC, ranging from the total-ownership model that London Hydro elected to the vendor-supported model that other LDC's chose. The reason for the variability in LDC election is likely influenced by the LDC's meter population, the size of the service territory, the meter density (number of Smart-meters per square kilometer) and the resident in-house expertise within the respective LDC.

Without disclosing confidential pricing information, based on London Hydro's case of 150,000 Smart-meters and nine (9) FlexNet TGB transceivers distributed throughout the service territory, London Hydro owns the technology (ie. TGB transceivers and Smartmeters), but pays a "*per meter per month*" technology licensing fee for both the FlexNet radio technology embedded in the individual Smart-meters and a "*per TGB site per month*" technology licensing fee for the FlexNet TGB transceivers. Together this technology licensing fee amounts to approximately $125,000 per year in O&M costs.

Note: Since London Hydro has its own licensed spectrum in the 900 MHz band, there is also an annual licensing fee in the amount of $29,376 that is payable to Industry Canada every March. This would also be considered a recurring O&M cost.

An alternative option, at the other end of the spectrum, whereby KTI owns the FlexNet TGB transceivers and operates and maintains the communications network, there is still a "*per meter per month*" technology licensing and support fee and a "*per TGB site per month*" technology licensing and support fee for the FlexNet TGB transceivers, but they are much higher. In London Hydro's case, this would amount to approximately $510,000 per year.

Note: From a practical perspective, the original KTI/Sensus proposal was based on installation of TGB transceivers at three (3) sites for which their wireless partner PageNet already had access rights. It isn't known whether PageNet would successfully secure access rights at the six additional sites where the TGB's were located. London Hydro elected to install the units mostly within London Hydro owned bungalow-style municipal substations (for which London Hydro's staff are fully qualified to enter). We wouldn't permit third-party unescorted access to these premises. As London Hydro didn't pursue this path during the Statement of Work negotiations (during which time the RF propagation analysis indicated that nine (9) distributed TGB transceiver sites would be necessary, it isn't known whether the $510K mentioned above remains valid.

b) As references in reply a) above, The OM&A costs incurred by London Hydro if decided to accept KTI Limited hosting system would approximate $510,000 per year. The reoccurring OM&A costs per year with London Hydro's ownership and operation of the communication network approximates $335,000 (includes OM&A costs and amortization expense). This reflects a significant OM&A savings of $175,000 per year.

With respect to having KTI Limited host the Sensus FlexNet RNI master station, there were several elements considered in the selection of an internal hosting. These included the field maintenance and service contracts for the associated radio equipment; IT hardware costs; service contracts to meet performance levels; and internal labour and training costs. Through a cost comparison, the fees related to an external party were greater than the internal labour and tool costs related to self-hosting. Furthermore, the benefits of building and keeping this core technical expertise in house has provided benefits to installation and troubleshooting of the system in a timely fashion rather than relying on external vendors.

7. **Ref: Manager's Summary, page 69 – Costs Beyond Minimum Functionality**

On page 69, London Hydro states:

> Although combination demand / energy meters (for "general service greater than 50 kW" customers) are outside the scope of the Ministry of Energy's Functional Specification [Ref 2], London Hydro's RFP includes a requirement that the AMI system include functionality for transporting such meter data from such meters. As, such London Hydro intends to procure a nominal 25 such revenue meters for the purposes of system acceptance testing. Such meters have not been procured to date because it is known that there is an issue that won't be resolved until Version 3.x of the FlexNet RNI software – which won't be released until the summer of 2012.

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a) Please state the basis for London Hydro's estimated $12,800 capital expenditure related to the above mentioned meters as shown in 1.6.2 on Sheet 2 of the Smart Meter model.

b) Please state if London Hydro has included any OM&A expenses related to these meters.

c) What is London Hydro's basis for recovering cost related to the GS>50 kW customer class from the Residential and GS<50 customers.

Response:

a) The nominal twenty-five (25) polyphase combination energy & demand meters described in Section 5.1, *Procurement of Polyphase Demand Meters*, of the submitted document entitled: *Narrative for Smart Meter Cost Recovery Application*, has a cost breakdown as follows:

Cost Element	Estimated Cost
Procurement of Revenue Meters, etc.	$7,500
Installation of Revenue Meters	$5,300
Total Estimate:	**$12,800**

Polyphase meters for "*general service < 50 kW*" applications are generally "*self-contained*" allowing one to directly replace an existing meter with a self-contained smart-meter. In contrast, polyphase meters for the "*general service > 50 kW*" applications are typically "*transformer-rated*" meaning that the revenue meter is connected to the secondary circuits of instrument current transformers and instrument voltage transformers. Many such metering installation had what is called a 2½-element arrangement, but to comply with Measurement Canada bulletin E-24, *Policy on Approval and Use of 2½ Element Metering*, it is often necessary to make changes to the metering system (addition of additional voltage transformer, changing transformer test switch block to accommodate the additional element, and making adjustments to the wiring) when one is replacing the revenue meter.

As such, the estimated cost to install the subject combination energy & demand meters is greater than the costs incurred by London Hydro for Smart-meter replacements for small business customers (i.e. customers in the "*general service < 50 kW*" tariff classification).

b) OM&A costs for the subject twenty-five (25) polyphase combination energy & demand meters was <u>not</u> included mostly because it wasn't considered material. However to provide a complete answer, London Hydro would be responsible for a FlexNet technology licensing fee of $0.0279 per electric meter per month. As such, the recurring OM&A costs associated with these particular meters would be:

OM&A costs = 25 meters x ($0.0279 / meter / month) x 12 months / year

= $8.[37] per year

c) There are a number of minor project expenses that don't directly relate to customers in the "*residential*" and "*general service < 50 kW*" tariff categories. As but one example, Section 2.14.1 of the Ministry's functional specification includes a requirement that the AMI support water meter reads, and to this end, London Hydro is procuring a handful of water meter interface units to validate that our Sensus FlexNet AMI fulfills this requirement. The procurement and installation cost of these water meter interfaces has to be borne somewhere, the only choices are electricity consumers, and the overall cost of the water meter interfaces (at several thousand dollars in total) is considered immaterial in an overall multi-year AMI deployment that involves an investment on the order of $25M.

To continue with London Hydro's response as to the basis for recovery of this nominal capital expenditure of these field trail meters, the capital expenditure amount of $12,800 is included in the proposed SMIRR proxy rate rider. However, with London Hydro scheduled to file a Cost of Service rate application for 2013, the recovery of the investment in these meters will be aligned to the GS > 50 kW customer class once completion and approval of the 2013 rate application and the cost allocation study associated with the 2013 rate application.

***Cost Allocation*8. Ref: Manager's Summary, p. 80 - Class Specific Smart Meter Disposition Riders ("SMDR")** London Hydro has provided a table with calculated SMDRs for Residential and the GS < 50 kW customer classes, using a similar approach as was approved by the Board's Decision and Order in PowerStream's 2010 Smart Meter Application (EB-2010-0209). Recent Board decisions, such as for Guelph Hydro-Electric System Inc. (EB-2011-0100) and Lakeland Power Distribution Limited (EB-2011-0413) have approved a class-specific cost allocation methodology where practical.

a) Board staff observes that London Hydro's proposal results in a proposed SMDR for the GS < 50 kW class that is a larger credit than the proposed SMDR for the Residential class. Since the GS < 50 kW class would have a higher percentage of more expensive polyphase meters, the average cost per meter for this class should be higher than the Residential class. Therefore, the deferred revenue requirement per meter should be higher for the GS < 50kW since the SMFA was uniform for all metered classes. All else being equal, Board staff would expect that the SMDR credit for the Residential class should be greater than the SMDR credit for the GS < 50 kW class.

   Please explain the rationale for the results stemming from London Hydro's proposal.

b) Using the *attached spreadsheet* as an example, please provide updated calculations of class-specific SMDRs for the Residential and GS < 50 kW classes to which smart meters were deployed. Please file the resulting spreadsheet in working Microsoft Excel format.

Responses:

a) With reference to Manager's Summary, page 80, Table 9-9 Smart Meter Disposition Rate (SMDR) by Rate Class, as contained in the Application, was developed based on the direct attribution of meter capital costs to each specific customer class. The average smart meter per unit costs reflected in the table is $100.84 per meter for Residential class and $250.86 per meter for GS < 50 kW class. London Hydro confirms that the Board staff is correct that the GS < 50 kW class meter reflect an approximate average cost of 2.5 times than that of the Residential class average meter cost.

