



Interrogatory

QUESTION #1

Reference: Exhibit A1, Tab 2, Schedule 3, page 2

a) Please provide copies of all requests or other communications received from either bondholders or the investment community over the last twelve months that resulted in Ottawa providing explanations regarding its financial results that involved the current mismatch between Ottawa's rate year and its fiscal year.

b) Please provide copies of all materials prepared by Ottawa for use in explaining to either bondholders or the investment community the difference between its approved and actual rate of return. Please also include all internal materials prepared to assist with oral explanations.

Response

a) Hydro Ottawa has reviewed the materials received from bondholders and credit rate agencies in the past two years and can find no reference to the mismatch between the rate year and the fiscal year.

b) Hydro Ottawa has reviewed materials provided to bondholders and credit rating agencies in the past two years and can find no discussion of the difference between the approved and actual rate of return. Hydro Ottawa has not located any internal materials discussing the difference between the approved and actual rate of return used to assist with oral discussions to either bondholders or credit rating agencies.



Interrogatory

QUESTION #2

Reference: Exhibit A1, Tab 2, Schedule 3, page 5 (Issue #4)

- a) Given that the Board's direction on the 2010 Cost of Capital parameters was not released until February 2010 and that the same timelines could apply for 2011, please confirm that the cost of capital parameters applicable to Hydro Ottawa for 2011 (per A2/T1/S1, page 3) will likely differ from those applicable to electricity distributors filing for 2011 rates effective May 1, 2011 based on cost of service.
- b) Does Ottawa foresee any issues with bondholders and/or the investment community in having different cost of capital parameters applying to electricity distributors in 2011 and subsequent years depending upon the effective date for the rate change? If not, why not?
- c) Does Ottawa propose to apply for rates based on a "cost of service" application for all years subsequent to 2011?
- d) If not, does Ottawa expect that in years where its Rate Application is based on IRM the effective date would be January 1st?

Response

- a) Exhibit A2-1-1, Section 3.1, Page 3 of 11 states Hydro Ottawa's proposal to use the September 2010 data to set the rates for the rate of return on equity ("ROE") and short-term debt rates. Hydro Ottawa has not proposed to use the deemed rates for long-term debt established by the Ontario Energy Board. Hydro Ottawa confirms that this would differ from electricity distributors filing for 2011 rates effective May 1, 2011.



1 b) Hydro Ottawa does not foresee any issues with bondholders and/or the investment
2 community in having different cost of capital parameters for electricity distributors for
3 the following reasons:

4
5 1. Bondholders and the investment community will evaluate the credit risk of each
6 electricity distributor on its own specific circumstances.

7
8 2. Each year since 2007 electricity distributors setting rates using the incentive
9 regulation mechanism have had different cost of capital parameters than
10 distributors setting rates through a cost of service application.

11
12 3. The Board approved 2011 distribution rates for Hydro One Networks Inc.
13 effective January 1, 2011 (EB-2009-0096¹) using the September 2010 data for
14 ROE and short-term debt. Hydro Ottawa is requesting the same approach,

15
16 c) Refer to the response to CCC #6 and Energy Probe #22.

17
18 d) If Hydro Ottawa files for rates using an incentive regulation mechanism in the future,
19 it would request rates to be effective January 1.

¹ Decisions with Reasons, Page 50. "The Cost of Capital parameters will be updated for the purpose of establishing 2011 rates. The Board will rely on September, 2010 data for purposes of deriving the ROE and short-term debt rate. The Board will issue a letter containing the necessary values to allow Hydro One to develop a Draft Rate Order, to be effective January 1, 2011".



1 **Interrogatory**

2
3 **QUESTION #3**

4
5 Reference: Exhibit A1, Tab 2, Schedule 2, page 7

6
7 a) Please outline Ottawa's plans with respect to applying for an LRAM and/or SSM for
8 2008 based on the results of CDM programs implemented in 2008 and prior years.

9
10 **Response**

11
12 a) For 2008 Hydro Ottawa applied to rebase its distribution rates and included an
13 adjustment to the load forecast to reflect the reduction in load due to Conservation
14 and Demand Management ("CDM") programs implemented in 2008 and prior years.
15 As a result Hydro Ottawa does not plan to apply for a Lost Revenue Adjustment
16 Mechanism ("LRAM") for 2008.

17
18 In 2009 Hydro Ottawa received CDM funding from the Ontario Power Authority (the
19 "OPA") and when final results have been received, Hydro Ottawa intends to apply for
20 an LRAM for 2009.

21
22 Hydro Ottawa has already received the eligible Shared Saving Mechanism ("SSM")
23 for its 3rd tranche CDM programs. All subsequent CDM programs have been funded
24 by the OPA and as per the Board's Guidelines, the SSM is only available for
25 programs that are funded through distribution rates, not those funded by the OPA,
26 therefore this application does not include a request for a SSM rate rider.



Interrogatory

QUESTION #4

Reference: Exhibit A1, Tab 5, Schedule 2, page 1

- a) Please confirm that Account 1555 is also used to record the depreciation costs associated with the smart meters actually in-service.
- b) Please confirm where Ottawa records the OM&A costs associated with the smart meters actually in-service.

Response

- a) Hydro Ottawa recorded the depreciation expense associated with in-service Smart Meters in Account 1556. The only costs recorded in Account 1555 were the return on capital (interest and equity) and stranded meter costs. Account 1555 was also used to record the amounts billed to customers through the Smart Meter adders.
- b) Hydro Ottawa recorded OM&A costs for Smart Meters in Account 1556. Given the revenue requirement approach that Hydro Ottawa adopted for recorded expenses in Accounts 1555 and 1556, it is appropriate to address these accounts together. Exhibit I1-1-2, Section 2.1 provides a full explanation of amounts recorded in both Account 1555 and 1556. The spreadsheet to calculate the revenue requirement is included as Attachment 1 to VECC #65.



1 **Interrogatory**

2
3 **QUESTION #5**

4
5 Reference: Exhibit A1, Tab 7, Schedule 3

6
7 a) With respect to page 1, does Hydro Ottawa continue to provide duct and pole
8 attachment rental services to Atria Networks LP, the current owner of Telecom
9 Ottawa Holding Inc.? If not, please explain.

10
11 b) With respect to Table 1, please provide a schedule that sets out the 2008 and 2009
12 actual annual charges for each service and the currently forecast charges for each
13 for 2010 and 2011. Please provide a variance explanation for any year over year
14 change of more than 5% (plus or minus).

15
16 c) With respect to Table 2, please provide a schedule that sets out the 2008 and 2009
17 actual annual charges for each service and the currently forecast charges for each
18 for 2010 and 2011. Please provide a variance explanation for any year over year
19 change of more than 5% (plus or minus).

20
21 **Response**

22
23 a) With reference to Exhibit A1-7-3, page 1, Hydro Ottawa continues to provide duct
24 and pole attachment rental services to Atria Networks LP, the current owner of
25 Telecom Ottawa, through a standard commercial agreement. This arrangement is
26 expected to continue in 2011.

27
28 b) The following tables provide the actual and forecasted costs of providing services to
29 Hydro Ottawa Holding Inc., between 2008 and 2011 and an explanation for
30 variances greater than 5%.



Table 1 - Actual and Forecasted Cost of Services Provided to Hydro Ottawa Holding Inc., Schedules 1 to 5

Service Description	2008 Actual \$	2009 Actual \$	2010 Budget \$	2011 Budget \$	09/08 % Variance	10/09 % Variance	11/10 % Variance
Schedule 1 - Facilities Services	102,947	251,613	240,000	240,000	144.4	(4.6)	0
Schedule 2 - HR Services	46,539	82,135	80,000	80,000	76.5	(2.5)	0
Schedule 3 - IT Services	126,587	171,792	170,000	170,000	35.7	(0.1)	0
Schedule 4 - Finance Services	N/A	45,000	22,000	22,000	N/A	(51.1)	0
Schedule 5 - Communication Services	N/A	48,254	48,000	48,000	N/A	(0.5)	0
Total Costs	276,073	598,795	560,000	560,000	116.9	(6.4)	0

Table 2 – 2009/2008 Variance Explanations Schedules 1 to 5

Service Description	2009/2008 Variance \$	Variance %	Explanation
Schedule 1 - Facilities Services	148,666	144.4	The methodology used for the calculation of costs to be charged was revised in 2009. The 2009 method utilized a square footage cost, based upon market rent and the budgeted operating costs from facilities. A review of actual space used by HOHI employees was also conducted to ensure HOHI was charged based upon the actual square footage occupied. The costs were then trued-up at year end, to account for actual operating costs.
Schedule 2 - HR Services	35,596	76.5	The methodology used for the calculation of costs to be charged was revised in 2009. The 2009 method utilized a cost per employee amount based upon anticipated operating costs from the HR department taking into account the services HOHI has requested. HOHI is charged based on the actual number of employees they have, monthly. The costs are trued-up at year end to account for actual operating costs.
Schedule 3 - IT Services	45,205	35.7	The methodology used for the calculation of costs to be charged was revised in 2009. The 2009 method utilized a cost per employee amount based upon anticipated operating costs from the IT departments taking in to account the services HOHI has requested. HOHI is charged based on the actual numbers of employees they have, monthly. The costs are trued-up at year end to account for actual operating costs.



Table 3 – 2010/2009 Variance Explanations Schedules 1 to 5

Service Description	2010/2009 Variance \$	Variance %	Explanation
Schedule 4 - Finance Services	(23,000)	(51.1)	6 Finance positions were added to the Holding company in 2009, reducing the amount of services required.

The following tables provide the actual and forecasted costs of providing services to Energy Ottawa Inc., between 2008 and 2011 and an explanation for variances greater than 5%.

Table 4 - Actual and Forecasted Cost of Services Provided to Energy Ottawa Inc., Schedules 11 to 16

Service Description	2008 Actual \$	2009 Actual \$	2010 Budget \$	2011 Budget \$	09/08 % Variance	10/09 % Variance	11/10 % Variance
Schedule 11 – Building or Real Estate Support Services	17,000	17,353	18,053	18,053	2.0	4.0	0
Schedule 12 – Human Resources	11,424	21,631	22,000	22,000	89.3	1.7	0
Schedule 13 – Information Technology Services	49,377	53,723	56,000	56,000	8.8	4.2	0
Schedule 14 – Finance	50,000	52,814	75,000	75,000	5.6	42.0	0
Schedule 15 – Metering and Meter Data Services	101,268	94,315	80,295	80,295	(6.9)	(14.9)	0
Schedule 16 – Generation Services	95,221	106,004	89,000	89,000	11.3	(16.0)	0
Total Costs	324,290	345,840	340,348	340,348	6.6	(1.5)	0



1 **Table 5 – 2009/2008 Variance Explanations Schedules 11 to 16**

Service Description	2009/2008 Variance \$	Variance %	Explanation
Schedule 12 – Human Resources	10,207	89.3	The methodology used for the calculation of costs to be charged was revised in 2009. The 2009 method utilized a cost per employee based on anticipated operating costs from the HR department, taking into account the services EO has requested. EO is charged based on the actual numbers of employees they have each month. The costs are trued-up at year end to account for actual operating costs.
Schedule 13 – Information Technology Services	4,346	8.8	The methodology used for the calculation of costs to be charged was revised in 2009. The 2009 method utilized a cost per employee based on anticipated operating costs from the IT department, taking into account the services EO has requested. EO is charged based on the actual numbers of employees they have each month. The costs are trued-up at year end to account for actual operating costs.
Schedule 14 – Finance	2,814	5.6	Charges are based on services provided by different personnel in HOL Finance. Depending on the cost of the individual and amount of time spent, the cost will fluctuate.
Schedule 15 – Metering and Meter Data Services	6,953	(6.9)	Charges are based on actual usage so they will fluctuate depending on the number and volume of services requested from EO.
Schedule 16 – Generation Services	10,783	11.3	Charges are based on actual usage so they will fluctuate depending on the amount of services requested from EO.

2
3 **Table 6 – 2010/2009 Variance Explanations Schedules 11 to 16**

Service Description	2010/2009 Variance \$	Variance %	Explanation
Schedule 14 – Finance Services	22,186	42.0	Estimated number of hours for support anticipated to be higher in 2010.
Schedule 15 – Metering and Meter Data Services	(14,040)	(14.9)	Charges are based on actual usage so they will fluctuate depending on the number and volume of services requested from EO. Estimated number of hours for support in the budget is lower than previous year actual.
Schedule 16 – Generation Services	(17,004)	(16.0)	Charges are based on actual usage so they will fluctuate depending on the number and volume of services requested from EO. Estimated number of hours for support in the budget is lower than previous year actual.

4
5 c) The following tables provide the actual and forecasted costs of receiving services
6 from Hydro Ottawa Holding Inc., between 2008 and 2011.



1 **Table 7 - Actual and Forecasted Cost of Services Received from Hydro Ottawa**
 2 **Holding Inc., Schedules 6 to 10**

Service Description	2008 Actual \$	2009 Actual \$	2010 Budget \$	2011 Budget \$	09/08 % Variance	10/09 % Variance	11/10 % Variance
Schedule 6 – Legal, Corporate Admin, Regulatory Affairs	553,415	695,145	650,000	665,800	25.6	(6.4)	2.4
Schedule 7 – Finance, Internal Audit and Risk Management	911,121	1,829,739	2,470,000	2,530,025	100.8	35.0	2.4
Schedule 8 - Human Resources, Safety and Environment	421,119	503,579	690,000	706,770	19.6	37.0	2.4
Schedule 9 - Corporate Communications	115,504	253,125	270,000	276,565	119.1	6.7	2.4
Schedule 10 – Mgmt Services	258,841	610,412	660,000	676,040	135.8	8.1	2.4
Total Costs	2,260,000	3,892,000	4,740,000	4,855,200	72.2	21.8	2.4

3
4



1

Table 8 – 2009/2008 Variance Explanations Schedules 6 to 10

Service Description	2009/2008 Variance \$	Variance %	Explanation
Schedule 6 – Legal, Corporate Admin, Regulatory Affairs	141,730	25.6	The 2009 costs reflect an increase in services provided by the Legal and Regulatory Affairs department in the preceding year. As a result, the allocation to HOL was increased from 52 percent to 70 percent.
Schedule 7 – Finance, Internal Audit and Risk Management	918,618	100.8	The 2009 costs reflect the addition of an Enterprise Risk Management and Audit function to HOHI services, along with the transfer of six Finance staff from HOL to HOHI. Further, the allocation to HOL was increased from 52 percent to 60 percent, to reflect an increase in services provided.
Schedule 8 - Human Resources, Safety and Environment	82,460	19.6	The 2009 costs reflect an increase in services provided by Human Resources, Safety and Environment, based upon the previous year. As a result, the allocation to HOL increased from 70% to 94%.
Schedule 9 - Corporate Communications	137,621	119.1	The 2009 costs reflect the transfer of a Communications position to HOHI. Further, the allocation to HOL was increased from 22% to 30% to reflect an increase in services provided.
Schedule 10 - Management Services	351,571	135.8	The 2009 costs reflect increased costs associated with the provision of management services. The associated cost allocation remained the same at 41 percent.

2

3



1

Table 9 – 2010/2009 Variance Explanations Schedules 6 to 10

Service Description	2010/2009 Variance \$	Variance %	Explanation
Schedule 6 – Legal, Corporate Admin, Regulatory Affairs	(45,145)	(6.4)	Estimated amount of legal costs are budgeted lower in 2010 compared to 2009
Schedule 7 – Finance, Internal Audit and Risk Management	640,261	35.0	Addition of Manager of Business Development, Supervisor of Treasury and Executive Assistant to Holding Company in 2010. The 2009 amounts do not reflect a full year of Risk Management and Internal Audit services as well as increased consulting services.
Schedule 8 - Human Resources, Safety and Environment	186,421	37.0	Addition of Manager of Human Resources. Higher budgeted costs for compensation-related studies.
Schedule 9 - Corporate Communications	16,875	6.7	Transfer of Manager from HOL to HOHI mid-2009; annualized expenses in 2010 resulted in increased costs
Schedule 10 - Management Services	49,588	8.1	Increase in Management Services provided to HOL as well as the addition of the Chief Information Officer in 2010.

2



Interrogatory

QUESTION #6

- Reference: i) Exhibit A1, Tab 7, Schedule 1, page 2
ii) Exhibit A1, Tab 7, Schedule 3, page 3 and Attachment D

Preamble: Reference (i) indicates that Hydro Ottawa maintains its own operational departments for regulatory affairs, finance, human resources and communications. However, Reference (ii) indicates significant charges in these areas from the Holding Company.

- a) Please provide an organizational chart for Hydro Ottawa that shows the number of employees working in the various operational departments noted.
- b) Please explain fully why the services charged from the Holding Company in these areas are not provided by the operational departments within Hydro Ottawa.