   Although the average cost of meter is considerably more for the GS < 50 kW class over that of the average cost of Residential meter and one might expect significant impact towards the total costs for the GS < 50 kW class there is a dampening effect. The total costs between both GS < 50 kW and Residential classes is heavily influenced by the number of Residential meters being installed as compared to GS < 50 kW class. The activity to install Residential meters, a total of 134,658 meters, has a major impact as to

total meter costs, when compared to only 11,779 GS < 50 kW class meters being installed. Approximately 92% of all meters being installed were with regard to Residential class customers. This large percentage of Residential meters being installed overwhelms total costs being realized for the two customer classes.

Revenue Requirement by Smart Meter Install by Class

Smart Meter Disposition Rate (SMDR) Rider by Rate Class			
	GS < 50 kW	GS < 50 kW	Ratio
Allocation Factors			
Average Smart Meter Unit Cost	$ 100.84	$ 250.86	2.49
Smart Meter Cost			
Revenue Requirement (Commencement to 2011) Allocated:			
Return (Deemed Interest and Return on Equity)	$ 14.83	$ 36.61	2.47
Amortization	$ 17.67	$ 43.61	2.47
OM&A	$ 5.50	$ 5.46	0.99
Total Before PILS	$ 38.00	$ 85.68	2.25
PILS	$ (4.86)	$ (10.97)	2.25
Total Revenue Requirement Allocated	$ 33.14	$ 74.71	2.25
Smart Meter True-up	$ (9.69)	$ (21.84)	2.25
Smart Meter Disposition Rate (SMDR) Recovery			
Meters Installed (Average)	134,764	11,880	

As reflected in the above table the allocated revenue requirement per installed meter is $33.14 for Residential and $74.71 for to GS < 50 kW class (or 2.25 ratio). The lowering from the approximate 2.5 ratio average smart meter unit cost (GS < 50 kW class compared to Residential) to 2.25 is mainly associated with impacts of OM&A costs. The assumption is that OM&A costs are allocated based on the number of smart meters in each customer class, resulting in both Residential and to GS < 50 kW classes have similar OM&A costs per unit. In reply to Board staff's comment, the revenue requirement per meter is higher for the GS < 50 kW class, then that of the Residential class.

The allocation of the smart meter funding adder (SMFA) and the carrying charges, $6,705,705 and $212,586 respectively, is determined by the percentage of the revenue requirement for each customer class. The total revenue requirement allocated to Residential is 83.42% and for GS < 50 kW class 17.87% (same basis used to allocate PILs).

This pool of smart meter funding adder (SMFA) and the carrying charges is apportioned resulting in a credit or offset to each of the Residential and for GS < 50 kW classes. However, the apportioned credit amount to GS < 50 kW class is applied to the relatively small number of GS < 50 kW meters install (and smaller revenue requirement base), resulting in a greater impact from the application of the SMDA credit. If there were significantly less of a difference in the number of smart meters being installed between Residential and GS < 50 kW classes, the SMDR could come to a point in which Residential SMDR rates would be higher GS < 50 kW class. For example, if the number of Residential meters dropped to 122,000 installs and corresponding increase of GS < 50 kW meters being installed, the SMDR rate would be in approximate equilibrium.

b) London Hydro has prepared updated calculation of class-specific SMDR for Residential and GS< 50 kW to which smart meters were deployed, based on the Guelph Updated DRO Cost Allocation spreadsheet that was provided by Board staff.

A copy of this spreadsheet, in excel format, is located in this Submission under Appendix B.

The main section of that spreadsheet is reflected on next page.

London Hydro -Smart Merter Recoveries - EB-2012-0187
Board Staff IR Q#8 (b)

	2007	2008	2009	2010	2011		Total 2009 to 2011	Explanation Allocator	ID and Factors	Total	Residential	General Service Less than 50
Revenue Requirement for the Historical Years	$6,089.49	$104,104.01	$285,368.69	$1,715,708.33	$3,242,112.32		$5,353,383.44					
Total Return on Capital	$66.13	$1,109.92	$161,512.56	$836,393.03	$1,384,926.89		$2,384,008.53	Weighted Meter - Capital	CWMC	100.00%	82.13%	17.87%
							Allocated per Class			$2,384,008.53	$1,957,944.22	$426,064.31
Amortization and interest Expense	$0.00	$940.83	$153,599.36	$813,772.96	$1,978,608.72		$2,946,921.87	Weighted Meter - Capital	CWMC	100.00%	82.13%	17.87%
							Allocated per Class			$2,946,921.87	$2,420,255.03	$526,666.84
Operating Expenses	$5,998.00	$101,711.00	$113,349.02	$422,882.26	$162,770.95		$806,711.23	Number of Smart Meters Installed for each Class		146,437	134,658	11,779
							Allocated per Class			$806,711.23	$741,821.54	$64,889.69
Grossed-up Taxes/PILs	$20.60	$293.98	-$147,888.97	-$357,339.32	-$284,194.23		-$789,107.94	Revenue Requirement allocated to each Class before PILs		$6,137,641.63	$5,120,020.79	$1,017,620.84
							Allocated per Class			-$789,107.94	-$658,273.86	-$130,834.08
										Total	Residential	General Service Less than 50
TOTAL REVENUE REQUIREMENT					$5,348,533.70			$5,348,533.70	$4,461,746.93	$886,786.76		
					Percentage of costs allocated to Residential and GS < 50 kW customer classes			100.00%	83.42%	16.58%		
					Revenue Generated from Smart Meter Funding Adder	$6,918,291.68						
							SMFA Revenues directly attributable to class		90.73%	8.16%		
							Residual SMFA revenues (from other metered classes) attributed evenly		0.55%	0.55%		
							Total		91.28%	8.72%		
					Revenues Generated from SMFA including carry charges	$6,918,291.68			$ 6,315,232.33	$603,059.35		
					Net Deferred Revenue Requirement	-$1,569,757.98						
					Allocated per Class			-$1,569,757.98	-$1,853,485.40	$283,727.42		
					Number of Metered Customers (1Q2012)				135,101	11,986		
				Smart Meter Disposition Rate Rider					-$1.14	$1.97		

The above spreadsheet has been updated using smart meter funding adder (SMFA) amounts actually collected up to December 31st, 2011, and forecasted for months January to April 30th, 2012.

The table below reflects the SMFA collected by rate class. Total SMFA matches figures that are identified in the Application.

Smart Meter Funding Adder collected by Rate Class

													Forecasted 2012			
		Year 2006		Year 2007		Year 2008		Year 2009		Year 2010		Year 2011		Year 2012 - JAN - APR		TOTAL by Rate	TOTAL by Rate Class
Rate class	Rate	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	SMFA $	SMFA $
Residential	0.27	863,132	$ 233,046	1,537,965	$ 415,249	1,562,220	$ 421,799	1,328,055	$ 358,575	2,099	$ 567			-		1,429,235	
Residential	1.00							220,636	$ 220,636	1,617,557	$ 1,617,626	681,665	$ 681,587	33	$ 33	2,519,882	
Residential	1.46											931,922	$ 1,360,605	530,397	$ 774,379	2,134,985	6,084,102
General Service <50	0.27	80,943	21,855	143,014	38,614	144,405	38,989	121,189	32,721	282	76			-		132,255	
General Service <50	1.00							19,950	19,950	145,110	145,110	61,465	61,465	18	18	226,544	
General Service <50	1.46											81,810	119,443	47,350	69,131	188,574	547,372
General Service>50	0.27	10,879	2,937	19,144	5,169	19,082	5,152	16,400	4,428	101	27			-		17,713	
General Service>50	1.00							2,812	2,812	19,628	19,628	8,250	8,250	14	14	30,705	
General Service>50	1.46											11,196	16,346	6,294	9,189	25,535	73,953
Large User	0.27	21	6	36	10	36	10	30	8	-	-			-		33	
Large User	1.00							6	6	36	36	15	15	-	-	57	
Large User	1.46											21	31	12	18	48	138
Cogeneration	0.27	24	6	36	10	36	10	30	8	-	-			-		34	
Cogeneration	1.00							6	6	36	36	15	15	-	-	57	
Cogeneration	1.46											21	31	12	18	48	139
Actual Amounts Collected		954,999	$ 257,850	1,700,195	$ 459,051	1,725,778	$ 465,960	1,709,114	$ 639,150	1,784,849	$ 1,783,107	1,776,380	$ 2,247,788	584,130	$ 852,800	$ 6,705,705	$ 6,705,705

9. Smart Meter Model, Version 2.17 **Ref: Smart Meter Model, Version 2.17, Sheet 3 – Cost of Capital** In cell G23 of Sheet 3, London Hydro has used a long-term debt capitalization of 50% for 2006. However, as London Hydro had a rate base between $100 million and $250 million in its 2006 EDR application (RP-205-020/EB-205-0389), its deemed debt capitalization approved in the Board's decision was 55% debt. The starting debt capitalization in 2006 would affect the migration to the current 60% debt and 40% equity capitalization currently accepted by the Board. Also, London Hydro's size meant that the approved deemed debt rate in its 2006 EDR application, and also applicable for 2007, was 6.00% rather than 6.25% as shown in the model. Please explain London Hydro's use of the 50% debt capitalization in 2006 as well as a debt rate of 6.25%.