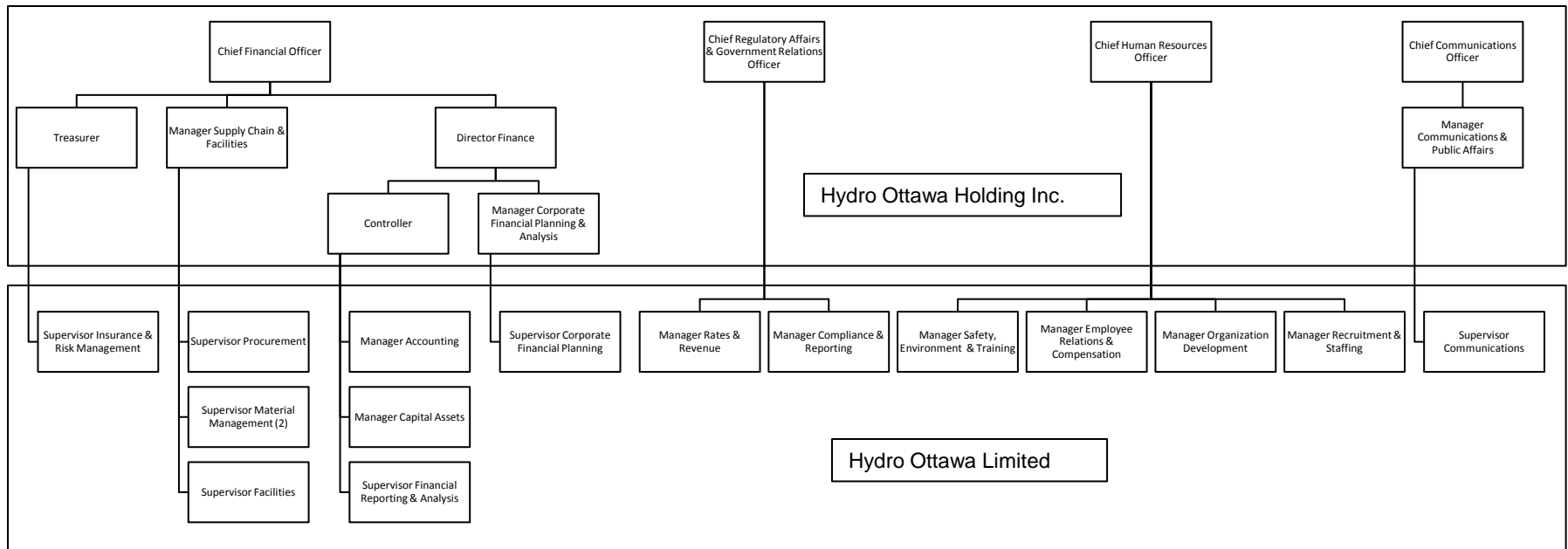
Response

- a) Attachment 1 shows the reporting relationship for the most senior staff in Hydro Ottawa Limited related to the shared corporate services functions of Finance, Regulatory Affairs, Human Resources and Communications.
- b) As shown in Attachment 1, the most senior staff within Hydro Ottawa Limited for the functions of Finance, Regulatory Affairs, Human Resources and Communications are either Managers or Supervisors. They are responsible for operational issues or are in functions that only involve the regulated company. Costs associated with the Holding Company staff within these functions are allocated to Hydro Ottawa Limited through service level agreements that are summarized in Exhibit A1-7-3, and the percentage of costs allocated is shown in Exhibit D1-2-1 Attachment W.



1 Hydro Ottawa has structured this way to avoid confusion created by duplication of
2 senior responsibilities between Hydro Ottawa Holding Inc. and Hydro Ottawa
3 Limited, and to minimize costs. These functions are all defined as Shared Corporate
4 Services in the Affiliate Relationships Code for Electricity Distributors and
5 Transmitters.

Attachment 1 – Hydro Ottawa Limited Management Structure for Finance, Regulatory Affairs, Human Resources and Communications





1 **Interrogatory**

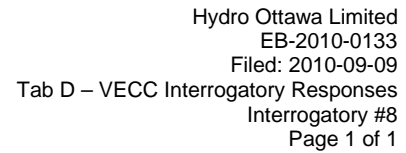
2
3 **QUESTION #7**

4
5 Reference: Exhibit A1, Tab 7, Schedule 3, Attachments C and E

- 6
7 a) Please explain why the Human Resource charges to Hydro Ottawa Holding are
8 based on \$3,332 per employee while those to Energy Ottawa are based on \$2,797
9 per employee.
10
11 b) With respect to the hourly rate (\$62) used for Generation Services to Energy Ottawa,
12 please provide a work up of the rate indicating what is included over and above the
13 base labour rate, e.g., allowances for indirect supervision, overheads, etc..
14

15 **Response**

- 16
17 a) Hydro Ottawa Holding Inc. receives additional Human Resources services beyond
18 what are provided to Energy Ottawa, thereby, increasing the cost per employee.
19 Calculation details are provided in SEC #5c.
20
21 b) The Service Level Agreement that was signed was based on an hourly rate of \$62.
22 A subsequent true-up of actual costs increased the hourly rate of providing
23 Generation Services to Energy Ottawa to \$64. This amount is derived from a base
24 salary rate of \$38.31 per hour, factored by a productivity rate of 72.5 percent which
25 equals \$52.84 per hour. Benefits calculated at \$8.04 per hour and Overheads
26 calculated at \$3.12 per hour are added, bringing the chargeable rate to \$64.
27



QUESTION #8

a) Please provide the business cases that support Hydro Ottawa's purchase of the Richmond South DS and the Fallowfield DS from Hydro One.

b) If not addressed in the response to part (a), please provide a schedule that contrasts the reduced LV charges from Hydro One due to these purchases with the increase in distribution revenue requirement for 2011 arising from Hydro Ottawa's ownership of these facilities.

a) The business case that supports Hydro Ottawa's purchase of the Richmond South DS and the Fallowfield DS from Hydro One is attached.

b) Section 3 – ‘Provide lower overall costs to customers under Benefits for Hydro Ottawa’ of the attached business case addresses the issue of the Low Voltage Costs.

Business Case
Purchase of Fallowfield DS and Richmond South DS

Hydro Ottawa Ltd.

July 9th, 2008

Rev. 9.0

Executive Summary

The Distribution Asset Management group have identified within their System Capacity Study, the need for additional substation capacity in the area south of the NCC Greenbelt within the next 5 years. This area, bordered by the Rideau River to the east, Fallowfield Rd. to the north, and Eagleson Rd. to the west, has been targeted by the City of Ottawa for new development, which will result in high electrical load growth within this area of the City.

To meet present and future loading, a new station labeled South Nepean TS is required in 2012 as part of the 5-year capital plan. Despite the urgent need, realistic schedules would likely result in an in service date of 2015. It will require acquisition of property and a new transmission corridor to allow Hydro One to feed the station. There are substantial risks and uncertainties associated with the financial planning and scheduling of this project due land acquisition by Hydro Ottawa for a station facility as well as transmission corridor land acquisitions by Hydro One. The timing of the project is critical with respect to allowing Hydro Ottawa to continue to supply the customer base in a reliable and efficient manner. Delays would require additional capital expenditures on a series of short-term temporary solutions until a new station is brought into service.

The existing Fallowfield DS and Richmond South DS stations are currently owned and operated by Hydro One and exclusively serve over 12,000 Hydro Ottawa customers in this area. Hydro One has extended an offer to sell both substations to Hydro Ottawa Ltd. for \$2.83M. The acquisition of the Hydro One facilities provides Hydro Ottawa Ltd. with a strategic opportunity to meet the present and future load growth requirements south of the NCC Greenbelt, while managing the potential lead times associated with acquiring new facilities.

There are currently two alternatives available to Hydro Ottawa Ltd, build a new station or purchase and redevelop existing facilities owned by Hydro One. The discounted cash flow analysis provided in Appendix "A" shows that Hydro Ottawa Ltd will see a financial benefit of approximately \$1.50 million dollars by purchasing and developing the existing Hydro One stations as opposed to developing the new Nepean TS proposed in 2012. The financial benefit is largely influenced by the avoided costs associated with new transmission right-of-ways. Comparative to recent station construction costs the purchase price is approximately half the cost of building a new station. The option of purchasing however also carries significant intangible benefits in the form of avoiding risks associated with land purchases, transmission routing and overall project timing and in addition is in-line with Brownfield development strategies.

As well, an additional "Low Voltage Charge" (LVC), of approximately \$600,000 per year, is applied by Hydro One and passed through to Hydro Ottawa customers. With the purchase of these stations this LVC would be eliminated and replaced with a lower charge representing the return on these assets, taxes, operating and maintenance costs.

Added, intangible benefits include the potential for an increase in service reliability levels due to quicker response times during outages. Historically, the area in question has been served by Hydro One facilities, however the customer base is comprised exclusively of Hydro Ottawa customers. From a supply and reliability standpoint, outages are longer in duration due to the limited, local Hydro One presence. Based on outage duration, the Customer reliability statistics rank these facilities amongst the worst in the Hydro Ottawa system.

Within the present annual capital budget there is the ability to defer some projects in order to provide a portion of the required capital. Deferring this project (to provide funding for a Fallowfield purchase) would have minimal impact on system reliability and Customer service levels.

In requesting approval for this purchase, Hydro Ottawa will be asking that we be allowed to put the full purchase price into rate base as the benefits of this purchase to our customers are demonstrable. However, even if the Board only allows the Net Book Value to be put into rate base, the Business Case still supports Hydro Ottawa purchasing these assets.

Given the financial benefits, the ability to mitigate current and future capacity constraints, the intangible benefits and the ability to provide ongoing lower operating charges to our customers while providing them with improved service levels there is a strong recommendation to purchase these assets from Hydro One.

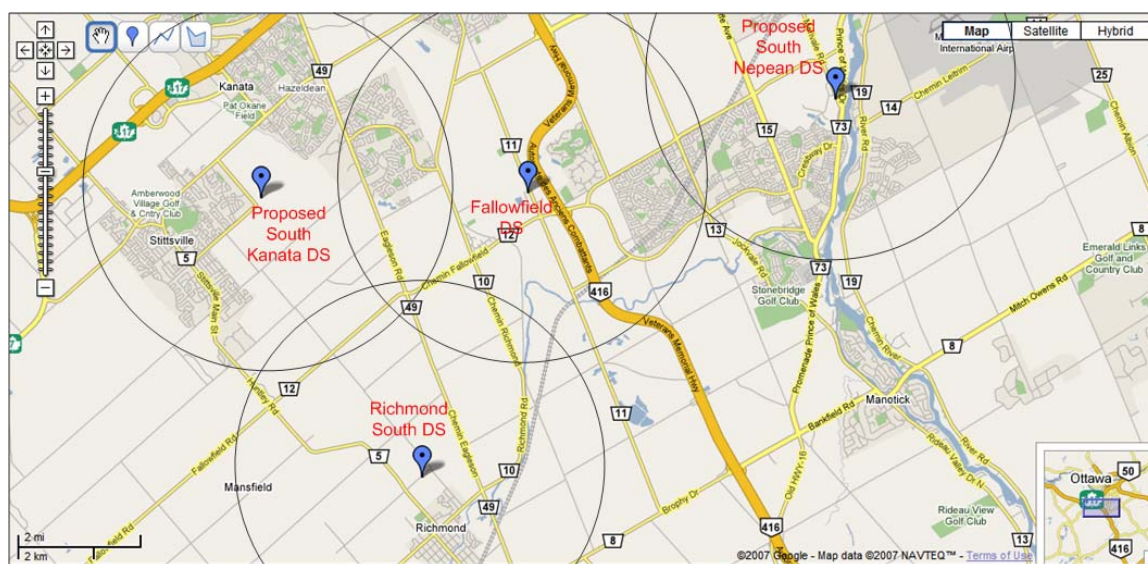
Introduction

Fallowfield DS and Richmond South DS are currently owned and operated by Hydro One and exclusively serve over 12,000 Hydro Ottawa customers. Hydro One has offered to sell these two stations to Hydro Ottawa for \$2.83M. The purpose of this Business Case is to determine whether the purchase of these two stations would be favorable for both Hydro Ottawa's shareholder and customers.

Background

The Distribution Asset Management group have identified within their System Capacity Study, the need for additional substation capacity in the area south of the NCC Greenbelt within the next 5 years. This area, bordered by the Rideau River to the east, Fallowfield Rd. to the north, and Eagleson Rd. to the west, is presently supplied from Fallowfield DS and Richmond South DS and has been targeted by the City of Ottawa for new development, which will result in high electrical load growth. The following map shows the area under study.

Figure 1 – Map of South Nepean and South Kanata



The growth in these areas is linked to the following planning initiatives from the City of Ottawa:

South Nepean

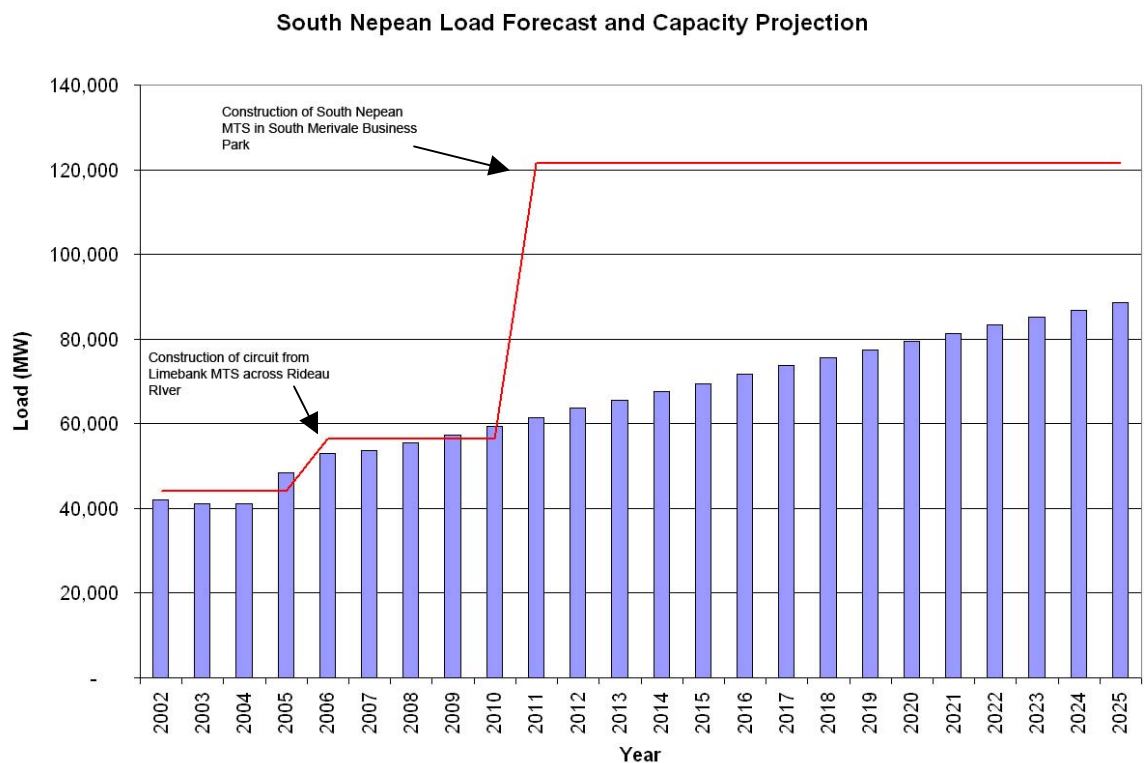
South Nepean Town Center Community Design Plan (CDP)

The South Nepean Town Center is an area of approximately 165 hectares in size located in the southern portion of the City of Ottawa's urban area. The Town Centre's northern boundary is Strandherd Drive, its western boundary is the Kennedy-Burnett Stormwater Management Facility, its eastern boundary is the future extension of Longfields Drive, and its southern boundary is the Jock River. The established residential communities of Barrhaven and Longfields surround the Town Centre to the north; the partially developed Chapman Mills community and established Heart's Desire community are adjacent to the east; the existing Stonebridge community is to the

southeast; the proposed Barrhaven South community is to the southwest; and undeveloped lands are to the west.

The large majority of the study area is currently undeveloped. The Barrhaven Town Centre and RioCan Marketplace, large-format retail projects to the west and east of Greenbank Road, respectively, have been substantially completed along Strandherd Drive and St. Joseph Secondary School was recently constructed along Greenbank Road. There are existing residences along Greenbank Road, both in the centre of the Town Centre and further south adjacent to the Jock River. Existing farm operations and commercial businesses make up the remainder of land uses within the Town Centre. The study area is largely comprised of unwooded field areas, with the exception of wooded areas immediately surrounding the Jock River. The load forecast for this area is shown in Figure 2. Growth in this area is anticipated to continue at a high rate. The load forecast for this area is shown in Figure 2 (blue represents load growth, red represents installed and potential capacity when the South Nepean station is built).

Figure 2 – South Nepean Load Forecast and Capacity Projection¹



Using single contingency analysis consisting of the loss of the largest supply unit, new station capacity is required to meet the demands of expected load growth over the next 20 years in this area. To date, capacity relief has been in the form of new distribution circuits across the Rideau River (2006) to enable short-term load transfers. Long-term capacity relief is currently planned in the form of a new station (South Nepean), required to be on-line by 2011. Despite the urgent need, realistic schedules would mean a probable in-service date of 2015.