Responses:

a) London Hydro acknowledges an error in figures populated to the Smart Meter Model, Version 2.17, Sheet 3 – Cost of Capital, and London Hydro has made the relevant correction to the Smart Meter Model (Appendix A).

London Hydro confirms that in our 2006 EDR application had approved 6.00% deemed debt and 55% debt capitalization, for rate year 2006, and applicable to 2007 rate year.

Our apologies for any inconveniences that might have occurred as a result of this error. In our original Application filing London Hydro incorrectly used default model figures for 2006 and 2007.

Filed in Original Rate Application:

	2006	2007
Cost of Capital		
Capital Structure[1]		
Deemed Short-term Debt Capitalization		
Deemed Long-term Debt Capitalization	50.0%	50.0%
Deemed Equity Capitalization	50.0%	50.0%
Preferred Shares	0.0%	0.0%
Total	100.0%	100.0%
Cost of Capital Parameters		
Deemed Short-term Debt Rate		
Long-term Debt Rate (actual/embedded/deemed)[2]	6.25%	6.25%
Target Return on Equity (ROE)	9.0%	9.00%
Return on Preferred Shares	0.00%	0.00%
WACC	7.63%	7.63%

Revised:

	2006	2007
Cost of Capital		
Capital Structure[1]		
Deemed Short-term Debt Capitalization		
Deemed Long-term Debt Capitalization	55.0%	55.0%
Deemed Equity Capitalization	45.0%	45.0%
Preferred Shares	0.0%	0.0%
Total	100.0%	100.0%
Cost of Capital Parameters		
Deemed Short-term Debt Rate		
Long-term Debt Rate (actual/embedded/deemed)	6.00%	6.00%
Target Return on Equity (ROE)	9.0%	9.00%
Return on Preferred Shares	0.00%	0.00%
WACC	7.35%	7.35%

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

London Hydro 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	36.12%	36.12%	33.50%	33.00%	31.00%	28.25%	26.25%

Please confirm that these are the tax rates corresponding to the taxes or PILs actually paid by London Hydro in each of the historical years, and that London Hydro 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. Otherwise, please explain the tax rates entered and their derivation.

Response:

London Hydro confirms that the tax rates for 2006-2012 as reflected in above table correspond to the taxes/ PILS actually paid by London Hydro in historical years and forecasts it will pay in year 2012.

The table that follows indicates the specific tax rates for each year, and references the rates as provided by Board staff. London Hydro notes that there is a small rounding difference in the tax rate for 2010 (30.99%) as compared to the tax rate of 31.0%. However, in London Hydro IRM3 Rate Filings for Shared Tax Savings, a figure of 30.99% was appropriately used for the 2010 corporate tax rate.

London Hydro Actual Tax/ PILS Rates Used (2006 to 2011) and Forcasted for 2012

	2006	2007	2008	2009	2010 *	2011 *	2012 *	2013	2014
Board Staff IR Tax Figures	36.12%	36.12%	33.50%	33.00%	31.00%	28.25%	26.25%	26.25%	26.25%
Effective Federal Tax Rate (including Surtax)	22.12%	22.12%	19.50%	19.00%	18.00%	16.50%	15.00%	15.00%	15.00%
Effective Ontario Tax Rate	14.00%	14.00%	14.00%	14.00%	12.99%	11.75%	11.25%	10.50%	10.00%
Aggregate Federal and Provincial Tax Rate	36.12%	36.12%	33.50%	33.00%	30.99%	28.25%	26.25%	25.50%	25.00%

*Ontario Basic Tax Rate is rounded to incorporate July 1st rate changes.

2010 - Effective July 1, 2010 Ontario basic tax rate reduced from 14% to 12%.

2011- Effective July 1, 2011 Ontario basic tax rate reduced from 12% to 11.5%.

2012- Effective July 1, 2012 Ontario basic tax rate reduced from 11.5% to 10%.

2013- Effective July 1, 2013 Ontario basic tax rate reduced from 11% to 10%.

11. Ref: Excel Smart Meter Model, Version 2.17, Sheet 3 – Depreciation Rates

On Sheet 3, under Depreciation Rates, for the classes of Tools & Equipment and Other Equipment, London Hydro has used an estimated useful life of 5 years. Typically, assets in these classes are assumed to have useful lives of 10 years. Please explain London Hydro's basis for assuming shorter average useful lives for these asset classes.

Response:

The "*tools and equipment*" used in the field by contract installers and London Hydro's staff is a hand-held computer-based product as depicted in Figure 1 to the right. The units are fairly fragile and London Hydro's inventory of hand-held units all failed at least once. In hindsight, the five-year estimated useful life used in the Smart-meter cost disposition and recovery application was very optimistic. The manufacture of these units has been discontinued. These electronic tools fall into OEB 1920 category which has a 5-year useful life requirement.

Reference APH - USoA Article 220:

1920 Computer Equipment – Hardware

This account shall include the costs of acquiring computer hardware. Hardware includes all physical equipment associated with input, processing, storage, and output functions, also word processing equipment.

Figure 1, Example Hand-Held Meter Initialization Tools

12. Ref: Excel Smart Meter Model, Version 2.17, Sheet 8 – Funding Adder Revenues

In cell C49 London Hydro input an interest rate of 1.47% for 2012 Q2. As a result, the total smart meter funding revenue collected includes combined interest amount of $16,429 for the months of May and June 2012. In its smart meter cost recovery application, London Hydro requests an effective date of May 1, 2012. Board staff notes that cell L99, Sheet 8 of the model is an unprotected cell to allow for the individual input of the interest rate for the month of April 2012. Please explain why the above interest amounts for May and June 2012 should be included in the calculation of the SMDR?

Response:

Interest should be included up to April 30, 2012 on the smart meter funding revenue collected. London Hydro applied for the recovery rate rider with an effective date of May 1, 2012.

In the Smart Meter Model, Tab 8. Funding Adder Revenues, Cell L99 is an unprotected cell (which can have an override). However, Cells L100 and L101 are protected cells (hardcoded), and therefore London Hydro is not able to update or delete the content of these cells. Consequently Worksheet 8 incorrectly calculates interest for both the month of May and June 2012.

With the valued assistance of Board staff, London Hydro is now able to make the necessary model adjustments to the Smart Meter Model. The Smart Meter Model, Appendix A, reflects this adjustment to interest and the smart meter funding revenue.

13. Ref: Smart Meter Model, Version 2.17, Sheet 8A – OM&A Expenses

London Hydro shows negative entries for OM&A expenses for certain months in column K of Sheet 8A as follows: **Cell**	**Month and Year**	**Amount**
K64	April 2009	($96,015.90)
K83	November 2010	($2,626,97)
K87	March 2011	($14,718.84)
K89	May 2011	($58,254.35)
K92	August 2011	($1,797.87)

Please explain these entries.