¹ Note – Capacity is required by 2010

South Kanata

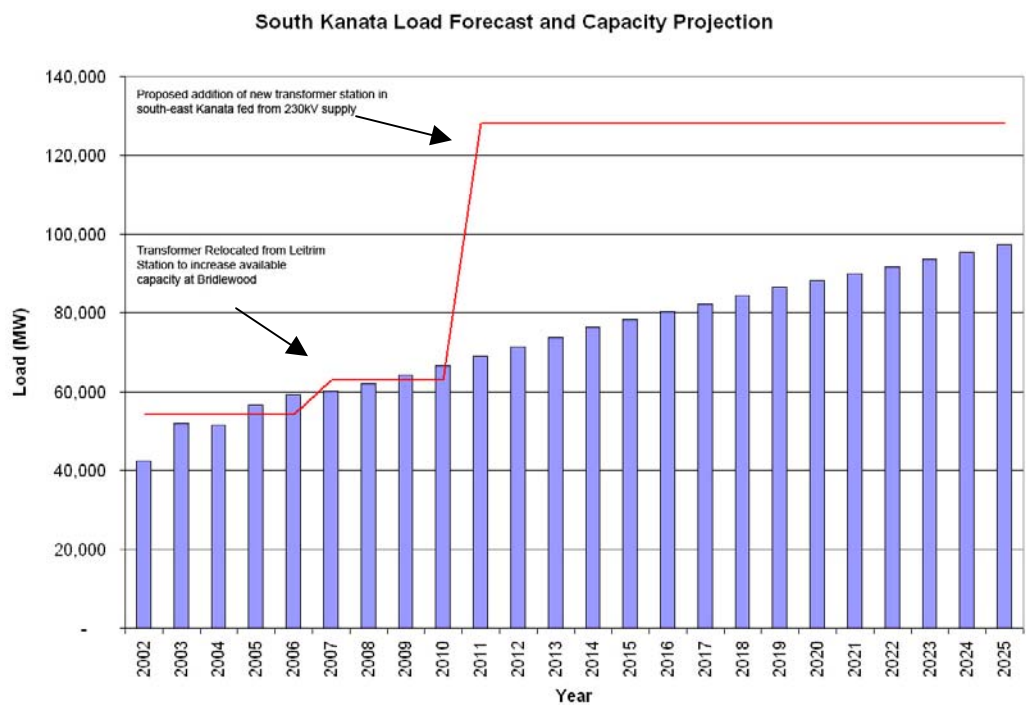
Fernbank Community Design Plan (CDP)

The study area encompasses approximately 650 hectares (1,600 acres) of land between the established communities of Stittsville, Kanata West and Kanata South, extending south to Fernbank Road, within the west urban area of the City of Ottawa.

The objective of the Fernbank CDP is to create a vision of the development that provides new opportunities to live, work and play in the growing western edge of the City. The Fernbank CDP is representative of newer urban planning initiatives by the City of Ottawa, which incorporate higher density residential developments mixed with small commercial developments

It is anticipated that the electrical load generated from this development will be equivalent in nature to the Longfields (South Nepean) and Riverside South (South Gloucester) developments, i.e. mixed use with a large residential component. The load forecast for this area is shown in Figure 3 (blue represents load growth, red represents installed and potential capacity when the South Kanata station is built).

Figure 3 – South Kanata Load Forecast and Capacity Projection²



The available capacity is evaluated using a single contingency loss approach such that the contingency represents the loss of the largest supply element. Based on this evaluation, new station capacity is required to meet the demands of expected load growth over the next 20 years in this area. To date, station transformer capacity has been relocated (2007 Leitrim relocation) to this area to provide short-term relief. In addition, a significant amount of load is being supplied by

² Note – Capacity is required by 2010.

Kanata MTS, located north of Highway 417. Long-term relief is currently planned in the form of a new station (South Kanata), which is planned to be on-line by 2011.

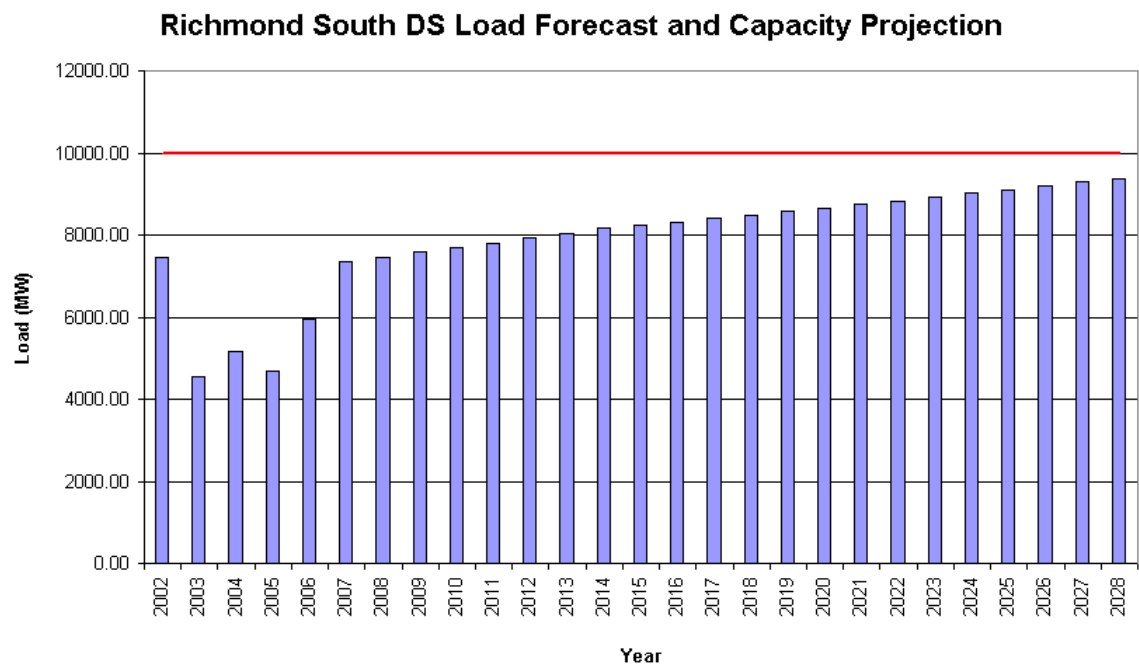
Richmond South DS

Richmond, Ashton and Munster Community Design Plan (CDP)

The existing Village Plan prepared by the former Township of Goulbourn, designated 210 hectares of land for “future development” and established that these lands be eligible for development when the population of Richmond reaches 4,500. The City estimates that the village population will exceed this number by the end of 2008.

Load growth is not expected to play a significant issue at Richmond South DS due to sparse load density, however supply reliability is an issue, in particular in Munster due to the single radial supplies into this area. The load forecast for this area is shown in Figure 4 (blue represents load growth, red represents installed capacity).

Figure 4 – Richmond South Load Forecast and Capacity Projection



Implications of Purchasing Fallowfield DS and Richmond South DS for Hydro Ottawa

The Fallowfield DS and Richmond DS are in Hydro Ottawa's service territory and both locations provide strategic land acquisitions for future capacity development and provide planning opportunities for the surrounding service areas. A significant advantage is that the properties are already served by transmission facilities.

The purchase of Fallowfield DS would delay the need for the South Nepean station until some time after 2025, based on present day load projections. In order to take full advantage of the geographical location of Fallowfield DS, some investment would be required to increase the capacity of the station and re-enforce the transmission supply to the station.

This would also allow for efficient planning of the distribution system in the southern portion of Hydro Ottawa's licensed area. Major ties between Fallowfield DS and proposed South Kanata Station would result in increased reliability and greater operating flexibility for the Bridlewood community. In addition it would also allow for significant ties with the Limebank station in Gloucester and increased re-enforcement of the Longfields/Barrhaven community.

Productivity and safety improvements will result through simpler, more efficient communication paths as presently the operation is through the Hydro One Barrie Operating center, the IESO and Hydro Ottawa. By taking ownership of these two stations, Hydro Ottawa will be in a much better position to deal with outages on the feeders that we currently own that are supplied by these facilities. Hydro Ottawa has a 24/7 staff that can get to these facilities quicker than Hydro One personnel, in order to assess any equipment failures and perform on-site switching, if required. In outages where station equipment must be checked before being brought back online, Hydro Ottawa would be dispatching crews from our Merivale site, while Hydro One would most likely be dispatching crews from either Arnprior or Perth, leading to a longer outage time.

Hydro Ottawa ownership of the two stations would also increase the productivity of planned work. Currently any projects required to improve the effectiveness of our system that may involve work to be completed in either of the two stations may be delayed until a common work schedule can be arranged between Hydro Ottawa and Hydro One. This causes delays in planned work and can affect the efficiency of the overall work process.

Benefits for Hydro Ottawa

In adding the required new station capacity, there are 3 goals that have been set:

1. To provide the lowest cost capacity option for servicing existing load and future load growth in the South Nepean area;
2. To provide the ability for Hydro Ottawa to improve the reliability of customers being served in this area;
3. To lower overall customer costs.

1-Provide the lowest cost capacity option for servicing existing load and future load growth

The following analysis compares the cost of the two alternatives to increase capacity in the study area:.

Option 1: Purchase Fallowfield DS and Richmond South DS

This option would defer the need to build a new station in south Nepean and would involve the following activities:

Total Present Worth = \$15.89 Million

	Description	Year	Cost (Present Day)
1	Purchase Stations from HONI	2008	\$2.83 M
2	Construction of building and additional civil facilities	2009 and 2010	\$2.0 M
3	Purchase new transformers	2009 and 2010	\$3.0 M
4	Purchase new switchgear	2009 and 2010	\$1.25 M
5	Purchase control and protection equipments	2010	\$500 K
6	Construction and Commissioning of station	2010	\$500 K
7	Construction of F3 distribution circuit	2010	\$750 K
8	Construction of F4 distribution circuit	2011	\$750 K
9	Construction of F5 distribution circuit	2012	\$750 K
10	Construction of F6 distribution circuit	2013	\$750 K
11	Hydro One Transmission re-enforcement	2010	\$5.0 M
12	Avoided cost of new transformer at Uplands	2017	(\$1.5 M)
13	Recloser Replacement	2018	\$500 K
14	Environmental Remediation	2010	\$250 K

A detailed discounted cash flow has been included in Appendix A.

Pursuing this option would also result in the 29MVA (115kV/27.6kV) transformer, presently installed at Fallowfield DS, to become available for installation at the Uplands MTS station and would be used to

provide back-up for the existing 115kV transformer at Uplands. Present planning initiatives for this area are forecasting that transformer capacity may be required within the next 10 years depending on the ultimate development land use of the former CFB Uplands airbase. A conservative estimate of the transformer cost is \$1.5M. If this purchase occurs in 10 years (2017) the present worth is \$850K and so is seen as a benefit to this option.

Option 2: Do Not Purchase Fallowfield DS and Richmond South DS

This option would initiate an immediate need to build a new station in south Nepean and would involve the following activities:

Total Present Worth = \$17.39M

	Description	Year	Cost (Present Day)
1	Hydro Ottawa Land purchase in Merivale business park	2011	\$1.25M
2	Construction of building and additional civil facilities	2012 and 2013	\$2.5 M
3	Purchase new transformers	2012 and 2013	\$3.0 M
4	Purchase new switchgear	2012 and 2013	\$1.25 M
5	Purchase control and protection equipments	2013	\$500 K
6	Construction and Commissioning of station	2014	\$500 K
7 ³	Construction of F1 distribution circuit along Fallowfield and Eagleson to tie in with new circuits from Kanata South TS	2015	\$750 K
8 ⁴	Construction of F2 distribution circuit along Fallowfield and Eagleson to tie in with new circuits from Kanata South TS	2016	\$750 K
9	Construction of F3 distribution circuit along Fallowfield and Eagleson to tie in with new circuits from Kanata South TS	2015	\$750 K
10	Construction of F4 distribution circuit along Fallowfield and Eagleson to tie in with new circuits from Kanata South TS	2016	\$750 K
11	Construction of F5 distribution circuit east to tie in with existing F1 and F2 circuits	2017	\$750 K
12	Construction of F6 distribution circuit east to tie in to circuits with Limebank station	2014	\$750 K
13	Hydro One Transmission re-enforcement consisting of double circuit 115kV along new transmission corridor	2015	\$12.0 M

³ Note – These costs are associated only with building a new station. Presently Fallowfield has two feeders in service and therefore these costs do not appear in the Fallowfield purchase option.

⁴ Same as Note 1

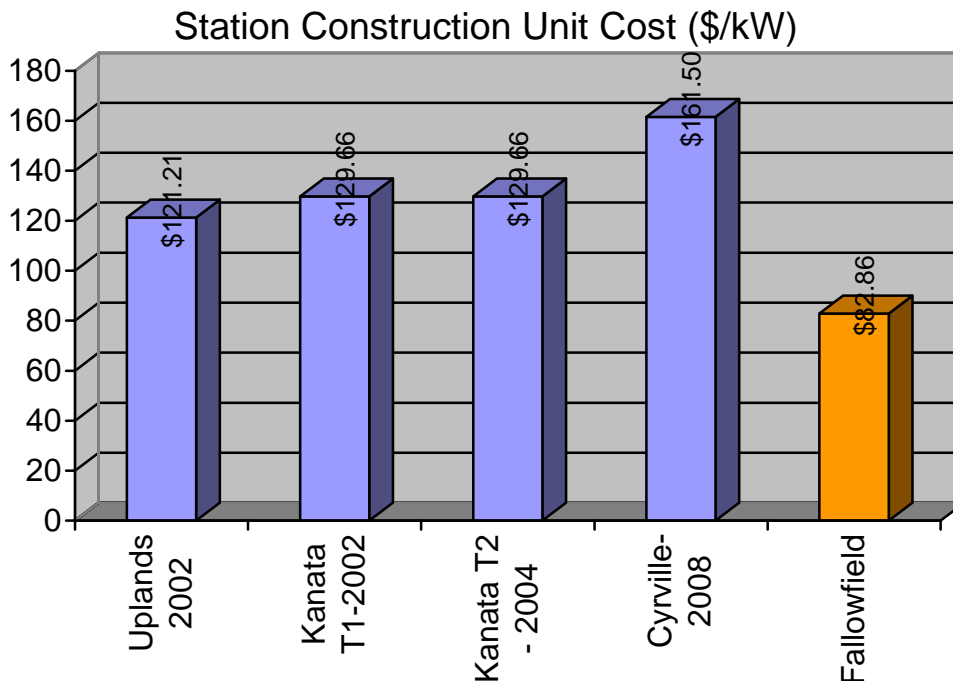
A detailed discounted cash flow has been included in Appendix A.

A significant proportion of the cost difference between the two alternatives is due to the Hydro One transmission extensions. The key reason for this variance is that there is an existing transmission right-of-way to the Fallowfield DS site (115kV), and therefore would not require any additional land purchase or new transmission construction. The new South Nepean station site would require Hydro One to purchase a new transmission right-of-way and construct a new tower line to the site. The regulatory, environmental and political hurdles for this option result in a time consuming and high-risk approach.

The above analysis shows that Hydro Ottawa would see a financial benefit of approximately \$1.50M by purchasing and developing the existing Hydro One stations, instead of developing the new South Nepean station (with an in-service date of 2015). It is possible to fund the purchase from the existing 2008 budget envelop without jeopardizing other projects or customer service.

From a historical perspective the cost of station construction has been increasing over time due to a combination of increased land value (due to recent real estate boom in the Ottawa area) as well as increased raw material costs. Specifically for Hydro Ottawa the most recent station construction costs are shown in Figure 5.

Figure 5 – Historical Station Construction Unit Costs (\$/kW)⁵



2-Provide the ability for Hydro Ottawa to improve the reliability of customers

At the present time Hydro Ottawa's two worst feeders with respect to customer outage duration are Fallowfield (606F1) and South March (A9M3), both of which are owned and under the operating control of Hydro One. The following table (ref: Hydro Ottawa Annual Reliability Report) shows

⁵ Note –No land acquisition costs were associated with the Uplands or Kanata station projects.

the “top ten” worst feeders in terms of customer reliability over the last three years. The negative impact on reliability is centered on outage restoration time. There is a delay in outage restoration due to the need for multi-party coordination between Hydro Ottawa and Hydro One owned equipment. Complete ownership of these stations would remove the multi-party coordination issues and allow for faster restoration time and a positive impact on reliability.

Worst Feeder Analysis									
For Years : 2005 to 2007									
Weighting Factors ---> .5 .1 .1 .3									
Circuit	CustHours	CustHrsScore	# Customers	# Custs Score	Duration	DurScore	Events	EventScore	Total Score
606F1	37737	50.0%	54621	10.0%	537	2.0%	22	13.2%	75.2%
A9M3	35135	46.6%	52368	9.6%	628	2.4%	13	7.8%	66.3%
77M6	21027	27.9%	50343	9.2%	1122	4.3%	35	21.0%	62.3%
624F1	27222	36.1%	35282	6.5%	322	1.2%	18	10.8%	54.6%
49F2	14643	19.4%	16921	3.1%	1925	7.3%	40	24.0%	53.8%
MWDF3	9431	12.5%	11124	2.0%	2630	10.0%	46	27.6%	52.1%
77M5	16463	21.8%	40405	7.4%	482	1.8%	24	14.4%	45.4%
77M2	15093	20.0%	27475	5.0%	839	3.2%	28	16.8%	45.0%
22M23	19521	25.9%	42247	7.7%	465	1.8%	14	8.4%	43.8%
TD01	5084	6.7%	5163	0.9%	514	2.0%	50	30.0%	39.6%

3-Provide lower overall cost to customers

Presently, for load fed out of Fallowfield DS and Richmond South DS, there exists an additional "Low Voltage Charge (LVC)", of approximately \$600,000 per year. This charge is applied by Hydro One and passed through to Hydro Ottawa customers. With the purchase of these stations, this LVC would be eliminated and replaced with a lower charge representing the return on these assets, taxes, operating, and maintenance costs.

Table 1 and 2 shows the overall impact on customer costs. Table 1 represents the total present value of the charges that would be collected by the utility. Table 2 represents these costs on an annualized basis.

Table 1 – Impact on Customer Costs (25 Year Horizon)

NPV	Buy Fallowfield & Richmond	Build South Nepean
LV Charges ¹	\$0.0 M	\$8.6 M
Return on other Investments	\$17.7 M	\$18.9 M
Total	\$17.7 M	\$27.5 M

¹ Assuming that no load is transferred from Fallowfield and Richmond when South Nepean is built.

Table 2 – Impact on Customer Costs (Annualized)

Average Annual Cost	Buy Fallowfield & Richmond	Build South Nepean
LV Charges ¹	\$0	\$696
Return on other Investments	\$1,192	\$1,438
Total	\$1,192	\$2,134

Over twenty-five years, the average annual cost to customers for the option of purchasing the Fallowfield and Richmond DSs is 44% less than the option of building the Nepean South Station, representing a net present value of almost \$10M.

Regulatory Considerations

Ontario Energy Board

Under Section 86(1)(b) of the *Ontario Energy Board Act, 1998*, the Ontario Energy Board (the Board) must approve the sale of these assets and the assets must be deemed to be distribution assets by the OEB so that they can be placed in Hydro Ottawa's rate base.

Hydro One has indicated that the sale price of \$2.83M represents the Market Value of the assets to be sold which is the Net Book Value of \$1.7M plus future revenue. In the past the Board has not allowed goodwill to be put into rate base and hence earn a return. In requesting approval for this purchase, Hydro Ottawa will be asking that we be allowed to put the full purchase price into rate base as the benefits of this purchase to our customers are demonstrable. However, even if the Board only allows the Net Book Value to be put into rate base, the Business Case still supports Hydro Ottawa purchasing these assets.

Minister of the Environment

All sales or transfer of lands would be required to comply with Provincial Regulations which need to be identified by Hydro Ottawa Ltd.

In preparation for the potential acquisition of these sites, Hydro Ottawa Ltd. retained Jacques Whitford in November 2006 to perform a due diligence inspection and prepare a Phase 1 Environmental Assessment for both sites. The Assessment consisted of reviews of environmental databases and records (ECO LOG ERIS Environmental Risk Information Service), a historical record review, site visits and interviews. This also included a review of a 2002 Phase II Environmental Site Assessment report undertaken by AEON Management Inc. for Hydro One Networks.

For the Fallowfield DS site, the Phase 1 Environmental Assessment has revealed no evidence of environmental contamination.

For the Richmond South DS site, the AEON Management Inc. report from 2002 indicated that there is approximately 2000 m³ of soil (back fill, non-native soil) that contains arsenic levels that exceed the Minister of Environment industrial and commercial land use standards for potable groundwater. Presently there are no requirements to remediate the site conditions, however, Hydro Ottawa Ltd. may be required to take corrective action in the future. For the purposes of clarity, we have allowed \$250K for environmental site remediation work for 2010.

As there have been no known oil spills or environmentally significant events at these sites it is assumed that the Environmental Assessments are accurate and that there are no leachates from these sites.

Timelines

The anticipated time schedule for the purchase of these sites is as follows.

Outcome/Deliverable	Estimated Completion
Preparation of Business Case	Week of July 7 th
COO Review	Week of July 7 th
CEO Approval	Week of July 14 th
Finalize Agreement with Hydro One	July to September
OEB Approval Process	July to September
Complete Transfer of Assets to HOL system	October

Recommendation

Given the financial benefit to the shareholder, the ability to mitigate current and future capacity constraints in both south Nepean and south Kanata and the opportunity to provide ongoing lower operating charges to our customers while providing them with improved service levels, it is strongly recommended that Hydro Ottawa purchases Fallowfield DS and Richmond South DS from Hydro One. Funding for the purchase is to come from the existing 2008 budget (Uplands MTS expansion \$1.28M in Distribution Sustainment and \$950K in General Plant).

Appendix A – Detailed Financial Cash Flows

Option 1 – Purchase Fallowfield and Richmond DS

Period	TODAY'S COST	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Year		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Discount Rate		6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
PW F		1.00	0.94	0.88	0.83	0.78	0.73	0.69	0.64	0.60	0.57	0.53	0.50	0.47	0.44	0.41	0.39	0.37	0.34	0.32	0.30	0.28
Purchase Fallowfield and Richmond South																						
Purchase Stations from HONI	\$ 2.83	\$ 2.83																				
General Plant Investments																						
Land Purchase																						
Facilities Construction	\$ 2.00		\$ 1.41	\$ 0.44																		
Sustainment Capital Investments (at Fallowfield Station)																						
Transformer	\$ 3.00		\$ 1.41	\$ 1.32																		
Switchgear	\$ 1.25		\$ 0.59	\$ 0.55																		
Protection and Control	\$ 0.50			\$ 0.44																		
Construction and Commissioning	\$ 0.50			\$ 0.44																		
Distribution Feeders (F3)	\$ 0.75			\$ 0.66																		
Distribution Feeders (F4)	\$ 0.75				\$ 0.62																	
Distribution Feeders (F5)	\$ 0.75					\$ 0.58																
Distribution Feeders (F6)	\$ 0.75						\$ 0.55															
Hydro One Transmission (double circuit existing ROW)	\$ 5.00			\$ 4.41																		
Future Transformer purchase deferment	\$ (1.50)										\$ (0.85)											
Sustainment Capital Investments (at Richmond Station)																						
Recloser Replacement	\$ 0.50											\$ 0.27										
Environmental Remediation	\$ 0.25			\$ 0.22																		
Total		\$ 2.83	\$ 3.40	\$ 8.49	\$ 0.62	\$ 0.58	\$ 0.55	\$ -	\$ -	\$ -	\$ (0.85)	\$ 0.27	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total PV	\$ 15.89																					

Option 2 – Do Not Purchase Fallowfield DS and Richmond South DS

Period	TODAY'S COST	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Year		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Discount Rate		6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
PWF		1.00	0.94	0.88	0.83	0.78	0.73	0.69	0.64	0.60	0.57	0.53	0.50	0.47	0.44	0.41	0.39	0.37	0.34	0.32	0.30
Develop New Station (Nepean South)																					
Purchase Stations from HONI																					
General Plant Investments																					
Land Purchase	\$ 1.25				\$ 1.03																
Facilities Construction	\$ 2.50					\$ 1.46	\$ 0.46														
Sustainment Capital Invesements																					
Transformer	\$ 3.00					\$ 1.17	\$ 1.09														
Switchgear	\$ 1.25					\$ 0.49	\$ 0.46														
Protection and Control	\$ 0.50						\$ 0.36														
Construction and Commissioning	\$ 0.50							\$ 0.34													
Distribution Feeders (F1)	\$ 0.75								\$ 0.48												
Distribution Feeders (F2)	\$ 0.75									\$ 0.45											
Distribution Feeders (F3)	\$ 0.75								\$ 0.48												
Distribution Feeders (F4)	\$ 0.75									\$ 0.45											
Distribution Feeders (F5)	\$ 0.75										\$ 0.43										
Distribution Feeders (F6)	\$ 0.75							\$ 0.51													
Hydro One Transmission Circuits	\$ 12.00								\$ 7.72												
Total		\$ -	\$ -	\$ -	\$ 1.03	\$ 3.11	\$ 2.37	\$ 0.86	\$ 8.68	\$ 0.90	\$ 0.43	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total PV	\$ 17.39																				



Interrogatory

QUESTION #9

Reference: Exhibit A2, Tab 1, Schedule 2

a) Please provide a schedule that sets out the calculation of the “Revenue with 2011 Load at 2010 Rates” showing the load, rates and revenues by customer class.

b) Please provide a breakdown, by customer class, of the \$1,171,602 “cost” for the transformer ownership credit.

Response

a) The schedule that sets out the calculation of the “Revenue with 2011 Load at 2010 Rates” is the EDR Model attached to Exhibit H1-2-1, Attachment AH. The loads are shown on page 36 (Sheet 6-2), the rates on page 39 (Sheet 10-1) and the revenues on page 40 (Sheet 10-4).

b) The Transformer Ownership Credit of \$1,171,602 breaks down by customer class as follows:

General Service 50 – 1,499 kW	\$306,358
General Service 1,500 – 4,999 kW	\$418,164
Large Use	\$447,080
Total	\$1,171,602



Interrogatory

QUESTION #10

Reference: Exhibit A2, Tab 2, Schedule 2

Reference is made in budget guidelines provided to the Board of Directors (page 2) to the achievement of a productivity factor.

- a) What are the productivity factors incorporated in the budget for 2010 and 2011?
- b) What Initiatives is Hydro Ottawa undertaking to achieve these productivity improvements?
- c) What plans does Hydro Ottawa have to track the actual achievement of its planned productivity gains?

Response

- a) A \$1.1M productivity factor has been incorporated in the budget for 2010 and a \$1.0M productivity factor has been incorporated in the budget for 2011.
- b) Initiatives to achieve these productivity factors include in-house training and the Lean program to eliminate non-value added activities and costs. Lean is a major initiative for Hydro Ottawa aimed at the review of internal processes to ensure that all activities are aligned to common goals and are being performed in the most efficient manner.
- c) Planned productivity gains are incorporated in the budget and Hydro Ottawa is tracking the actual achievement against budget.



Interrogatory

QUESTION #11

Reference: Exhibit A2, Tab 2, Schedule 3

a) Please provide a schedule that sets out those changes in accounting methodology that have an impact on the determination of the 2011 revenue requirement (when compared to the practices employed in the determination of the 2008 OEB approved rates). In each case, please identify the impact on the 2011 revenue requirement.

Response

a) The only change in accounting methodology that has an impact on the determination of the 2011 revenue requirement (when compared to the practices employed in the determination of the 2008 Ontario Energy Board approved rates) is the introduction of the Asset Retirement Obligation at the end of 2009. Full details are provided in the response to OEB #20. The impact on the 2011 revenue is approximately \$317k.



1 **Interrogatory**

2
3 **QUESTION #12**

4
5 Reference: Exhibit A3, Tab 4, Schedule 1, Attachment N

6
7 a) With respect to Table 1 on page 6, please confirm whether or not Hydro Ottawa
8 agrees with the values set out in the table. Please correct/revise any values as
9 required.

10
11 b) With respect to Table 1 on page 6, please update for the 2009 actual ROE and
12 provide a line for 2010 setting out the expected results based on Hydro Ottawa's
13 current forecast.

14
15 **Response**

16
17 a) Hydro Ottawa agrees with the values in Exhibit A3-4-1, Attachment N as per the
18 methodology and calculation adjustments noted and performed by Standard &
19 Poor's.

20
21 b) Standard & Poor's has not yet completed its review and reporting based on the
22 2009 results, but following their calculation methodology, Hydro Ottawa estimates
23 the Return on Equity ("ROE") for 2009 to be 10.7% and based on the 2010 proforma
24 financial statements in Exhibit A3-2-1, This includes the results from conservation
25 and demand management activities that are separate from the distribution business.
26 In Attachments K & L, the estimated ROE for 2010 is 8.9%.



Interrogatory

QUESTION #13

Reference: Exhibit B1, Tab 2, Schedule 1

- a) Please provide the 10-year winter and summer peak demand forecast used for the supply and capacity planning underpinning the current Application.
- b) Please break the forecast down by i) electricity supply area and ii) by substation. In the case of the substation forecasts please also include the current capacity of each substation and the capacity that can be supplied under an N-1 contingency.
- c) Do the area and substation peak load forecasts used in the Asset Management Plan reflect the impact of the distribute generation development anticipated in the Ottawa area (per Attachment P)? If not, which projects are most likely to be impacted by the development of local distributed generation?

Response

- a) While Hydro Ottawa does have an econometric load growth model which is used for load forecasting, it has not been applied for planning purposes as it is based on average weather (and planning must consider peaks), and is based on too broad of a geographical area to provide guidance for planning process. Forecasts used in the planning process have focused on smaller, substation and regional supply areas. These forecasts are summarized in the response to part b).
- b) The 10 Year forecast is summarized in Table 1. The capacity values included are as of January 2010. Hydro Ottawa's distribution system experiences peak values during the summer, so summer peak demand values were used during capacity planning. Winter peaks were not considered.



1

Table 1 – Capacity Forecasts (MVA)

	2009	2010	2011	2015	2020	Capacity	N-1 Capacity
Central	682	695	709	768	849	1,236	692
4.16 kV System	71	72	73	76	80	178	114
Augusta UD	5	5	5	5	6	15	8
Bronson SB	17	17	17	18	19	30	23
Cambridge AM	5	5	5	5	5	10	5
Florence UF	5	5	6	6	6	20	13
Gladstone UX	11	11	11	12	12	23	15
Henderson UN	7	7	7	8	8	15	10
King Edward SK	5	5	6	6	6	15	10
Nepean AB	6	6	6	6	6	13	7
Riverdale SR	7	7	7	7	8	15	10
Slater SA	3	3	4	4	4	23	15
8.32 kV System	189	193	197	213	237	324	145
Barrhaven DS	14	15	15	16	18	18	9
Bayshore DS	11	12	12	13	14	23	10
Bells Corner DS	6	6	6	7	7	16	8
Borden Farms DS	16	16	16	18	19	21	8
CentrepoinTE DS	22	23	23	25	28	39	14
Epworth DS	16	17	17	18	20	28	14
Jockvale DS	16	17	17	18	20	27	13
Manordale DS	12	13	13	14	15	24	10
Merivale DS	13	13	13	14	15	20	10
Parkwood Hills	15	15	15	17	18	28	14
QCH	8	8	8	9	9	18	9
Rideau Heights DS	17	18	19	23	29	27	13
Stafford Road DS	17	17	18	18	19	28	14



	2009	2010	2011	2015	2020	Capacity	N-1 Capacity
Woodroffe DS	4	4	4	5	5	9	0
13.2 kV System	377	384	392	424	468	678	418
King Edward SK	84	85	87	94	104	180	80
Lisgar TL	70	71	73	78	87	150	83
Riverdale TR	80	81	83	90	99	150	121
Slater TS	144	146	149	162	178	198	134
27.6 kV System	45	46	48	54	65	56	15
Fallowfield DS	25	26	27	33	42	25	0
Longfields	20	20	21	21	23	31	15
East	650	663	676	731	811	891	614
4.16 kV System	125	127	128	134	141	288	179
Albion UA	11	11	11	11	12	20	13
Bantree AL	6	6	6	7	7	23	15
Beechwood UB	5	5	6	6	6	11	5
Brookfield AF	7	7	7	8	8	15	10
Cahill AN	7	7	8	8	9	15	8
Church AA	5	5	5	5	5	15	8
Dagmar AC	9	9	9	9	10	18	10
Eastview UT	7	7	7	7	7	15	10
Kilborn UP	6	6	6	6	7	10	5
Langs Road AP	5	5	5	5	5	15	8
McCarthy AQ	8	8	9	9	9	20	13
Overbrook SO	11	11	12	12	13	27	20
Playfair AJ	5	6	6	6	6	13	7
Queens UQ	6	6	6	6	6	15	10



	2009	2010	2011	2015	2020	Capacity	N-1 Capacity
Urbandale AE	9	9	9	9	10	15	10
Vaughan UG	9	9	10	10	10	22	14
Walkley UZ	9	10	10	10	10	20	13
8.32 kV System	51	51	52	56	62	95	50
Beaconhill MS	14	14	15	16	18	26	13
Blackburn MS	11	12	12	13	14	25	13
Casselman MS	9	10	10	10	10	20	13
Startop MS	16	16	16	18	20	25	12
13.2 kV System	283	286	288	300	315	255	255
Albion TA	119	120	121	126	133	96	96
Overbrook TO	81	82	82	86	90	80	80
Russell TB	83	84	85	88	93	78	78
27.6kV System	192	199	207	241	293	254	130
Bilberry TS	61	63	65	73	84	64	64
Leitrim MS	20	21	22	27	34	25	0
Limebank MS	33	35	37	45	57	66	33
Moulton MS	47	48	49	56	64	66	33
Uplands MS	31	33	34	41	53	33	0
West	282	293	304	354	431	499	286
4.16 kV System	68	68	69	72	76	177	116
Bayswater UJ	6	6	6	6	6	15	10
Carling SM	11	12	12	12	13	30	23
Clifton UL	7	7	7	8	8	15	10
Clyde UC	6	6	6	6	6	23	15



	2009	2010	2011	2015	2020	Capacity	N-1 Capacity
Edwin UV	6	6	6	6	7	15	10
Fisher AK	11	11	11	11	12	23	15
Hillcrest AH	5	5	5	6	6	15	10
Holland SH	5	5	5	5	5	13	7
Shillington AD	5	5	5	5	5	13	7
Woodroffe UW	6	6	7	7	7	15	10
8.32 kV System	22	22	23	26	30	45	14
Bridlewood MS	8	8	8	9	11	23	11
Janet King DS	2	2	2	2	2	5	2
Munster DS	3	3	3	3	3	5	0
Richmond North DS	5	5	5	6	7	5	0
Richmond South DS	5	5	5	6	8	7	0
12.43 kV System	10	10	10	11	12	36	22
Beaverbrook MS	5	5	5	5	6	16	10
South March MS	5	5	5	6	6	20	12
27.6 kV System	183	192	202	245	313	241	135
Alexander DS	34	35	37	45	57	33	17
Bridlewood 28	43	45	48	58	74	58	25
Kanata MTS	66	69	73	88	113	83	61
Marchwood MS	40	42	44	54	69	66	33
Grand Total	1,615	1,651	1,689	1,853	2,091	2,626	1,592

- 1
- 2 c) Currently most of the proposals on Hydro Ottawa's feeders are photovoltaic
- 3 generation. Due to the variable nature of photovoltaic generation, the additional
- 4 supply capacity cannot be considered for planning purposes, and therefore will not
- 5 impact planned capital work at this time. If sufficiently large generation is attached to



- 1 the system, Hydro Ottawa will monitor the output for a minimum of three years to
- 2 determine if the added capacity meets the minimum reliability requirements for it to
- 3 be considered as a source in system planning.