Responses:

Account 1556 OM&A Expenses

Cell	Month and Year	Amount	Explanation
K64	April 2009	(96,015.90)	This credit is a reclassification between Accounts 1555 and 1556. The fees are associated with Project Management Professional augmenting the AMI project team for the months of February and March 2009, and were accounted for in Account 1556 OM&A expense. These project management fees were only for the smart meter project. In monthly review of the 1556 Account and in compliance with London Hydro's capitalization policy, the fees were reclassified as capital expenditures in April 2009. The allocation resulted in a credit on Account 1556 OM&A Expenses.
K83	November 2010	(2,626.97)	Cost recovery from Honeywell for postage and mailing costs exceeded the incremental costs for the month of November 2010. Postage and mailing were prepaid to the contractor providing the mailing requirements. These mailing requirements are associated with notification to customers prior to smart meter installation. Honeywell, the contractor, provided both mailings and installations. The costs Honeywell was responsible for was recovered in November 2010.
K87	March 2011	(14,718.84)	London Hydro was able to realize savings on manual meter reading commencing 2011. The total value of the adjustment for the savings to Account 1556 OM&A Expenses for the first quarter was recognized in March 2011, and exceeded the incremental costs for the month.
K89	May 2011	(58,254.35)	This is a reclassification between Prepaid Expenses and Deferred Smart meter OM&A Expenses. Some of the annual fees were prepaid in prior months and the prepaid portion was reversed in May, then applied monthly to the deferral account 1556 in subsequent periods. Originally, the annual prepaid expenses were simply booked to Account 1556, considering it being a Balance Sheet account and not requiring monthly matching of revenues and expenses versus if they were reflected on the Income Statement. As the smart meter accounting guidelines evolved, this approach was reconsidered, and the prepaid portion of expenses were allocated to the Prepaid Expense account, then expensed on a monthly basis to Account 1556 OM&A. This adjustment in May 2011 resulted in a credit balance for the month.
			The adjustment in May 2011 for prepaid expenses were specifically for:
			The annual amount of Itron maintenance fees for the period of Dec 2010 to Nov 2011 were paid and applied to Account 1556 in December 2010.
			The annual radio license fees for the period of Arpil 2011 to April 2012 were paid and applied to Account 1556 in March 2011.
			The annual lease for the CFPL tower for the period of January 2011 to December 2011 were paid and applied to Account 1556 in January 2011.
K92	August 2011	(1,797.87)	Adjustment for savings on manual meter read for the month exceeded the current month incremental OM&A expenses.

14. Ref: Smart Meter Model and Class-Specific SMDRs and SMIRRs

a) If London Hydro has changed 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.

b) Please also file an update to the calculation of class-specific SMDRs and SMIRRs. For the SMDRs, please provide an update table as requested in Board staff interrogatory #8.

Responses:

a) The Smart Meter Model, Version 2.17, in excel format, is included in this Response to Interrogatories submission, filed as Appendix A.

Adjustments included in the Smart Meter Model, as well as tables that follow in Q #14b) are:

1. Deemed Long-term Debt Capitalization changes from 50% to 55% (Smart Meter Model/3. Cost of Service Parameters/ cell G23);

2. Deemed Long-term Debt rate changes as result default in Model. The 6% figure conforms to London Hydro's approved 2006 rate filing. (Smart Meter Model/3. Cost of Service Parameters/ cell G33);

3. Smart Meter Model, No Longer Applicable. Smart Meter Model now adjusted for interest (Reference Board staff Q# 12, page 25.

4. London Hydro has updated the amount of SMFA revenues replacing forecasted amounts for January 1, 2012 through to April 30, 2012 with actuals figures. Per the Application the amount of SMFA collected was an amount of $852,800. Actual amount is $892,163. Carrying charges have also been adjusted for inclusion of Actual SMFA results. The increase in SMFA revenues is $39,529, including carrying charges.

Table below reflects tab 9. SMFA_SMDR_SMIRR of the adjusted Smart Meter Model.

UPDATE WORKSHEET

	2006	2007	2008	2009	2010	2011	2012 and later	Total
Deferred and forecasted Smart Meter Incremental Revenue Requirement (from Sheet 5)	$ -	$ 6,084.73	$ 103,114.90	$ 278,826.86	$ 1,706,818.11	$ 3,205,603.82	$ 4,431,524.98	$ 9,731,973.41
Interest on Deferred and forecasted OM&A and Amortization Expense (Sheet 8A/8B)	$ -	$ -	$ 940.83	$ 1,745.11	$ 8,890.82	$ 36,508.50		$ 48,085.27
(Check one of the boxes below)								
X Sheet 8A (Interest calculated on monthly balances)	$ -	$ -	$ 940.83	$ 1,745.11	$ 8,890.82	$ 36,508.50		$ 48,085.27
Sheet 8B (Interest calculated on average annual balances)								$ -
SMFA Revenues (from Sheet 8)	$ 257,849.78	$ 459,050.87	$ 465,959.94	$ 639,149.82	$ 1,783,106.69	$ 2,247,788.24	$ 892,163.00	$ 6,745,068.35
SMFA Interest (from Sheet 8)	$ 2,954.11	$ 22,476.25	$ 36,197.69	$ 15,038.52	$ 22,438.73	$ 66,805.90	$ 30,315.18	$ 196,226.38
Net Deferred Revenue Requirement	-$ 260,803.89	-$ 475,442.39	-$ 398,101.90	-$ 373,616.36	-$ 89,836.49	$ 927,518.18	$ 3,509,046.80	$ 2,838,763.95
Number of Metered Customers (average for 2012 test year)							146643.5	

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

Years for collection or refunding		1
Deferred Incremental Revenue Requirement from 2006 to December 31, 2011 plus Interest on OM&A and Amortization	$	5,348,533.70
SMFA Revenues collected from 2006 to 2012 test year (inclusive) Plus Simple Interest on SMFA Revenues	$	6,941,294.73
Net Deferred Revenue Requirement	-$	1,592,761.03
SMDR May 1, 2012 to April 30, 2013	-$	0.91
Check: Forecasted SMDR Revenues	-$	1,601,347.02

Match

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

Incremental Revenue Requirement for 2012	$	4,431,524.98
SMIRR	$	2.52
Check: Forecasted SMIRR Revenues	$	4,434,499.44

Match

b) SMDR and SMIRR as Filed in Application

	Smart Meter Disposition Rate (SMDR) Rider by Rate Class	Residential	GS < 50 kW	Total
	Allocation Factors			
	Average Smart Meter Unit Cost	$ 100.84	$ 250.86	
	Smart Meter Cost	$ 13,578,913	$ 2,954,880	$ 16,533,793
a.	Allocation by Meters Costs	82.13%	17.87%	100.00%
	Meters Installed	134,658	11,779	146,437
b.	Allocation by Meters Installed	91.96%	8.04%	100.00%
	Total Before PILS	$ 5,121,368	$ 1,017,914	$ 6,139,282
c.	Allocation by Total Before PILS	83.42%	16.58%	100.00%

	Revenue Requirement (Commencement to 2011) Allocated:			
a.	Return (Deemed Interest and Return on Equity)	$ 1,998,783	$ 434,951	$ 2,433,734
a.	Amortization	$ 2,380,763	$ 518,073	$ 2,898,837
b.	OM&A	$ 741,822	$ 64,890	$ 806,711
	Total Before PILS	$ 5,121,368	$ 1,017,914	$ 6,139,282
c.	PILS	$ (655,594)	$ (130,305)	$ (785,899)
	Total Revenue Requirement Allocated	$ 4,465,774	$ 887,609	$ 5,353,383
	Allocation for Smart Meter True-up	83.42%	16.58%	100.00%

	Smart Meter True-up:			
	Total Revenue Requirement Allocated			$ 5,353,383
	Smart Meter Rate Adder Revenues			$ (6,705,705)
	Carrying Charge			$ (212,586)
c.	Smart Meter True-up	$ (1,305,441)	$ (259,467)	$ (1,564,908)

	Smart Meter Disposition Rate (SMDR) Recovery			
	Meters Installed (Average)	134,764	11,880	146,644
	Disposition	$ (0.81)	$ (1.82)	$ (0.89)

	Smart Meter Incremental Rate Rider (SMIRR) by Rate Class	Residential	GS < 50 kW	Total
	Allocation Factors			
	Average Smart Meter Unit Cost	$ 100.84	$ 250.86	
	Smart Meter Cost	$ 13,584,560	$ 3,000,787	$ 16,585,347
a.	Allocation by Meters Costs	81.91%	18.09%	100.00%
	Meters Installed	134,714	11,962	146,676
b.	Allocation by Meters Installed	91.84%	8.16%	100.00%
	Total Before PILS	$ 3,625,280	$ 710,303	$ 4,335,583
c.	Allocation by Total Before PILS	83.62%	16.38%	100.00%