1 **Interrogatory**

2
3 **QUESTION #14**

4
5 Reference: Exhibit B1, Tab 2, Schedule 2, Attachment O, Table 40

6
7 a) Please provide a revised version of Table 40 that sets out actual spending for the
8 years 2008 and 2009 and forecast spending for 2010 – 2013.

9
10 **Response**

11
12 a) Table 40 has been updated to include 2008 actual expenditures, 2009 actual
13 expenditures and 2010 forecast expenditures. The 2010 forecast is based on
14 January through June actual expenditures and July through to year end forecast
15 expenditures. Actual expenditures in 2008 and 2009 indicated as “in misc” are
16 included in the miscellaneous expenditures line, as they were in the application.
17
18 Exhibit B4-7-1 provides the budgeted expenditures for 2012 and 2013, as does
19 Table 40. The budgets for years 2011 and beyond have not been revised in the
20 Revised Table 40. Reconciliation of the discrepancies between the values in the two
21 tables is explained in the response to VECC #33b.



1 **Table 40 Revised, (\$000)**

Budget Program	2008 Actual	2009 Actual	2010 Forecast	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Planned Pole Replacement	\$1,644	\$2,702	\$3,431	\$7,249	\$12,446	\$12,500	\$12,750	\$13,000	\$16,000	\$16,800	\$17,640	\$18,522	\$19,448
Insulator Replacement Program	\$916	\$341	\$298	\$255	\$226	\$225	\$225	\$225	\$50	\$53	\$55	\$58	\$61
Elbow and Insert Replacement	0	In Misc	\$459	\$272	\$281	\$298	\$220	\$224	\$25	\$24	\$23	\$21	\$20
Dist. Transformer Replacement	\$1,111	\$2,655	\$2,131	\$2,529	\$2,445	\$2,174	\$789	\$232	\$300	\$315	\$331	\$347	\$365
Station Enhancements	\$1,140	\$1,818	\$2,187	\$752	\$1,164	\$1,069	\$1,100	\$1,111	\$1,122	\$1,133	\$1,145	\$1,156	\$1,168
SCADA Upgrades	\$367	In Misc	\$50	\$1,125	\$730	\$471	\$469	\$550	\$550	\$550	\$550	\$550	\$556
SCADA - RTU Additions	\$523	\$582	\$221	\$76	\$58	\$75	\$77	\$78	\$80	\$81	\$83	\$84	\$86
Distribution Automation	\$261	In Misc	\$283	\$766	\$750	\$758	\$765	\$773	\$780	\$788	\$796	\$804	\$812
Dist. Plant Misc Sus	In Misc	In Misc	\$1,273	\$1,231	\$1,231	\$1,231	\$1,231	\$1,255	\$1,280	\$1,306	\$1,332	\$1,359	\$1,386
Civil Rehabilitation Program	In Misc	In Misc	\$281	\$601	\$606	\$527	\$501	\$75	\$76	\$77	\$77	\$78	\$79
Cable Replacement	\$2,332	\$3,110	\$2,535	\$2,337	\$2,618	\$2,851	\$3,144	\$3,176	\$3,207	\$3,239	\$3,272	\$3,304	\$3,338
Switchgear New and Rehab	\$460	\$100	\$806	\$351	\$720	\$595	\$586	\$600	\$606	\$612	\$618	\$624	\$631
O/H Equipment New and Rehab	\$142	\$227	\$439	\$348	\$274	\$226	\$117	\$150	\$150	\$152	\$153	\$155	\$156
Line Extensions	\$1,096	\$1,155	\$1,354	\$5,513	\$7,194	\$6,000	\$5,000	\$5,100	\$5,202	\$5,306	\$5,412	\$5,520	\$5,631
Plant Failure Capital	\$2,960	\$2,742	\$2,608	\$2,526	\$2,519	\$2,519	\$2,519	\$2,519	\$2,519	\$2,519	\$2,519	\$2,519	\$2,519
Stations Trans. Replacement	\$374	\$1,824	\$1,574	\$1,184	\$4,719	\$6,000	\$4,500	\$7,000	\$6,250	\$6,500	\$5,000	\$5,250	\$5,500
Station Battery	\$196	In Misc	\$251	\$142	\$142	\$142	\$142	\$144	\$145	\$147	\$148	\$150	\$151
System Voltage Conversion	In Misc	\$507	\$919	\$1,360	\$1,331	\$500	\$350	\$885	\$885	\$885	\$885	\$885	\$885
System Reliability Enhancements	\$338	In Misc	\$99	\$566	\$250	\$250	\$250	\$250	\$253	\$255	\$258	\$260	\$263
Distribution Minor Enhancement	\$2,245	\$881	\$647	\$551	\$1,200	\$1,200	\$1,200	\$1,200	\$1,224	\$1,248	\$1,273	\$1,299	\$1,325
Stations Switchgear Replacement	\$6,008	\$2,810	\$3,365	\$326	\$184	\$1,952	\$3,388	\$2,500	\$1,972	\$3,421	\$2,525	\$1,991	\$3,456
Substation Automation	\$0	\$0	\$0	\$1,237	\$381	\$505	\$491	\$388	\$515	\$500	\$396	\$526	\$510
Station Relay Replacement	\$443	In Misc	\$335	\$134	\$187	\$219	\$375	\$632	\$191	\$223	\$382	\$645	\$195
Stations New Capacity	\$7,306	\$13,592	\$17,732	\$13,643	\$8,697	\$9,000	\$12,000	\$10,000	\$10,000	\$8,000	\$10,000	\$9,000	\$8,000
Station Cable Replacement	In Misc	In Misc	\$0	\$282	\$282	\$282	\$282	\$285	\$288	\$291	\$293	\$296	\$299
Stations Plant Failure	\$730	\$1,086	\$275	\$244	\$250	\$250	\$250	\$250	\$253	\$255	\$258	\$260	\$263
Miscellaneous	\$1,852	\$1,548	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$32,444	\$37,680	\$43,553	\$45,601	\$50,886	\$51,819	\$52,719	\$52,602	\$53,923	\$54,680	\$55,424	\$55,665	\$57,101



Interrogatory

QUESTION #15

Reference: Exhibit B1, Tab 2, Schedule 2, Attachment O, Section F

a) With respect to pages 55-56, how many wood poles were replaced annually over the period 2007-2009 and what number is currently budgeted for 2010 and 2011?

Please provide a breakdown as between planned and unplanned replacements and confirm that this section of the plan only deals with planned replacement whereas page 105 deals with unplanned replacements.

b) With respect Table 40, is the higher spending on insulator replacement over the 2011-2015 period (relative to that in later years) specifically meant to address the four insulator problems identified on page 62? If yes, please indicate the basis for the program spending given the acknowledged lack of information regarding these problems. If not, what is the spending for?

c) With respect to page 65, why is Hydro Ottawa scheduling the completion of its transformer replacement program in 2013 when under the Federal Regulation removal does not have to be completed until 2025?

d) With respect to pages 70-71, what was the number of pole transformers replaced annually in 2007-2009 and what is the currently budgeted number for 2010 and 2011? Please provide a breakdown between planned and unplanned replacements and confirm that this section of the Plan only deals with planned replacement whereas page 105 deals with unplanned replacements.

e) With respect to Table 40, please break the projected spending on "Distribution Transformer Replacement" down as between pole mounted and underground transformers and provide the 2007 – 2010 annual spending for each.



1 f) With respect to page 81 (first paragraph), please clarify the planned number of kiosk
2 and padmount transformers that are budgeted for replacement in 2010 and 2011 and
3 compare with the level of “planned” replacement in 2007-2009.

4
5 g) With respect to Table 40, please indicate which of the asset types discussed in
6 Attachment O are included under “Civil Rehabilitation Program”, e.g., does it just
7 cover Underground Civil Structures?

8
9 h) Please explain the significantly higher spending for the “Civil Rehabilitation Program”
10 in the earlier (2011-2014) years of the Plan.

11
12 i) The discussion of Distribution Cable (page 92) deals solely with underground cable.
13 Where in the report and in Table 40 is the sustainment spending on overhead cable
14 dealt with?

15
16 j) The discussion regarding underground cable (pages 96-97) does not indicate the
17 amount of planned replacement included in the budget. Please indicate the amount
18 of planned and unplanned underground cable replacement for the years 2007-2009
19 and the budgeted levels for 2010 and 2011.

20
21 k) With respect to “O/H Equipment New and Rehabilitation”, page 104 states that
22 projects to resolve current problems will be distributed over 5 years. However, Table
23 40 show significantly higher levels of spending in the first 3 year (2011-2013).
24 Please reconcile.

25
26 **Response**

27
28 a) A total of 727 poles were replaced from the beginning of 2007 to the end of 2009.
29 The following table shows the breakdown for each year and what program resulted in
30 the pole replacement.



Table 1 – Pole Replacements

Program		2007	2008	2009	Program Total
Planned Pole Replacement	Project Specific	192	111	151	454
	Individual Poles		24	17	41
Plant Failure Capital		12	18	31	61
System Voltage Conversion		158	0	13	171
Grand Total		368	147	212	727

The Planned Pole Replacement program accounted for 495 replacements while 61 poles were replaced due to failures and 171 replaced as part of voltage conversion projects from 2007 to 2009. Pole replacements due to voltage conversion are now accounted for under the pole replacement program.

Included in the Planned Pole Replacement program for 2010 are 233 project specific and 30 individual poles while 2011 will have 475 project specific and 30 individual poles. This section deals only with planned replacement.

- b) The higher spending is to address the four insulator problems identified on page 62. The quantities have been estimated based on the age of the areas and knowledge of typical design as well as pole quantity in those areas. Although the information available is less than ideal, the program is relatively small compared to larger programs such as pole replacements; therefore, a parametric evaluation based on previous years spending was deemed adequate in this situation.
- c) Hydro Ottawa is scheduling to complete the pole mounted transformer replacement program in 2013 despite the legislative requirement since these units are located outdoors on poles, and failure of the units could result in environmental damage and remediation costs. Removal of the units also involves special handling and transportation requirements which are easier to implement on a planned basis.



Hydro Ottawa plans to accelerate the removal of these assets from use to eliminate the risk associated with their ongoing operation.

- d) A total of 276 units were replaced by the planned pole transformer replacement between 2007 and 2009. The replacement program includes plans for 150 pole mounted units in 2010 and 250 pole mounted units in 2011.

Table 2 – Pole Mounted Transformer Replacement

	2007	2008	2009
Planned	215	1	60
Unplanned	60	60	60

This section of Attachment O deals only with planned replacement, and page 105 deals with unplanned replacements.

- e) A breakdown of distribution transformer replacement budgeted expenditures is provided in Table 3.

Table 3 – Distribution Transformer Replacement Program Plans

		2011	2012	2013	2014	2015	2016-2020
Overhead		23%	25%	24%	33%	9%	25%
Underground	Padmount/Kiosk	14%	12%	17%	51%	28%	75%
	Submersible	5%	7%	7%	17%	62%	
	Vault	58%	55%	52%	0%	0%	

Historically, distribution transformer replacement expenditures were dispersed amongst transformer types, as shown in Table 4.



Table 4 – Historic Distribution Transformer Replacement Program

	2007	2008	2009	2010
Overhead	91%	38%	8%	1%
Underground	9%	62%	92%	99%

- f) While the construction of the padmount transformers and kiosk transformers differ, functionally the two types of transformers are equivalent; they both connect to the underground system. Currently end-of-life kiosk transformers are replaced with padmount transformers. The kiosk transformers are included within the padmount transformer replacement numbers for 2010 and 2011. Under the planned replacement program, approximately 75 padmount and 10 kiosk transformers were replaced between 2007 and 2009.
- g) The Civil Rehabilitation Program includes those items included in the section of Attachment O on Underground Civil Structures.
- h) Recent inspections of civil infrastructure have identified a number of issues that must be addressed within the next few years. Once these items are corrected, the spending is expected to stabilize to the level indicated in Table 40.
- i) Overhead conductors do not experience failures in the same way as underground cable since their construction does not include any insulation layers. While specific events can lead to premature failures, they are random and rare. For this reason Hydro Ottawa does not budget or plan for overhead conduct failures and therefore the report does not contain a section dealing with sustainment spending on overhead conductors.
- Hydro Ottawa follows standard industry practice of running overhead conductors to failure. Overhead conductors may be replaced due to functional issues such as circuit capacity upgrades or storm damage, and by superseding programs such as plant relocation and upgrade.



1 j) The cable replacement spending for 2007, 2008 and 2009 was \$3.9M, \$2.3M and
2 \$3.1M respectively.

3
4 The 2010 planned cable replacement budget is \$2.1M and unplanned cable
5 replacement budget is \$74k.

6
7 The 2011 planned cable replacement budget is \$2.2M and unplanned cable
8 replacement budget is \$74k.

9
10 k) In 2011 the program will include replacement of in-line switches as well as porcelain
11 switch boxes. The inline switch replacement program will span two years and the
12 porcelain switch box replacement program will span 4 years. Starting in the 5th year,
13 2015, expenditures are planned to return to historic levels.



Interrogatory

QUESTION #16

Reference: Exhibit B1, Tab 2, Schedule 2, Attachment O, Section G

a) What is the budgeted planned replacement rate for station transformers in 2010 and 2011 and how does this compare with the actual level of planned replacement in 2007-2009.

b) Which of the transformers listed in Table 31 are schedule for “planned replacement” in 2010 and 2011?

c) Which budget program in Table 40 addresses the requirements for Station Ground Grids (pages 121-124).

d) Please indicate the budgeted 2010 and 2011 spending for Stations Ground Grids and compare with historical 2007-2009 levels.

Response

a) Station Transformer Replacement rate per year is not available as these project expenditures are typically not initiated and completed within one year. Total project budgets depend on transformer voltages, transformer MVA size, existing site conditions as well as other project specific factors.

Station Transformer Replacement actual expenditures from 2007 – 2009 (Exhibit B4-1-1), as well as budgeted expenditures for 2010 (Exhibit B4-3-1) and 2011 (Exhibit B4-4-1) are included in Table 1.



Table 1 – Station Transformer Replacement Expenditures

Budget Program	2007	2008	2009	2010	2011
Replacement Expenditures (\$000)	\$456	\$374	\$1,824	\$1,367	\$1,119
Projects	- Epworth	- Blackburn T1	- Blackburn T1 - Bronson T3 - Bronson T4 - Beacon Hill temp rebuild	- Blackburn T1 - Bronson T3 - Bronson T4	- Barrhaven T1 - Barrhaven T2

b) The station transformers scheduled for replacement in 2010 and 2011 are included in Table 2.

Table 2 – Station Transformer Replacements

Year	Station Transformers Scheduled for Replacement
2010	SBT3 (Bronson T3) (started in 2009) SBT4 (Bronson T4) (started in 2009) 4T1 (Blackburn T1) (started in 2008)
2011	140T1 (Barrhaven T1) 140T2 (Barrhaven T2)

c) The budget program 92000044 - Stations Enhancements in Table 40 addresses the requirements for Stations Ground Grids on pages 121-124.

d) The budgeted spending on Stations Ground Grids for 2010 and 2011 is shown in Table 3.

Table 3 - Budgeted Ground Grid Expenditures

Year	Item	Expenditures \$000
2010	No Surveys or Remediation projects	\$0
	TOTAL 2010 Budget	\$0
2011	12 Ground Grid Surveys	\$220
2011	Remediation at Florence and Limebank Substations	180
	TOTAL 2011 Budget	\$400



1 The station ground grid evaluation and remediation programs were initiated in 2009.
2 In 2009, six substations were evaluated.

3
4 Due to the survey results, ground grid remediation was done for Bronson, Eastview
5 and Beechwood as part of other capital projects already planned for those stations
6 (station transformer replacement and switchgear replacement), to achieve
7 efficiencies and lower overall project costs. Remediation of the Blackburn Station
8 was started in 2009 and completed in August 2010 as part of the station transformer
9 replacement project. There were no separately budgeted expenditures during 2010.

10
11 Remediation projects are planned for the Limebank and Florence Substations in
12 2011 under the station enhancements budget program. Ongoing annual
13 expenditures will be determined and prioritized based on the station evaluation
14 results.

15
16 As the remediation program was initiated in 2009, there are no costs to compare to
17 prior to 2009.



Interrogatory

QUESTION #17

Reference: Exhibit B1, Tab 2, Schedule 2, Attachment O, Section H

- a) Please provide more details on the basis for the 2% per annum increase in load projected for the east-end of the City of Ottawa (pages 132-133)? Does this projection take into account the anticipated impact of the Government's CDM targets?
- b) What is the cost for the new 230 kV substation in East Ottawa? Please confirm that the station is still expected to be in-service by the end of 2010 (B4/T3/S1, page 11).
- c) Please provide more details on the basis for the 7% per annum increase in load projected for the south-end of the City of Ottawa (page 134)? Does this projection take into account the anticipated impact of the Government's CDM targets?
- d) What is the anticipated cost for the new 115 kV substation transformer at Fallowfield DS? Please confirm that it is still expected to be in-service by year-end 2011 (B3/T3/S1, page 12).
- e) Please further clarify the basis for the projected 15% in load for the western region's stations (page 139) in the next few years? Does this projection take into account the anticipated impact of the Government's CDM targets?
- f) What is the anticipated cost for the new 230 kV substation in West Ottawa (page 143)? Please confirm that expenditures on this station do not impact the 2011 revenue requirement (B3/T3/S1, page 12).



- 1 g) Does the planned spending for either the Beacon Hill DS or the Hinchey substation
2 impact the 2011 revenue requirement?
3
- 4 h) With respect to Table 40, please provide a breakdown of the 2010 (not shown) and
5 2011 capital spending on “Stations New Capacity” by station and, in each case, note
6 when the associated facilities are assumed to be in-service for rate base purposes.
7

8 **Response**
9

- 10 a) The 2% per annum load increase for the 13kV system in the east-end of the City of
11 Ottawa is based on the loading trend of Albion TA, Overbrook TO, Russell TB and
12 Riverdale TR substations as well as a steady volume of development proposals in
13 the area. The projection did not take into account the anticipated impact of the
14 Government's Conservation and Demand Management (“CDM”) targets.
15
- 16 b) The total cost for the new 230 kV substation in East Ottawa, Ellwood, is \$18.6M.
17 The station is still expected to be in-service by the end of 2010, with minor finishing
18 work in 2011.
19
- 20 c) The 7% per annum load increase for the 28kV system in the south-end of the City of
21 Ottawa is based on the loading trend of Fallowfield DS, Leitrim MS, Limebank MS
22 and Uplands MS, as well as the development proposals in the area. From 2005 to
23 present there has been an average annual growth rate of 4% in the region and there
24 has been a steady increase in the amount of development proposals recently. This
25 projection has not taken into account the anticipated impact of the Government's
26 CDM targets.
27
- 28 d) The anticipated cost for the new 115 V substation transformer at Fallowfield DS is
29 \$4.1M. The transformer is still expected to be in-service by year-end 2011.
30



- 1 e) The 15% per annum load increase for the 28kV system in the west-end of the City of
2 Ottawa is based on the loading trend of Kanata MTS, Marchwood MS, Bridlewood
3 MS and Alexander DS, as well as the development proposals in the area. From
4 2005 to present there has been an average annual growth rate of 6% in the region.
5 There have been a number of significant development proposals for this area,
6 including a Community Design Plan for the Village of Richmond that would more
7 than triple the population of the Village. Proposed developments include new
8 residential subdivisions and retail plazas in the Stittsville and Village of Richmond
9 areas. This projection has not taken into account the anticipated impact of the
10 Government's CDM targets.
11
- 12 f) A portion of the expenditures on this station do impact the 2011 revenue
13 requirement. The land was procured in 2010 and transferred to fixed assets. The
14 remainder of the spending in 2010 involves design and equipment procurement. The
15 2011 budget includes equipment purchase as well as the bulk of the construction
16 with the project to be capitalized during 2012. The total cost for the station is
17 budgeted at \$17M.
18
- 19 g) Neither the Beacon Hill DS nor the Hinchey projects impact the 2011 revenue
20 requirement. The Hinchey project starts in 2011 and will be capitalized in 2012. The
21 Beacon Hill project started in 2009 with construction and capitalization scheduled to
22 be complete in 2012.



1 h)

2 **Stations New Capacity – Expenditures and In Service Dates**

Project	Asset	Expenditures (\$000,000)		In Service Dates
		2010	2011	
Ellwood				
	Building & Civil	\$0.0	\$0.0	2010
	Equipment	6.7 ¹	0.0	2010
Terry Fox MTS				
	Land	1.5	0.0	2010
	Building & Civil	0.0	1.0	2012
	Station Equipment	2.7	7.1	2013
Fallowfield T2				
	Equipment	3.6	0.5	2011
Beacon Hill				
	Civil	0.3	0.5	2012
	Equipment	2.4	2.5	2012
Hinchey				
	Building & Civil	0.0	0.3	2012
	Equipment	0.0	1.6	2012
TOTAL		\$17.2	\$13.8	

3

4

¹ Expenditures were budgeted all as "Equipment"; however, budgeted transfers to fixed assets and actual expenditures are appropriately split between "equipment" and "buildings & civil".



Interrogatory

QUESTION #18

Reference: Exhibit B1, Tab 2, Schedule 2, Attachment O, Section J

- a) With respect to Table 40, please explain the significantly higher level of spending of Substation Automation in 2011 relative to subsequent years. Please also explain why it is not possible to spread this spending out into the future years (e.g., 2012).
- b) Is Hydro Ottawa responsible for the investment costs and OM&A associated with SCADA equipment at generating stations (page 151)? If yes, please explain why Energy Ottawa isn't responsible for some/all of these costs.

Responses

- a) In 2010, GE/Kelman Online Dissolved Gas ("DGA") Monitoring will be installed at station transformers identified as in poor condition or warranting continued condition monitoring. Stations transformers are an asset class critical to the reliability of the distribution system. Almost half of stations transformers are in the age range of 40 years and older. It is impractical to replace up to half the stations transformers within a short period of time. Online condition monitoring will allow for regular evaluation of dissolved gasses in the oil and therefore will help predict and prevent potential failure by providing information to prioritize replacement.

Due to the age distribution of the station transformers and their critical nature, it is preferable to have the monitoring installed and operational by 2011. If the expenditures, and therefore installations, are spread over a period of time, the benefit of monitoring the transformers may be lost.



- 1 b) The SCADA equipment for generating stations are Hydro Ottawa Limited assets, and
- 2 are used to monitor/control the distribution system related to the station, not the
- 3 generating equipment itself. Energy Ottawa is responsible for its own monitoring of
- 4 the generating station.



1 **Interrogatory**

2
3 **QUESTION #19**

4
5 Reference: Exhibit B1, Tab 2, Schedule 2, Attachment O, Section K

- 6
7 a) With respect to the Bilberry M2 Extension (page 158), what is the timing of the
8 proposed residential developments and how many new residential customers are
9 anticipated?
10
11 b) With respect to Table 40, please describe the specific projects contributing to the
12 over \$1 M in spending on SCADA Upgrades in 2011. Please explain why these
13 projects must all be completed in 2011 and some can not be delayed to future years.
14

15 **Response**

16
17 a) The proposed residential developments will be constructed over the next one to five
18 years depending on the developer. The current estimate for the development is
19 3,627 residential units.
20

21 b) As stated in Exhibit B4-4-1, the project budget expenditures in 2011 include items
22 such as graphic user interface upgrades, communications encryption, transducer
23 replacement and integration of additional data sources into SCADA.
24

25 Many of these projects build on the work performed in the four previous years to add
26 monitoring data points to the SCADA system. The projects identified for 2011
27 complete the device integration phase and bring field data to the control room. Other
28 projects make this data available to other users in the corporation, such as Asset
29 Planning (traditionally referred to as engineering), which provides actual data for
30 planning activities and supports the strategy to fully leverage field data to improve



1 efficiencies. Completing these projects in 2011 allows Hydro Ottawa to more fully
2 realize benefits of expenditures in prior year.
3
4 Other projects identified for 2011 are required to improve the SCADA system and
5 enhance the availability, reliability, and security of the field data. From a risk
6 management perspective, it is preferable not to defer enhancements to reliability and
7 security.



Interrogatory

QUESTION #20

Reference: Exhibit B1, Tab 2, Schedule 3, Attachment P
Exhibit A1, Tab 2, Schedule 2, page 8

- a) Is there any 2010 spending associated with Ottawa's GEA Basic Plan? If yes, please describe what it is and whether or not it is included in the Bridge Year forecast included in the Application?
- b) Is the 2011 Capital and OM&A spending set out on page 2 included in the Revenue Requirement underlying the proposed 2011 rates? If yes, please identify the capital spending included in the requested 2011 rate base and the impact on the 2011 revenue requirement due to the increased rate base and the GEA Plan related OM&A spending.
- c) Has the OM&A and Capital spending reported in this Exhibit been adjusted to reflect the introduction of HST?

Response

- a) Yes, there is 2010 spending associated with Hydro Ottawa's GEA Basic Plan. As stated in the Plan, "Currently, Hydro Ottawa employs one full time person to coordinate and complete this work and plans are underway to hire an additional full person in 2010. Expenditures are charged to a renewable generation deferral account." As these OM&A costs are being recorded in the deferral account, they are not included in the Bridge Year budget.
- b) The 2011 OM&A spending of \$500k shown on page 2 of Attachment P of Exhibit B1-2-3 is included in the 2011 revenue requirement. All capital expenditures shown in



- 1 the same Exhibit, except the Goulbourn line which will be construction work in
2 progress at the end of 2011, is included in the revenue requirement for the proposed
3 2011 rates. The revenue requirement resulting from the \$500k OM&A and the
4 \$1,206k capital is approximately \$618k.
5
6 c) The Capital spending has been adjusted to reflect the introduction of HST. The
7 OM&A spending has not been adjusted.



Interrogatory

QUESTION #21

Reference: Exhibit B1, Tab 2, Schedule 3, Attachment P

- a) Please reconcile the 64.6 MW of FIT projects referenced on page 12 with the 101.046 MW of new generation set out in Appendix A and referenced on page 13.
- b) Has Hydro Ottawa canvassed other electric distributors (in Ontario and/or elsewhere) to determine what other pilot projects with respect to either Electric Thermal Storage (page 17) or Thermal Storage – Ice Systems (page 18) are underway or planned? If so, what were its findings? If not, why not?
- c) Hydro One Networks has also proposed an Electric Vehicle program as part of its GEA Plan filed with its last rate application (EB-2009-0096, Exhibit A, Tab 14, Schedule 2, page 29). What additional benefits are there from Hydro Ottawa's program?
- d) Please outline the specific duties of the four additional positions in Asset Planning and Conservation Demand Management (page 24).

Response

- a) The 64.6 MW of FIT projects referenced have applied to the Ontario Power Authority ("OPA") and are currently in the process of acquiring a contract from the OPA to become a distributed generator. The 101.046 MW of new generation set out in Appendix A includes all expected DG to come online within the Ottawa municipal territory, which also includes the proposed DG connection to Hydro One Network Inc. ("Hydro One") transmission stations. Therefore, approximately 36.446 MW can be



1 attributed to DG connections on Hydro One stations and will not directly affect the
2 Hydro Ottawa distribution system.

3
4 b) Yes, Hydro Ottawa has discussed Thermal Storage and Thermal Storage – Ice
5 Systems with other distributors through its engagement with the Electricity
6 Distributors Association (“EDA”) Conservation and Demand Management Caucus
7 and as well through engagement with the OPA/EDA Commercial Programs Working
8 Group. It is also understood that Toronto Hydro and Veridian Connections are
9 conducting trials with ice storage systems. Findings from these trials are pending.

10
11 c) Hydro One’s program is limited to its service territory. The government’s objective is
12 to have 400,000 PHEV/EV vehicles on Ontario roads by 2020. To meet this
13 objective, trials should happen soon across Ontario in urban, suburban and rural
14 communities. Additional benefits from Hydro Ottawa’s program include:

- 15
16 • Customer culture is different in Ottawa than it is in for example Toronto, or
17 Barrie. Successful uptake in electric plug-in vehicles is dependent on
18 appealing to the local culture.
- 19 • The purpose for installing charging stations is to relieve any customer anxiety
20 over the perceived risk of being stranded with empty batteries; the perceived
21 short travel distance limitation of PHEV/EVs on one charge.
- 22 • LDC experience in PHEV/EV charging helps engage with customers more
23 confidently and experientially.
- 24 • Being the Nation’s Capital, a pilot here may receive more visibility to
25 PHEV/EV charging and use. Also, the initiative can be leveraged through the
26 Electric Vehicle Council of Ottawa, a longstanding volunteer organization of
27 EV enthusiasts.

28
29 d) The specific duties for the four additional positions in Asset Planning and
30 Conservation and Demand Management will include the following:



- 1 • Evaluating the current distribution system assets and putting in place
- 2 measures to accommodate distributed generation
- 3 • Project planning for the required system upgrades to enable bi-directional
- 4 electricity flow
- 5 • Responding to FIT and microFIT applicant inquiries and completing impact
- 6 assessments on the Hydro Ottawa distribution system for the proposed
- 7 projects
- 8 • Guiding and developing Hydro Ottawa's electric vehicle program
- 9 • Taking part in strategic smart grid and renewable energy initiatives with other
- 10 LDCs throughout Ontario and Canada, to create a harmonized holistic
- 11 approach to smart grid initiatives
- 12
- 13 These are only some specific examples of responsibilities for the newly created
- 14 positions. Since Smart Grid and renewable energy programs are still in their infancy the
- 15 roles will be shaped and revised as the programs are further developed.



1 **Interrogatory**

2
3 **QUESTION #22**

4
5 Reference: Exhibit B1, Tab 2, Schedule 3, Attachment P, page 24

6
7 a) Please explain more fully why, when Hydro Ottawa is proposing to recover 100% of
8 the cost of eligible investments from its ratepayers, it is not necessary to calculate
9 the direct benefits accruing to Hydro Ottawa customer in accordance with Ontario
10 Regulation 330/09.

11
12 b) Is Hydro Ottawa's proposed approach with respect to direct benefits consistent with
13 OEB Report EB-2009-0349? Please, if necessary, what changes are necessary to
14 align Hydro Ottawa's approach with the Board's requirements.

15
16 **Response**

17
18 a) As explained in the response to CCC #45, Hydro Ottawa interpreted the clause in the
19 *Green Energy Act* which amended the *Ontario Energy Board Act* to introduce a
20 mechanism under section 79.1 whereby some of the Board-approved costs incurred
21 by a distributor to make an 'eligible investment' for the purpose of connecting or
22 enabling the connection of a renewable energy generation facility to its distribution
23 system may be recovered from all provincial ratepayers, to mean that it was the
24 distributor's choice in whether or not to apply for funding from the provincial pool. It
25 followed then that if it was the distributor's choice and the distributor chose not to
26 apply for provincial funding, then calculating the direct benefit was not required.

27
28 b) Hydro Ottawa feels that the proposed approach with respect to direct benefits is
29 consistent with the Ontario Energy Board's Report Framework for Determining the
30 Direct Benefits Accruing to Customers of a Distributor under Ontario Regulation
31 330/09 (EB-2009-0349).



1 **Interrogatory**

2
3 **QUESTION #23**

4
5 Reference: Exhibit B1, Tab 2, Schedule 3, Attachment P, pages 26-34

6
7 a) On these pages Hydro Ottawa identifies a number of potential initiatives that it plans
8 to investigate in 2010 and 2011. Please set out the OM&A and Capital spending in
9 2010 and 2011 associated with this investigation that is included in the Application's
10 Bridge and Test Year forecasts.