	Revenue Requirement (2012) Allocated:			
a.	Return (Deemed Interest and Return on Equity)	$ 1,125,422	$ 248,602	$ 1,374,024
a.	Amortization	$ 1,814,698	$ 400,861	$ 2,215,559
b.	OM&A	$ 685,161	$ 60,839	$ 746,000
	Total Before PILS	$ 3,625,280	$ 710,303	$ 4,335,583
c.	PILS	$ 80,224	$ 15,718	$ 95,942
	Total Revenue Requirement Allocated	$ 3,705,504	$ 726,021	$ 4,431,525

	Smart Meter Incremental Rate Rider (SMIRR) Recovery			
	Meters Installed (Average)	134,764	11,880	146,644
	Recovery	$ 2.30	$ 5.10	$ 2.52

SMDR and SMIRR as Filed in Application (Revised):

Smart Meter Disposition Rate (SMDR) Rider by Rate Class						
	Residential		GS < 50 kW		Total	
Allocation Factors						
Average Smart Meter Unit Cost	$	100.84	$	250.86		
Smart Meter Cost	$	13,578,913	$	2,954,880	$ 16,533,793	
Allocation by Meters Costs		82.13%		17.87%	100.00%	
Meters Installed		134,658		11,779	146,437	
Allocation by Meters Installed		91.96%		8.04%	100.00%	
Total Before PILS	$	5,120,021	$	1,017,621	$ 6,137,642	
Allocation by Total Before PILS		83.42%		16.58%	100.00%	
Revenue Requirement (Commencement to 2011) Allocated:						
Return (Deemed Interest and Return on Equity)	$	1,997,436	$	434,658	$ 2,432,094	1&2
Amortization	$	2,380,763	$	518,073	$ 2,898,837	
OM&A	$	741,822	$	64,890	$ 806,711	
Total Before PILS	$	5,120,021	$	1,017,621	$ 6,137,642	
PILS	$	(658,274)	$	(130,834)	$ (789,108)	
Total Revenue Requirement Allocated	$	4,461,747	$	886,787	$ 5,348,534	
Allocation for Smart Meter True-up		83.42%		16.58%	100.00%	
Smart Meter True-up:						
Total Revenue Requirement Allocated					$ 5,348,534	
Smart Meter Rate Adder Revenues					$ (6,745,068)	4
Carrying Charge					$ (196,226)	3
Smart Meter True-up	$	(1,328,681)	$	(264,080)	$ (1,592,761)	
Smart Meter Disposition Rate (SMDR) Recovery						
Meters Installed (Average)		134,764		11,880	146,644	
Disposition	$	(0.82)	$	(1.85)	$ (0.91)	

	Smart Meter Incremental Rate Rider (SMIRR) by Rate Class			
		Residential	GS < 50 kW	Total
	Allocation Factors			
	Average Smart Meter Unit Cost	$ 100.84	$ 250.86	
	Smart Meter Cost	$ 13,584,560	$ 3,000,787	$ 16,585,347
a.	Allocation by Meters Costs	81.91%	18.09%	100.00%
	Meters Installed	134,714	11,962	146,676
b.	Allocation by Meters Installed	91.84%	8.16%	100.00%
	Total Before PILS	$ 3,625,280	$ 710,303	$ 4,335,583
c.	Allocation by Total Before PILS	83.62%	16.38%	100.00%

	Revenue Requirement (2012) Allocated:			
a.	Return (Deemed Interest and Return on Equity)	$ 1,125,422	$ 248,602	$ 1,374,024
a.	Amortization	$ 1,814,698	$ 400,861	$ 2,215,559
b.	OM&A	$ 685,161	$ 60,839	$ 746,000
	Total Before PILS	$ 3,625,280	$ 710,303	$ 4,335,583
c.	PILS	$ 80,224	$ 15,718	$ 95,942
	Total Revenue Requirement Allocated	$ 3,705,504	$ 726,021	$ 4,431,525

Smart Meter Incremental Rate Rider (SMIRR) Recovery			
Meters Installed (Average)	134,764	11,880	146,644
Recovery	$ 2.30	$ 5.10	$ 2.52

Updated Table for SMDR as Per Board staff Interrogatory #8 (copy located in Appendix C)

	2007	2008	2009	2010	2011		Total 2009 to 2011	Explanation Allocator	ID and Factors	Total	Residential	General Service Less than 50
Revenue Requirement for the Historical Years	$6,084.73	$104,055.73	$280,571.98	$1,715,708.93	$3,242,112.32		$5,348,533.70					
Total Return on Capital	$66.13	$1,109.92	$161,512.56	$836,393.03	$1,384,926.89		$2,384,008.53	Weighted Meter - Capital	CWMC	100.00%	82.13%	17.87%
							Allocated per Class			$2,384,008.53	$1,957,944.22	$426,064.31
Amortization and interest Expense	$0.00	$940.83	$153,599.36	$813,772.96	$1,978,608.72		$2,946,921.87	Weighted Meter - Capital	CWMC	100.00%	82.13%	17.87%
							Allocated per Class			$2,946,921.87	$2,420,255.03	$526,666.84
Operating Expenses	$5,998.00	$101,711.00	$113,349.02	$422,882.26	$162,770.95		$806,711.23	Number of Smart Meters Installed for each Class		146,437	134,658	11,779
							Allocated per Class			$806,711.23	$741,821.54	$64,889.69
Grossed-up Taxes/PILs	$20.60	$293.98	-$147,888.97	-$357,339.32	-$284,194.23		-$789,107.94	Revenue Requirement allocated to each Class before PILs		$6,137,641.63	$5,120,020.79	$1,017,620.84
							Allocated per Class			-$789,107.94	-$658,273.86	-$130,834.08
										Total	Residential	General Service Less than 50
TOTAL REVENUE REQUIREMENT					$5,348,533.70			$5,348,533.70	$4,461,746.93	$886,786.76		
					Percentage of costs allocated to Residential and GS < 50 kW customer classes			100.00%	83.42%	16.58%		
					$6,941,294.73							
						SMFA Revenues directly attributable to class			90.73%	8.16%		
						Residual SMFA revenues (from other metered classes) attributed evenly			0.55%	0.55%		
						Total			91.28%	8.72%		
					$6,941,294.73	SMFA Actual upto April 30, 12			$ 6,336,246.09	$605,048.63		
					-$1,592,761.03							
					Allocated per Class			-$1,592,761.03	-$1,874,499.16	$281,738.13		
					Number of Metered Customers	(1Q2012)			135,101	11,986		
				Smart Meter Disposition Rate Rider					-$1.16	$1.96		

Responses to Vulnerable Energy Consumers Coalition (VECC) Interrogatories

VECC Question # 1

Reference: Manager's Summary, Status of Smart Meter Program

Preamble: London Hydro indicates that of the remaining 285 GS<50 kW customers, there is an expectation to install 202 meters in 2012.

a) Please discuss when the balance of the GS<50 kW meters are forecast to be installed and why the installations are not forecast for 2012.

Response:

a) While the referenced paragraph seemed to make sense at the time it was written, London Hydro concurs with VECC that the statement as written leaves the reader with questions. Rather than attempting to correct the poorly structured language in the Manager's Summary, London Hydro provides the following update:

As of this date, the following services still need to be outfitted with Smart-meters:

- Thirty-six (36) residential services; and
- Eighteen (18) small business services (general service < 50 kW).

Note: There are a further twenty-nine (29) small business services that now have to be outfitted with a Smart-meter due to the recently completed rate review (i.e. the customers were formally in the "*general service > 50 kW*" tariff classification, but because of reduced electricity consumption have been reclassified as "*general service < 50 kW" customers*"). London Hydro is awaiting the delivery of polyphase Smart-meters to embark on this meter exchange undertaking.

The residential services are mostly Smart-meter refusals (as described in Section 4.5.9, *Smart-Meter Exchange Refusals*, in the *Narrative for Smart Meter Cost Recovery Application* portion of the submission). For these, London Hydro will first notify the Board of Directors and City Councillors that it is about to embark upon escalated procedures that include consideration of disconnection of service.

For the small business services, there are access issues (as described in Section 4.5.10, *Smart-Meter Exchange Refusals*, in the *Narrative for Smart Meter Cost*

Recovery Application portion of the submission), but more importantly for London Hydro, there is no inventory available. The requisite Elster manufactured ALPHA A3 polyphase meters outfitted with a Sensus FlexNet radio accessory had a promised March 15th delivery date but remain on back-order still. This matter has been escalated within the Sensus and Elster organizations.

The goal of getting the outstanding Smart-meters installed in the forthcoming months (i.e. by late summer of 2012) seems quite achievable.

VECC Question # 2

Reference: Introduction, 1.1.3 The Benefits of Smart Meters, Page 3

Preamble: On Page 3, London Hydro provides a list of some of the specific benefits it expects to obtain. On Page 72 of the application, London Hydro indicates that due to manual meter reading savings, approximately $330,000 per annum was achieved in 2011 and 2012.

a) Please quantify any other savings from the benefits listed on Page 3 and indicate how London Hydro has taken these savings into account in this application.

Response:

a) With respect to the savings associated with each of the described benefits of a Smart metering system, London Hydro offers the following supplemental explanations making reference to the bullets in Section 1.1.3, *The Benefits of Smart Meters*, in the *Narrative for Smart Meter Cost Recovery Application* portion of the submission:
   - Bullet #1 – Meter reading savings. These savings have already been identified in in Application, page 72.
   - Bullet #2 – After initial smart meter /TOU implementation it is expected for ongoing reduced customer contact centre costs. This is difficult to quantify. Once the organization gets past the flurry of calls associated with anything new (and in this case time-of-use electricity billing), London Hydro is hopeful that web presentment of the customer's hourly energy data will be one of several effective "*self-help*" features. However, once a customer becomes so "*engaged*" with their load profile, there is a good possibility that they may wish to contact the call centre with an entirely different type of question, namely advice regarding the energy conservation opportunities available to customers with their particular load profile. As London Hydro is hopeful that web presentment will make a small positive impact in the call centre volumes, but not entirely certain, no cost

savings have been attributed to this functionality. If there were cost savings, it is likely that their magnitude would be in the "*immaterial*" classification.

- Bullet #3 – Reduced billing costs. With both the University of Western Ontario and Fanshawe College located in London, London Hydro incurs a significant number of so-called "*off cycle*" meter reads both at the beginning and end of the academic school year. Whereas formerly a contracted meter reader would be dispatched to the home or apartment for a final meter read, this activity can be done remotely with the Smart-meter system. The savings associated with having contract meter readers carry out off-cycle meter reads is already captured in Bullet #1.
- Bullet #4 – Customer selected due date. There is no perceived monetary savings to London Hydro. Rather London Hydro will have the technology in-place to expand the service offerings to its customers.
- Bullet #5 – Load monitoring and forecasting. London Hydro is not certain that a specific monetary benefit can be assigned to this feature. With respect to rate design, while the underlying goal is equity, one has historically needed to make assumptions concerning the timing and composite energy consumption of each class of customer. For large users equipped with interval meters, this was quite straight forward. But in London Hydro's case, for customers less than 200 kW (that didn't have an interval meter or a Smart meter), historically one would have to make assumptions. Once this new technology is in-place, it is no longer necessary to make assumptions regarding the overall consumption and consumption timing for customers in the residential, general service < 50 kW, and general service > 50 kW (and less than 200 kW in London Hydro's case).

  London Hydro has also initiated a project whereby we will be harnessing this technology to benchmark the energy performance of multi-unit residential buildings (MURB's) with tenant meters. It is intended to use this benchmarking data as a sales tool to drive property managers into the provincial saveONenergy RETROFIT PROGRAM energy conservation program. Again, this will be a benefit to our customers (via reduced energy consumption) and to London Hydro in that it will assist in meeting the regulated CDM targets, but it is difficult to assign a monetary value to it, i.e. London Hydro is able to provide analyses and services that previously were inconceivable.

- Bullet #6 – Distribution system planning. As an example of a real planning benefit, with Smart-metering London Hydro is now able to establish the coincident loading on each single-phase pad mounted distribution transformer (that would supply residential customers) to ascertain whether there is sufficient residual capacity to accommodate home recharging of electric vehicles, or instead the infrastructure needs to be reinforced. It is too early to tell what the ultimate penetration of electric vehicles might be, but when the time comes, London Hydro will have specific and reliable engineering data (as opposed to assumptions which often tend to be conservative) upon which to base future

investment decisions. In summary, at this point in time, London Hydro can't quantify the magnitude of future avoided costs as we don't in fact know if there will be future system reinforcement costs.

- Bullet #7 – Service connections from the office. The end-to-end solution will support revenue meters with an under-glass remote disconnect feature. London Hydro has just recently procured a nominal four (4) such revenue meters (outside the Smart-meter initiative) for the purposes of performing end-to-end testing. To date, London Hydro has not carried out a comprehensive analysis to determine whether or not the perceived benefits associated with remote disconnect offset the costs – such an analysis is on the to-do list. Intuition suggests at best a business case would show that the benefits are only marginal, except perhaps in targeted deployments.
- Bullet #8 – Outage detection, mapping and restoration. For the most part, LDC's discover outages on the distribution system by incoming phone calls. While SCADA systems provide feedback to the LDC for large outages, fuse operations on a lateral circuit or the in-service failure of a transformer are generally only known to the LDC when the customer calls to report the outage. With Smart-metering, London Hydro wants to react to service interruptions at the home level and before the customer even calls. There are no cost savings to London Hydro and in fact there may be future modest expenditures (again unrelated to the Smart-meter initiative) in a so-called Outage Management System to harnessing this technology.
- Bullet #9 – Tamper and theft detection. There are two methods of stealing electricity, namely (i) bypassing the meter, and (ii) for the case of the older electro-mechanical meters one could remove the meter from its socket, reinstall it upside down, and revert it to its proper orientation prior to the scheduled meter reading date. Bypassing the meter is the technique used for most grow-ops and won't be detected no matter what metering technology is put into place. Inversion of the revenue meter doesn't have any effect with the Sensus iCon-A Smart-meters and consumption is detected and measured in both directions (i.e. the meter doesn't spin backwards when it is inverted). News that inverting the Smart-meter has no effect will undoubtedly spread amongst those customers inclined to steal power. Our Sensus FlexNet AMI really hasn't been in service long enough for London Hydro to gather statistics as to the number of customers that attempt to invert their revenue meter. The industry doesn't really have reliable data concerning theft of power by residential and small business customers, so London Hydro is really unable to quantify the future reduction in theft-of-power by meter inversion.
- Bullet #10 – Reduced field service calls. The Sensus iCon-A smart-meters do in fact capture supplied voltage, enabling London Hydro staff to discern whether or not the supplied voltage is within the limits stipulated within CSA Standard CAN/CSA Standard C235, *Preferred Voltage Levels for AC Systems, 0 to 50,000 V*. While it is true that in instances whereby a customer suspects that their voltage is too low or too high, London Hydro won't have to dispatch a Technician

to the customer's premise to carry out voltage measurements at the service entrance. However, London Hydro suspects (and it has yet to be confirmed) that since this type of feedback is now available, it will cost more for London Hydro's Operations staff to respond to out-of-tolerance voltage conditions as they are detected by the Smart-meters, wherein previously some of these customers may never have voiced a concern. In summary, even though it may cost slightly more in OM&A expenditures, the voltage feedback from the Smart-meters permits London Hydro to provide a better level of service to its customers.

- Bullet #11 – Demand response / direct load control program. This relates to the provincial *peaksaver* PLUS™ program wherein London Hydro can procure Sensus iCon-A revenue meters with an under-glass ZigBee radio to interact with an in-home display. There are no cost savings to London Hydro; rather London Hydro is leveraging available technology to provide greater service options to its customers.

The foregoing discussion indicates that the majority of the benefits (to London Hydro) associated with Smart-metering are enhanced customer service (as opposed to cost savings). The exception is the cost savings attributable to the elimination of contract meter readers for on-cycle and off-cycle meter reads. London Hydro believes that this latter benefit has been appropriately taken into account in its application for Smart Meter Cost Disposition & Recovery.

VECC Question # 3

Reference: 4.2.1 Assessment of the Backhaul Options, Page 22

Preamble: London Hydro states on Page 22 that it didn't have existing communications systems with additional capacity available so it carried out a study comparing various public and private options. The recommended option (primarily based on anticipated cost savings) was procurement and installation of a private wireless broadband communications system.

a) Please discuss the anticipated cost savings related to the recommended option.

b) Please advise if the evaluation of the options considered the need for a wireless communications subject matter expert.