11
12 **Response**

13
14 a) Hydro Ottawa has identified a number of potential initiatives that it plans to
15 investigate in 2010 and 2011. Some of this investigation work will be done by
16 outside consultants; in which case the costs would be recorded in the Renewable
17 Generation and/or Smart Grid deferral accounts. If the work is done by existing staff
18 then it would be considered part of their ongoing employment and would be treated
19 as part of the regular engineering burden.



Interrogatory

QUESTION #24

Reference: Exhibit B1, Tab 2, Schedule 3, Attachment P, OPA June 2010 Letter

a) The OPA indicates that it has not performed an Economic Connection Test for the region. Why is it reasonable to proceed with the Goulbourn Extension prior to the completion of this test and confirmation of the economics of connecting the associate renewable generation projects?

Response

a) Hydro Ottawa believes that it is reasonable to proceed with the Goulbourn Extension prior to completion of an Economic Connection Test (“ECT”) and confirmation of distributed generation (“DG”) connections in the area, in order to provide for increased system operability and reliability, as well as adhering and complying with the Ontario Energy Board (the “Board”) and the Green Energy and Green Economy Act (“GEGEA”) requirements. Hydro Ottawa also believes that the increase to system performance brought about by extending the system would be beneficial to enabling future DG to connect onto the Hydro Ottawa distribution system.

The GEGEA states that LDC’s are required to accommodate the connection of renewable energy generation facilities through investment for development, expansion, and reinforcement of the distribution system. By actively investing in system development to accommodate renewable DG and increase system operability and reliability, Hydro Ottawa feels that it is providing a strong business case that is in line with the Board’s directive and guidelines.



Interrogatory

QUESTION #25

Reference: Exhibit B1, Tab 2, Schedule 5

a) With respect to the various options considered (pages 15-19), please provide the 40 year cash flows associated with each along with supporting explanations. Also, what discount rate was used to determine the NPV values in Table 7 and for the cost comparisons noted on page 18.

Response

a) Please refer to Attachment 1 for a summarized version of the 40 year net present value calculation. Note that this analysis was preliminary and will be validated and confirmed as part of the Project Management Firm's responsibilities in Phase 1 of the project. The discount rate used was 5.28% to determine the NPV values in Table 7.



NPV Calculation

Millions of dollars

Option 1 - Retail all Existing Facilities (Status Qo) - includes expenditures now to fix some of the immediate issues and includes construction of optimal facilities in Year 21

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15	Yr 16	Yr 17	Yr 18	Yr 19	Yr 20
Immediate fixes (capital)	\$ 17.2																			
Construction costs																				
Sale of redundant bldgs																				
Capital costs	\$ 0.9	\$ 1.7	\$ 1.2	\$ 0.8	\$ 1.7	\$ 0.8	\$ 0.8	\$ 1.2	\$ 0.9	\$ 1.6	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 1.0	\$ 1.0	\$ 1.0	\$ 1.0	\$ 1.0	\$ 1.1
OM&A	\$ 3.0	\$ 9.0	\$ 3.1	\$ 3.0	\$ 3.0	\$ 3.2	\$ 3.2	\$ 3.2	\$ 3.3	\$ 3.3	\$ 3.4	\$ 3.5	\$ 3.6	\$ 3.7	\$ 3.7	\$ 3.8	\$ 3.8	\$ 3.9	\$ 4.0	\$ 4.1
	\$ 21.1	\$ 10.7	\$ 4.3	\$ 3.8	\$ 4.7	\$ 4.0	\$ 4.0	\$ 4.4	\$ 4.2	\$ 4.9	\$ 4.3	\$ 4.4	\$ 4.5	\$ 4.6	\$ 4.7	\$ 4.8	\$ 4.8	\$ 4.9	\$ 5.0	\$ 5.2

Option 4 - Construct New Facilities at Optimal Locations

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15	Yr 16	Yr 17	Yr 18	Yr 19	Yr 20
Construction costs	\$ 8.0	\$ 32.3	\$ 32.2																	
Sale of redundant bldgs					-\$ 23.7															
Capital costs	\$ 0.7	\$ 0.6	\$ 0.8	\$ 0.6	\$ 0.2	\$ 0.2	\$ 0.2	\$ 0.2	\$ 0.2	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.6	\$ 0.6	\$ 0.6	\$ 0.6	\$ 0.6	\$ 0.7
OM&A	\$ 3.0	\$ 9.0	\$ 3.1	\$ 3.0	\$ 1.6	\$ 1.7	\$ 1.7	\$ 1.7	\$ 1.7	\$ 1.8	\$ 1.8	\$ 1.8	\$ 1.9	\$ 1.9	\$ 1.9	\$ 2.0	\$ 2.0	\$ 2.0	\$ 2.1	\$ 2.1
	\$ 11.7	\$ 41.9	\$ 36.1	\$ 3.6	-\$ 21.9	\$ 1.9	\$ 1.9	\$ 1.9	\$ 1.9	\$ 2.1	\$ 2.1	\$ 2.1	\$ 2.2	\$ 2.2	\$ 2.5	\$ 2.6	\$ 2.6	\$ 2.6	\$ 2.7	\$ 2.8

NPV Calculation

Millions of dollars

Option 1 - Retail all Existing Facilities (Status Qo) - includes expenditures now to fix some of the immediate issues and includes construction of optimal facilities in Year 21

	Yr 21	Yr 22	Yr 23	Yr 24	Yr 25	Yr 26	Yr 27	Yr 28	Yr 29	Yr 30	Yr 31	Yr 32	Yr 33	Yr 34	Yr 35	Yr 36	Yr 37	Yr 38	Yr 39	Yr 40	NPV
Immediate fixes (capital)																					\$ 16
Construction costs	\$ 11.9	\$ 47.9	\$ 47.9																		\$ 34
Sale of redundant bldgs					-\$ 35.3																-\$ 10
Capital costs	\$ 1.1	\$ 1.1	\$ 1.1	\$ 1.2	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.4	\$ 0.4	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.8	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 16
OM&A	\$ 4.2	\$ 4.2	\$ 4.3	\$ 4.4	\$ 4.7	\$ 4.9	\$ 4.9	\$ 5.0	\$ 5.1	\$ 5.2	\$ 5.3	\$ 5.4	\$ 5.5	\$ 5.6	\$ 5.7	\$ 5.8	\$ 6.0	\$ 6.0	\$ 6.2	\$ 6.4	\$ 68
	\$ 17.2	\$ 53.2	\$ 53.3	\$ 5.6	-\$ 30.3	\$ 5.2	\$ 5.2	\$ 5.4	\$ 5.5	\$ 5.7	\$ 5.8	\$ 5.9	\$ 6.0	\$ 6.1	\$ 6.5	\$ 6.7	\$ 6.9	\$ 6.9	\$ 7.1	\$ 7.3	\$ 125

Option 4 - Construct New Facilities at Optimal Locations

	Yr 21	Yr 22	Yr 23	Yr 24	Yr 25	Yr 26	Yr 27	Yr 28	Yr 29	Yr 30	Yr 31	Yr 32	Yr 33	Yr 34	Yr 35	Yr 36	Yr 37	Yr 38	Yr 39	Yr 40	NPV
Construction costs																					\$ 64
Sale of redundant bldgs																					-\$ 18
Capital costs	\$ 0.7	\$ 0.7	\$ 0.7	\$ 2.2	\$ 0.7	\$ 0.7	\$ 0.8	\$ 0.8	\$ 2.8	\$ 0.8	\$ 0.8	\$ 0.8	\$ 0.9	\$ 4.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 2.0	\$ 1.0	\$ 16
OM&A	\$ 2.2	\$ 2.2	\$ 2.3	\$ 2.3	\$ 4.7	\$ 4.8	\$ 4.9	\$ 4.9	\$ 5.1	\$ 5.1	\$ 5.3	\$ 5.4	\$ 5.5	\$ 5.6	\$ 5.7	\$ 5.8	\$ 6.0	\$ 6.0	\$ 6.2	\$ 6.3	\$ 51
	\$ 2.9	\$ 2.9	\$ 3.0	\$ 4.5	\$ 5.4	\$ 5.5	\$ 5.7	\$ 5.7	\$ 7.9	\$ 5.9	\$ 6.1	\$ 6.2	\$ 6.4	\$ 10.5	\$ 6.6	\$ 6.7	\$ 6.9	\$ 6.9	\$ 8.2	\$ 7.3	\$ 114

Notes:

Refer to Exhibit B1-5-2 for background information on Option 1 and Option 4

Annual rate of inflation: 2%

Discount rate: 5.28%



1 **Interrogatory**

2
3 **QUESTION #26**

4
5 Reference: Exhibit B1, Tab 2, Schedule 7, page 7

6
7 a) Are there any OM&A expenses included in the 2011 proposed revenue requirement
8 that are associated with the CIS Transition project? If yes, how much and what is
9 the spending for?

10
11 **Response**

12
13 a) There are no OM&A expenses for the CIS Transition project included in the 2011
14 proposed revenue requirement.
15



1 **Interrogatory**

2
3 **QUESTION #27**

4
5 Reference: Exhibit B1, Tab 2, Schedule 8

- 6
7 a) In approving its Environmental Sustainability Strategy (page 1) did Hydro Ottawa
8 include any specific criteria as to the level of cost increases or rate impacts that
9 would be considered acceptable? If so, please outline.
10
11 b) What are the annual efficiency savings associated with the budgeted \$340,000 in
12 facility expenditures in 2011 (page 3)?
13
14 c) Is the 2010 and 2011 spending on environmental initiatives included in the budgets
15 for the relevant activities (e.g., buildings, transportation equipment, etc.)?
16

17 **Response**

- 18
19 a) In approving its Environmental Sustainability Strategy, Hydro Ottawa did not
20 specifically look at the cost increases and rate impacts of the Strategy in isolation
21 but, as always, considered the level of cost increases and rate impacts in relation to
22 the entire capital and operating budget.
23
24 b) There are a total of twenty-two stations which are slated for retrofit of building
25 automation and lighting which will result in a total of approximately \$3,000 to \$4,000
26 in annual cost savings per station (\$66,000 to \$88,000 per year for all stations).
27
28 c) Yes, the 2010 and 2011 spending on environmental initiatives is included in the
29 budgets for the relevant activities.
30



1 **Interrogatory**

2
3 **QUESTION #28**

4
5 Reference: Exhibit B2, Tab 1, Schedule 1 and Attachment S

6
7 a) Please provide a separate continuity schedule for 2006-2011 for stranded meters.

8
9 b) Does Schedule 1 include spending on smart meters?

10
11 **Response**

12
13 a) Table 1 below provides a separate continuity schedule for 2006-2013 for stranded
14 meters.

15
16 b) Yes, Schedule 1 includes spending on smart meters.
17
18



Table 1 – Continuity Schedule for Stranded Meters

	Cost \$000				Accumulated Depreciation \$000			
	Opening Balance	Additions	Adjustments (Proceeds and Contributed Capital)	Closing Balance	Opening Balance	Additions	Recovery	Closing Balance
2006	0	12,031	(93)	11,938	0	(7,161)	0	(7,161)
2007	11,938	9,567	(54)	21,451	(7,161)	(4,531)	(623)	(12,315)
2008	21,451	19,021	(1,491)	38,981	(12,315)	(11,689)	(2,026)	(26,030)
2009	38,981	4,549	(8)	43,522	(26,030)	(2,695)	(3,039)	(31,764)
2010	43,522	623	0	44,145	(31,764)	(387)	(3,039)	(35,190)
2011	44,145	0	0	44,145	(35,190)	0	(2,985)	(38,175)
2012	44,145	0	0	44,145	(38,175)	0	(2,985)	(41,160)
2013	44,145	0	0	44,145	(41,160)	0	(2,985)	(44,145)



Interrogatory

QUESTION #29

Reference: Exhibit B3, Tab 1, Schedule 1, Attachment T

- a) What is the basis for the LV charges set out in this Attachment? Why is there no forecast of 2011 billing determinants for LV charges?
- b) What is the basis for the monthly percentages use to estimate the various transmission billing determinants based on Ottawa's forecast coincident peak demand?
- c) What is the basis for the various transmission service rates for 2011 used in this schedule?

Response

- a) The basis for the 2011 forecast of Low Voltage ("LV") charges was the total actual LV charges for 2009 minus the LV charges for Richmond DS and Fallowfield DS. As the dollar value was used it was not necessary to forecast the 2011 billing determinants for LV charges.
- b) The monthly percentages used to estimate the various transmission billing determinants based on Hydro Ottawa's forecast coincident peak demand represent the 2009 actual month billing determinants from the Independent Electricity System Operator ("IESO") and Hydro One Network Inc.'s ("Hydro One") invoices divided by the 2009 actual monthly system peak.
- c) The basis for the 2010 transmission service rates used in Attachment T were as follows:



- 1 • For transmission rates received through the IESO; Hydro One's May 1, 2010
- 2 rates were increased by 15.7% based on their proposed increase, and
- 3
- 4 • Hydro One's May 1, 2010 Sub Transmission rates.



Interrogatory

QUESTION #30

Reference: Exhibit B4, Tab 1, Schedule 1

a) Please explain more fully the decrease in spending on Distribution Assets in 2008 relative to both the earlier years and subsequent years (Table 2).

b) How much of the increase in Stations Capacity Spending in 2009 was due to the purchase of the Fallowfield and Richmond South substations from Hydro One?

c) Was there any contributed capital associated with the expansion to the new generating station (pages 20-21)? If not, why not? If yes, where is it reflected in Table 5?

Response

a) The decrease in spending on Distribution Assets in 2008 relative to both the earlier years and subsequent years was explained in Hydro Ottawa Limited's submission EB-2007-0713 Exhibit B4-2-1 as follows.

"One of the goals of the distribution capital planning process is to avoid large yearly variances in the total distribution capital expenditures. Rather, the distribution capital plan is developed within a spending envelope that will meet the operational needs of the company while considering financial prudence.

As described in Section 2.2 below, the Stations Capacity capital program expenditures often vary significantly from year to year, in the order of millions of dollars. Hydro Ottawa's approach to balance the capital expenditures is to balance the Stations Capacity capital program with the Distribution Asset and Distribution



1 Enhancement capital program. The total expenditures for these capital programs are
2 set at levels that, over time, will provide sufficient investment in all categories...

3
4 The distribution asset expenditures are lower in 2008 due to the increased
5 expenditures in the Stations Capacity capital program.”

6
7 b) The expenditures related to the purchase of the Fallowfield and Richmond South
8 substations from Hydro One in 2009 totalled \$3.46M. The total expenditures include
9 the purchase price from Hydro One Networks Inc. as well as other costs associated
10 with the purchase including environmental consulting, legal services and burdens.

11
12 c) Exhibit B4-1-1, Section 4.9 System expansion Demand should have read
13 “Expenditures in system expansion demand have been relatively constant in recent
14 year. Increased expenditures **in 2007** were due to...”, instead of “in 2008”.

15
16 There was contributed capital associated with the expansion to the new generating
17 station. The contribution is included in the value in Table 5 under Section 5.6,
18 System Expansion Demand, for 2007.



Interrogatory

QUESTION #31

Reference: Exhibit B4, Tab 3, Schedule 1

- a) Is the Cable Replacement program discussed here (page 4) the underground cable replacement program discussed at page 92 of the 2010 Asset Management Plan (Attachment O)? If not, where is it described in the Asset Management Plan?
- b) Please update Table 5 to reflect Q1 and Q2 for 2010.
- c) Please clarify the second last paragraph on page 19. To which “budget” was 50% added in order to estimate the 2010 budget for Plant Relocations and Upgrades.
- d) When does the stimulus money from the Federal Government (page 19) have to be spent in order for the City of Ottawa to qualify for it? Is the forecast consistent with this timing?
- e) Please update Table 6 to reflect Q1 and Q2 for 2010.

Response

- a) The Cable Replacement program discussed on page 4 of Exhibit B4-3-1, is the underground cable replacement program discussed at page 92 of the Asset management Plan.



- 1 b) Table 1 provides an update to Table 5 of Exhibit B4-3-1 to include Q1 and Q2 of
2 2010.

3 **Table 1 – Site Plan Proposals**

Site Plan Proposals	Number of Circulations				Estimated Load (kW)			
	2007	2008	2009	2010	2007	2008	2009	2010
Q1 & Q2	93	102	86	110	18,260	23,112	22,650	16,140
Q3 & Q4	102	100	79	N/A	27,566	31,685	27,363	N/A
Total	195	202	165	N/A	45,826	54,797	50,013	N/A

- 4
5 c) The gross Plant Relocations and Upgrades budget program in 2010 was budgeted
6 50% higher than what would have been budgeted if the City of Ottawa (the “City”) did
7 not receive infrastructure stimulus funding. The gross Plant Relocations and
8 Upgrades budget is shown in Table 4 of Exhibit B4-3-1 to be \$6,812k.