Response:

a) As an integral part of London Hydro's RFP for a Smart-meter system (refer to Section 2.6, *Public Wireless Communications Carriers as a WAN Option*, of London Hydro's *Request for Proposal for Advanced Metering Infrastructure (AMI) - Phase I Smartmeter Deployment*), the following request was made of bidders:

> *London Hydro's expectation is that the bid submission will include a separate section with costing information (activation charges, monthly fixed costs, monthly variable costs, etc.) from one or more public wireless carriers that is sufficiently comprehensive that London Hydro could reasonably calculate its anticipated annual operating cost for Group I deployments, Group II deployments, and a complete system deployment.*

One of the challenges that confronted the Bid Evaluation Panel (as described in the document entitled: *Evaluation Plan of Bid Submissions for "Advanced Metering Infrastructure (AMI) - Phase I Smartmeter Deployment"* that was included in the Application) was developing a reasonable estimate of the public communications carrier cost element. For those proposals that included an offer from Rogers, Bell Mobility, or other carrier, it was clear that there would be an initial activation fee plus a recurring charge based on the number of end-points (i.e. number of regional collectors or TGB's) plus the quantity of transmitted data. Without a comprehensive RF propagation study and a companion network traffic analysis (which are normally carried out during the Statement of Work negotiations), there is some uncertainly regarding the number of regional collectors that will actually be deployed and the amount of network traffic.

One aspect of London Hydro's AMI deployment that wasn't described in London Hydro's document "*Narrative for Smart Meter Cost Recovery Application*" was the need to have a back-up option available in the event that one of the paths on the BelAir wireless broadband backhaul system should became unavailable for an extended period of time (perhaps due to a natural disaster or similar reason). Several public carrier options were assessed at the time and the lowest recurring cost option was selected. For the traffic volumes between the FlexNet TGB transceivers and the FlexNet RNI master station, the wireless link charge was approximately $2400 per month. This back-up option was installed on two (2) links for quite a few months, initially to field test the viability of the back-up plan, and later they become necessary on account of the power supply certification issues that precluded activation of three (3) roof-top repeater units (as described in Section 4.5.8, *Power Supply Certification Deficiency for Roof-Top Repeaters*, within London Hydro's document "*Narrative for Smart Meter Cost Recovery Application*").

Given real cost information for wireless communications using a public carrier option (which turned out to be lower that the estimates used earlier), it is now possible to

show that London Hydro's investment in a private wireless broadband WAN was still prudent.

For the public carrier option used for London Hydro's entire AMI deployment (now at 17 FlexNet TGB transceivers located at 9 sites), the annual usage charge would be:

Estimated O&M = 17 TGB's x $2400 per TGB per month x 12 months per year

= $489,600 per year

Also of consideration is the addition to the O&M costs in utilizing a public carrier of both the initial activation fee and a monthly charge for the quantity of transmitted data. Although it is difficult to pinpoint the total costs associated with quantity of transmitted data charges, the public carriers were not able to provide expertise in this area, an estimate by London Hydro would see an additional O&M cost in usage charges of approximately $45,000. Therefore, total recurring O&M costs approximate $534,600.

In regard to London Hydro's investment in a private WAN reflects O&M cost shared terminal equipment (i.e. wireless modem), and reductions in link charges, and resulting lower carrier usage charges, the estimated annual O&M cost would approximate $425,000.

In its April 7, 2009 meeting, London Hydro's Board of Directors authorized staff to enter into Statement of Work negotiations with Capella Telecommunications / Belair Networks for their wireless broadband backhaul solution for a total cost not to exceed the $400K projection. Once the deployment costs are included (e.g. reinforcing of radio communications tower at CFPL and Arva Reservoir, the procurement of the LOOK communication shelter, and qualified riggers to install and align the microwave equipment at these sites), it can be seen that the capital investment in a private wireless broadband backhaul system is the most cost-effective option.

Note: To establish the proper context, the term "*cost savings*" is strictly in relationship to the "*public carrier*" option. Procurement and deployment of a wireless broadband backhaul network doesn't yield cost savings to the London Hydro organization that should be considered in the determination of an appropriate rate rider.

b) London Hydro wasn't planning to use a wireless communications subject matter expert (from IBM Consulting) for the wireless broadband wide area network (WAN) component after a contract was entered with the successful supplier / installation contractor. However, the deployment was initially delayed due to a CSA certification deficiency with the repeater power supplies (see Section 4.5.8, *Power Supply Certification Deficiency for Roof-Top Repeaters*, in the *Narrative for Smart Meter Cost Recovery Application* portion of the submission), followed by inclement winter

weather (that further delayed both the power supply exchange and acceptance testing), and then by the departure of both a key project engineer from Capella and London Hydro's project engineer tasked with the wireless communications element. Although it wasn't part of the original plan, due to the urgency to start time-of-use electricity billing in London, the communications subject matter expert was brought back into the WAN project to accelerate the project.

VECC Question # 4

Reference: 4.3.1 Smart Meter Installation Strategy, Page 26

Preamble: London Hydro indicates its staff assumed responsibility for smart meter installations on polyphase and transformer related services, both of which require a greater skill level.

a) Please discuss how these staff costs are accounted for in this application.

Response:

a) The Staff costs for the metering installations are accounted for in this application under the Total Meter Installation Costs item 1.1.2 Capital costs in the OEB smart meter model. These direct costs for London Hydro's skilled staff installing smart-meters on polyphase and transformer-rated services were capitalized in accordance with London Hydro's general capitalization guidelines/policies and practice, and as instructed in the OEB letter of June 13th, 2006 instructions on Smart Meter Accounting[1]. While this work was cost effective to be performed by 2 person crew employee staff when compared to 2 person crew external contract estimates the main decision was due to EUSA health and safety concerns, requirements and specifications related to the high voltage. These meters include the 347/600 Volt smart meter upgrades and related instrument transformers and Measurement Canada required Installation Verification procedures performed. Trained staff were removed from planned work and refocused on smart meter deployment in order to meet the defined OEB timeframe. The technical work included the installation of 3-phase/3-wire, 3-phase/4-wire, 600volt delta and wye installations.

[1]Reference indicates: "investments in smart meters will be recorded in the capital variance account, and LDCs should use sub-accounts to segregate costs by type for future fixed asset accounting required under GAAP. The LDCs normal capitalization policies should be followed in identifying fixed asset expenditures."

VECC Question # 5

Reference: 6.3 Project Management, Page 45

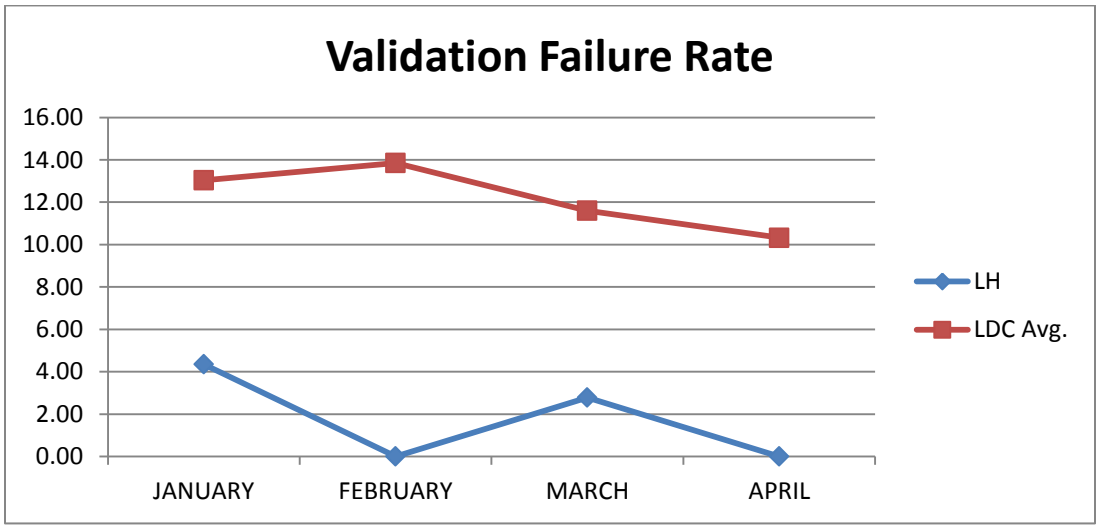
Preamble: London Hydro states it established a Project Management Office to provide oversight and coordination of all IT projects. A dedicated testing team was established for end-to-end regression testing for "meter to cash" processes including all the interfaces to Sensus RNI and MDMR.

a) Please discuss how the cost of these activities is reflected in this application.

Response:

a) In relation to the costs of the Project Management Office in this Application, London Hydro has only incorporated the direct costs for a dedicated project manager for management of the development, testing and implementation of the CIS changes (to provide MDM/R interfaces and support billing via this service), ODS and subsequent changes to MDM/R interfaces to support Measurement Canada changes. Similarly, only the direct costs for testing staff utilized in the process of testing and implementation of these systems has been incorporated into this Application.

   The efforts put in to ensure the quality of the systems and processes developed can be seen in the statistics provided by the Smart Metering Entity, demonstrating that London Hydro is successfully below the LDC average for validation failure rate.



VECC Question # 6

Reference: 9.3.1 Smart Meter Costs, Page 63

Preamble: Associated with 2012 costs, is the hiring by London Hydro of five temporary contract staff in its CIS Department to handle significant customer call volume increases in its call centre pertaining to TOU rollout.

a) Please discuss the increase in expected call volumes as it relates to the need for 5 contract staff.

b) Please advise if the contracts are full-time or part-time and provide the length of the contracts.

Response:

a) It was prudent for us to increase our Customer Service staff levels by five in order to complement our current staff so that we ensured we had adequate coverage to answer customer inquiries. With our increased communications we anticipated that Customer Service Representatives would require more time to explain the bill changes and the introduction of Web Presentment services. This also allowed us to utilize experienced and knowledgeable staff to assist in rolling out Smart Meter and TOU Billing without comprising the customer service quality standards and our day

to day routine calls such as Move Contract changes, Payment Arrangements and General Inquiries.

b) The five additional staff are employed full-time and their contract is for a period of one year.

VECC Question # 7

Reference: General Staffing

a) Please advise of the length of the contracts for the 2 clerical staff (Page 28), the Project Management Professional (Page 29), the Wireless Communications Subject Matter Expert (Page 29), and the Project Manager for Data Management and Smart Meter Deployment (Page 39) and whether the work arrangements for these resources are part-time, full-time, permanent or temporary.

Response:

a) The nature of the engagements for contracted staff associated with London Hydro's Smart-meter deployment project is tabulated below.

Contracted Position	Nature of Engagement
Two (2) clerical staff (ref: pg 28)	The supplementary staff member in the Metering Department was (to use the language of the prevailing Union Agreement) a temporary worker – she worked 40 hours per week and pursuant to the prevailing Agreement can be employed no longer than twelve months. The second supplementary staff member was a University summer student responsible for processing Smart Meter claims, administration, and related customer service.
Project management professional (ref: pg 29)	London Hydro had a services contract with IBM Consulting. Some weeks the individual was required to dedicate the entire time to London Hydro's project, while for other weeks, he only dedicated a few days to London Hydro's (meaning the individual balanced his time between a few clients and invoiced London Hydro accordingly).
Wireless Communications SME (ref: pg	London Hydro had a blanket arrangement with IBM Consulting covering consulting

Contracted Position	Nature of Engagement
29)	services by a wireless communications subject matter expert. As services were required, individual purchase orders were issued identifying the specific scope of work and deliverables.
PM for DM & SM Deployment (ref: pg 39)	The described project manager was an employee of IBM Consulting, but assigned to London Hydro's project on a full time basis, i.e. the person worked 40 hours per week, received a salary from IBM, and London Hydro paid IBM pursuant to an agreed rate for time and expenses.

The foregoing contracted staff and consultants were all treated as "*incremental*" labour costs in London Hydro's application for Smart-meter cost disposition and recovery.

VECC Question # 8

Reference: Board Guideline G-2011-0001, Smart Meter Funding and Cost Recovery – Final Disposition, dated December 15, 2011, Page 19

Preamble: The Guideline states, "The Board views that, where practical and where data is available, class specific SMDRs should be calculated on full cost causality.

a) Please calculate class specific SMDR and SMIRR rate riders for the residential and GS<50 kW rate classes based on full cost causality.

b) Please provide a table that summarizes the total Smart Meter Rate Adder Revenue collected by customer class.

Response:

a) London Hydro has complied with the Guidelines G-2008-0002 in which accounts 1555 and 1556 were established to track the capital and the OM&A costs associated with smart meter investments. Expenditures accumulating from 2006 through to this Submission have not been recorded to their respective customer classes.

Although London Hydro cannot reasonably accommodate the segmentation of expenditures into specific customer classes, and therefore class specific revenue requirements, London Hydro has provided on page 80 and page 81 of the

Application London's basis for determining appropriate revenue requirements (and resulting SMDR and SMIRR Rate Riders) by customer class.

Please refer to table 9-9, Smart Meter Disposition Rate (SMDR) Rider by rate Class, page 80 of the Application, providing the basis for London Hydro's revenue requirement calculation for smart meter cost recovery between rate classes for SMDR. Table 9-10, Smart Meter Incremental Rate (SMIRR) Rider by rate Class, page 81 of the Application, provides the basis for London Hydro's revenue requirement calculation for smart meter cost recovery between rate classes for SMIRR.

The total revenue requirement has been allocated to each customer class on the basis of the following:

- Return (deemed interest plus return on equity) and Amortization allocated between the customers classes based on the capital costs of the meters installed for each class;
- OM&A expenses allocated on the basis of the number of meters installed for each class;
- PILS allocated based on the revenue requirement allocated to each class before PILS.
-

London Hydro has provided in reply to Interrogatories 8 b) a summarization of total Smart Meter Rate Adders Revenue by customer class. Revenue requirement has been recalculated with utilization of class specific SMFA revenues. These recalculations can be found in models located in Board staff responses to IR Question 14 b) and Question 8 b).

b) Please see either Board staff response to IR Question 14 b) or Question 8 b). Both replies reflect the amount of Smart Meter Rate Adder Revenue collected by customer class.

Please note that amounts of SMFA revenue have been adjusted replacing forecasted amounts for January 1, 2012 through to April 20, 2012 with actuals. Per the Application the amount of SMFA collected was an amount of $852,800. Actual amount is $892,163. Carrying charges have also been adjusted for inclusion of Actual SMFA results. The increase in SMFA revenues is $39,529, including carrying charges.

Table below reflects Actual SMFA collection, and is utilized in Board Staff Q 14 b).

Smart Meter Funding Adder collected by Rate Class

		Year 2006		Year 2007		Year 2008		Year 2009		Year 2010		Year 2011		Year 2012 - JAN - APR		TOTAL by Rate	TOTAL by Rate Class
Rate class	Rate	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	No of bills	SMFA $	SMFA $	SMFA $
Residential	0.27	863,132	$ 233,046	1,537,965	$ 415,249	1,562,220	$ 421,799	1,328,055	$ 358,575	2,099	$ 567			-		1,429,235	
Residential	1.00							220,636	$ 220,636	1,617,357	$ 1,617,826	681,665	$ 681,587	33	$ 33	2,519,882	
Residential	1.46											931,922	$ 1,360,605	554,881	$ 810,126	2,170,732	6,119,849
General Service <50	0.27	80,943	21,855	143,014	38,614	144,405	38,989	121,189	32,721	282	76			-		132,255	
General Service <50	1.00							19,950	19,950	145,110	145,110	61,465	61,465	18	18	226,544	
General Service <50	1.46											81,810	119,443	49,537	72,324	191,766	550,565
General Service>50	0.27	10,879	2,937	19,144	5,169	19,082	5,152	16,400	4,428	101	27			-		17,713	
General Service>50	1.00							2,812	2,812	19,628	19,628	8,250	8,250	14	14	30,705	
General Service>50	1.46											11,196	16,346	6,585	9,613	25,959	74,377
Large User	0.27	21	6	36	10	36	10	30	8	-	-			-		33	
Large User	1.00							6	6	36	36	15	15	-	-	57	
Large User	1.46											21	31	12	18	48	138
Cogeneration	0.27	24	6	36	10	36	10	30	8	-	-			-		34	
Cogeneration	1.00							6	6	36	36	15	15	-	-	57	
Cogeneration	1.46											21	31	12	18	48	139
Actual Amounts Collected		954,999	$ 257,850	1,700,195	$ 459,051	1,725,778	$ 465,960	1,709,114	$ 639,150	1,784,849	$ 1,783,107	1,776,380	$ 2,247,788	611,091	$ 892,163	$ 6,745,069	$ 6,745,069

Amount includes forecasted 1Q12 (as per Application) 852,800 forecast 6,709,705

Additional collected compared forecasted amount filed in Application to actual results $ 39,363 $ 39,363