- 9
10 d) The stimulus money from the Federal Government (page 19) has to be spent by the
11 City by March 2011 (http://www.ottawa.ca/residents/construction/stimulus_en.html).
12 Relocation of Hydro Ottawa Limited assets is typically performed in the early stages
13 of road work to allow for the final grade and surface finishing to occur with utility
14 assets in their new locations. Hydro Ottawa has been coordinating stimulus project
15 timing with the City’s construction schedules. Winter weather in Ottawa is not
16 conducive to road work. Hydro Ottawa plans to complete relocation work instigated
17 by the stimulus money by the end of 2010 in coordination with City project
18 schedules, and to avoid road related construction during the winter months of 2011.
19 The forecast is therefore consistent with the Federal Government’s timing.



- 1 e) Table 2 provides an update of Table 6 from Exhibit B4-3-1 to include Q1 and Q2 of
2 2010.

3 **Table 2 - Plan of Subdivision Proposals**

Plan of Subdivision Proposals	Number of Circulations				Estimated Load (kW)			
	2007	2008	2009	2010	2007	2008	2009	2010
Q1 & Q2	10	13	4	13	5,379	6,874	828	9,673
Q3 & Q4	17	4	3	N/A	11,687	3,229	3,389	N/A
Total	27	17	7	N/A	17,066	10,103	4,217	N/A

4



1 **Interrogatory**

2
3 **QUESTION #32**

4
5 Reference: Exhibit B4, Tab 3, Schedule 2

- 6
7 a) Please provide more details regarding the 2010 CIS related spending that will be
8 triggered by the onset of Time of Use rates and the Meter Data Management
9 Repository.
10
11 b) What adjustments, if any, were made to the capital spending forecasts on distribution
12 assets and general plant for 2010 to account for the introduction of HST effective
13 July 1, 2010?
14

15 **Response**

- 16
17 a) The 2010 budget did not include planned spending on the customer information
18 system ("CIS") related to the onset of Time of Use rate or the Meter Data
19 Management Repository ("MDM/R"). The systems were predominately made ready
20 by the end of 2009 and the capital expenditures remained in construction in progress
21 ("CIP"). See the response to CCC #34 and OEB #34 for further discussion on the
22 systems. In addition, the response to CCC #32 includes a discussion of unforeseen
23 issues that were not budgeted for 2010, for which Hydro Ottawa may incur costs.
24
25 b) No adjustments were made to the capital spending forecasts on distribution assets
26 and general plant for 2010 to account for the introduction of HST effective July 1,
27 2010.
28



Interrogatory

QUESTION #33

Reference: Exhibit B4, Tab 4, Schedule 1

- a) Please provide a schedule that sets out the PST included in Hydro Ottawa's capital spending for 2007 through 2009.
- b) Please explain the difference between the \$45.6 M of capital spending in 2011 for Sustainment (per Attachment O, Table 40) and the \$45.2 M set out in Table of this Exhibit. If the difference is due to HST harmonization please explain why the reduction is so small when Sustainment accounts for almost half the total 2011 capital spending.
- c) Please reconcile the program spending categories in Table 3 with those used in Table 40 of Attachment O.
- d) Please provide details regarding the timing of the one new large 20 MW customer and when the spending on the Hinchey Station is expected to be declared in-service.
- e) Are the 2011 capital expenditures from Ottawa's Green Energy Act Basic Plan (Attachment P, page 2) included in the spending reported in this Exhibit?

Response

- a) The following table shows the PST included in Hydro Ottawa's capital spending for 2007 through 2009.



Table 1 – PST on Capital Expenditures

Year	PST \$000
2007	\$2,124
2008	\$2,022
2009	\$1,511

b) The discrepancies between Table 3 of Exhibit B4-4-1, and Table 40 within Attachment O are due to multiple considerations.

(i) A reduction was applied to the sustainment budget for HST harmonization of approximately \$1.1M.

(ii) As the footnote to Table 40 in Attachment O states, the information in Table 40 was “Forecasted as required by Asset Management forecasting models and does not necessarily represent financial forecasts”.

The Asset Management forecasting is performed with the most recent financial information available at the time, including internal labour rates and burden rates. The amounts included in the Asset Management Plan are intended to be indicators of budget requirements, but not final budgets for the project.

Budgeting for a year is done using the prior year’s burden rates. Once the capital and general and administrative budgets are completed, the burden amounts are removed, and the burden rates for the new budget year are created and applied. The burden development and application process changes internal allocation of general and administrative costs to capital, but does not impact the scope of work being completed, i.e., internal labour, materials or outside services.

(iii) There is one additional line item in Table 3 of Exhibit B4-4-1, which is not contained within Table 40 in Attachment O; Facilities Programs - Stations. Facilities Programs – Stations is a budget program that addresses the ongoing



1 capital investments required within substation structures that are not primarily
2 related to the conveyance of electricity, such as building roofs, site driveways and
3 the like. This line item accounts for \$707k of the total sustainment budget, which
4 is not included in the analysis of the Asset Management Plan contained within
5 Attachment O.

6

7 c) Refer to part b).

8

9 d) The proponent for this new load is currently projecting an in-service date of late 2012.
10 The spending on the Hinchey station is budgeted to be in service in late 2012.

11

12 e) The 2011 capital expenditures from Hydro Ottawa's Green Energy Act Basic Plan
13 are referenced in section 3.0 Green Energy Act, of Exhibit B4-4-1. The details of the
14 Green Energy Act Basic Plan are contained within Attachment P.



1 **Interrogatory**

2
3 **QUESTION #34**

4
5 Reference: Exhibit B4, Tab 4, Schedule 2

6
7 a) Spending on CIS Enhancements increases by more than \$2 M between 2010 and
8 2011. Please provide a detailed work plan for the CIS Transition Project (page 2)
9 that supports this increased spending.

10
11 **Response**

12
13 a) A detailed work plan for the Customer Information System (“CIS”) Transition Project
14 is not available at this time since the procurement process for this initiative has not
15 completed. Though actual project expenses can only be confirmed once related
16 contracts have been established, items such as the creation of request for proposal,
17 vendor selection expenses, contract negotiations, legal review, incremental software
18 license fees, project hardware costs, internal resource allocations, project office set-
19 up and initial data conversion/system integration efforts are anticipated. Hydro
20 Ottawa’s planning is evolving since the filing of the rate application. While still in
21 development, the project plan may bring forward some of the spending into 2011 so
22 that the updated system can go live in 2012. Any additional spending in 2011 beyond
23 what was in the rate application will still be in construction in progress and therefore
24 not included in the 2011 rate base.

25
26 Throughout the new CIS project’s duration, curtailment of development to the current
27 CIS is expected to occur. Requests for enhancements to the current CIS will be
28 individually evaluated to determine the most appropriate resolution option based on
29 factors such as cost/benefit, regulatory requirement, portability of solution to future
30 CIS and operational feasibility of interim alternatives.



1 **Interrogatory**

2
3 **QUESTION #35**

4
5 Reference: Exhibit B4, Tab 4, Schedule 3

6
7 a) Please reconcile the 2011 capital spending on GEA Line Extensions reported here
8 (\$1,378 k) is that reported in Attachment O (\$1,360 k).

9
10 **Response**

11
12 a) Attachment P, rather than Attachment O as stated in question a), reports on GEA
13 Line Extension capital spending.

14
15 The difference between the capital spending on GEA Line Extensions shown in
16 Exhibit B4-4-3 and in Attachment P is \$13k, which is less than 1% of the project
17 budget for 2011. The difference is due to the budgeting stage being at a more
18 precise level than the planning stage. The correct value is \$1,378k. As the line will
19 not be in service until 2012, this discrepancy has no impact on rate base.



Interrogatory

QUESTION #36

Reference: Exhibit B4, Tab 5, Schedule 2

a) Please provide a revised version of Table 2 that includes actual values for 2007 and 2008. Please explain what is anomalous about 2011 that leads to materially higher costs.

b) Please provide greater detail regarding the increase in spending on Information Services and Technology in 2010 and 2011 versus earlier years.

Response

a) Table 1 below provides a revised version of Table 2 from Exhibit B4-5-2 that includes actual values for 2007 and 2008.

Although there is an increase in the number of vehicles from 2010 to 2011 most are of the small variety. 2011 has two fewer large vehicles than 2010 which results in a lower capital expenditure as shown in Table 2. Numbers in parenthesis indicate additional vehicles, whereas other numbers indicate a replacement.



1

Table 1 – Revised Table 2 Fleet Replacement

Unit Type	2007 Actual	2008 Actual	2009 Actual	2010 Budget	2011 Budget
Cars	1	0	0	3	0
Bucket trucks	3	1 + (1)	2	2	1
Stake trucks/Flatbed trucks	0	0	0	0	0
Radial Boom Derricks	2	0	1	2 + (1)	2
Knuckle boom trucks	0	0	0	0	0
Compact pickup trucks	1	0	0	0	2
Full size pickup trucks	9	8 + (2)	2 + (1)	1	4
Full size cargo vans	2	4	0	0	7
Compact vans	0	1	3	2	2
Step Vans/Cube vans	4	4	1	0	5
Forklifts	1	1	0	0	3
Tension machines	2	0	0	(2)	0
Trailers	0	-1	4 + (1)	3	2
TOTAL	25	23	15	16	28

2

3

Table 2 – Yearly Expenditures

Budget Program	2007 Actual \$000	2008 Actual \$000	2009 Actual \$000	2010 Budget \$000	2011 Budget \$000
Fleet Replacement	\$1,799	\$1,461	\$1,461	\$2,232	\$1,867

4

- 5 b) IT infrastructure within Hydro Ottawa is playing a more prominent role in the
 6 advancement of business processes. Information Services and Technology (“IT”)
 7 expenditures do increase in 2010 and 2011 versus earlier years due to changes in
 8 the security landscape, lifecycle management and support of business processes.

9

10



Table 3 – Information Services and Technology Expenditures

	Actual \$000				Budget \$000	
	2006	2007	2008	2009	2010	2011
Information Services and Technology	\$558	\$861	\$788	\$276	\$1,697	\$2,387

As outlined in Exhibit B4-5-2, IT expenditures are organized in three categories. Increases to the expenditures in each category for 2010 and 2011 are described below.

Lifecycle management

- 2010 – Ongoing enhancements of Enterprise Resource Planning (“ERP”) system (JD Edwards) to support business process improvements. Upgrade (lifecycle management) of the radio system used by field personnel and the System Office.
- 2011 – Upgrades and strengthening of data backbone switches (LAN and WAN) and voice infrastructure, i.e., the telephone system.

System Integration

- 2011 – Implementation of application and process integration through the use of middle ware technology; workflow management between systems. An example is workflow management at the Service Desk with the ERP system.

Security Programs

- 2010 – Implement improvements to, and expansion of, existing security infrastructure and process in support of IT Security Strategy roadmap.
- 2011 – Improve security awareness program and content management; expansion of intrusion prevention and network segmentation.



1 **Interrogatory**

2
3 **QUESTION #37**

4
5 Reference: Exhibit C1, Tab 1, Schedule 1, pages 1-6

- 6
7 a) Do the parties listed on page 1 all use MetrixND to produce the load forecasts they
8 use for budgeting and (where applicable) rate application to their respective
9 regulators?
10
11 b) Please provide a listing of all the explanatory variables included in the model used to
12 forecast system energy (purchases) and for each indicate the value of the coefficient
13 and the related t-statistic (pages 3-5). Please discuss the results for any variable
14 that does not have the intuitively correct sign.
15
16 c) Please provide the model equation used to forecast system peak (pages 5-6).
17
18 d) Please explain why in some years (e.g., 2005) weather normalized system energy
19 decrease while weather normalized system peak values increase over those for the
20 previous year and explain why this is not counter-intuitive.

21
22 **Response**

- 23
24 a) Hydro Ottawa is not aware of whether the parties listed on page 1 of Exhibit C1-1-1
25 use *MetrixND* to produce the load forecasts they use for budgeting and rate
26 applications.
27
28 b) Please see the response to Energy Probe Interrogatory #18c. All of the variables
29 have intuitively correct signs.
30
31 c) Please see the response to Energy Probe Interrogatory #18f.



- 1 d) It does not seem totally counter-intuitive to have a year in which the weather
2 normalized system energy decreases over that from the previous year while the
3 weather normalized system peak value increases over that for the previous year. A
4 year over year reduction in system energy is not necessarily always accompanied by
5 a corresponding year over year reduction in system peak. The system energy could
6 have been impacted by economic conditions that only started part way through the
7 year; meaning that the system peak could already have been set.



Interrogatory

QUESTION #38

Reference: Exhibit C1, Tab 1, Schedule 1, pages 6-8
Exhibit C1, Tab 1, Schedule 2, page 3

- a) Schedule 2 demonstrates that average residential use has been declining since 2005 and attributes this to CDM. Given this trend in historical use, is it not reasonable to assume that the model developed to forecast system energy purchases using 1997-2010 data will include increasing CDM trend? If not, why not?
- b) If the response to part (a) is yes, then doesn't removing all post-2010 CDM from the model's forecast results result in a some double counting of these savings? If not, explain why.
- c) Please describe fully the basis for the 767 GWh provincial savings value for 2010 and the associated 47 GWh savings for Hydro Ottawa.
- d) What is basis for the 2011-2014 peak and energy savings attributed to Codes and Standards and Other Influences?

Response

- a)&b) It is reasonable to assume that the model developed to forecast system energy purchases using 1997-2010 data will include the impact of some Conservation and Demand Management ("CDM") i.e. 'natural conservation', however it cannot possibly incorporate the significant targets that Local Distribution Companies ("LDC") are now being required to achieve. Hydro Ottawa does not consider removing the post-2010 CDM from the model's forecast results to be double counting the savings.



- c) The 767 GWh provincial savings value for 2010 was calculated by subtracting the 2009 province-wide cumulative savings from the 2010 province wide cumulative savings as shown in Table 1 below. This information was provided to Hydro Ottawa as part of the preliminary discussions which took place between the Electricity Distributors Association, the Ontario Power Authority and the Ministry of Energy and Infrastructure concerning the electricity distributor's conservation and demand management targets.

Table 1 – LDC CDM Preliminary Targets

Cumulative annual energy (GWh)	2009	2010	2010 Minus 2009
IPSP (as filed in 2007, at generator, incl. avoided Dx/Tx losses)	1,900	6,900	
Updated near term IPSP projections (at generator, incl. avoided Dx/Tx losses)	1,030	1,852	
<i>Remove avoided Dx and Tx losses</i>	(69)	(124)	
Subtotal 1 (province-wide, at end user, 2008-14 activities)	961	1,728	767

- d) The 2011-2014 peak and energy saving attributed to Codes and Standards and Other Influences in Tables 5 & 6 in Exhibit C1-1-1 were included in the draft spreadsheet which formed part of the initial discussions concerning electricity distributor's CDM targets described in the response to c) above.



Interrogatory

QUESTION #39

Reference: Exhibit C1, Tab 1, Schedule 1, pages 8-10
Exhibit H1, Tab 4, Schedule 1, page 1

- a) Please reconcile the actual electricity sales values reported in these two references for the years 2006-2009.
- b) Do the customer class sales models include customer count as an explanatory variable? If not, why not?
- c) How does the forecast account for the one new large (20 MW) customer expected for downtown Ottawa (Attachment O, page 144)? Is there a need for a separate adjustment to reflect this development and, if not, why not?
- d) Why is there no forecast of sales or customers for the Sentinel Light Class?

Response

- a) The actual electricity sales values reported in Exhibit C1-1-1 Table 8 do not include Dry Core Transformer losses, which have been added into the total sales shown in Exhibit H1-4-1 for purposes of calculating the loss factor. The Table below reconciles the information provided in the two Exhibits.



Table 1 – Actual MWH Sales

MWh Sales	2006	2007	2008	2009
H1-4-1, Table 1 minus Dry Core Transformer Losses	7,466,330	7,547,945	7,561,763	7,560,847
	<u>2,967</u>	<u>3,150</u>	<u>2,844</u>	<u>3,569</u>
	7,463,363	7,544,795	7,558,919	7,557,278
C1-1-1, Table 8	7,463,363	7,544,795	7,558,919	7,557,278

- b) The customer class sales models do not include customer count as an explanatory variable. When the models were prepared by Itron, customer count was not found to be as good an explanatory variable as the others that were eventually chosen, e.g. weather and economic variables.
- c) The 2011 forecast does not account for the one new large (20 MW) customer expected for downtown Ottawa referred to in Exhibit B1-1-2, Attachment O, page 144 as this customer is not expected to be added until at least 2012.
- d) Hydro Ottawa is in the process of phasing out Sentinel Lights and therefore did not feel it was necessary to develop separate forecasting models for sales and connections for this class. As long as there still are some Sentinel Lights remaining in the service territory, for purposes of forecasting revenue, Hydro Ottawa uses current numbers.



Interrogatory

QUESTION #40

Reference: Exhibit C1, Tab 1, Schedule 1, page 12

- a) With respect to page 12, please provide a schedule that sets out: i) the capital spending on new Residential and Commercial development for the period 2007 – 2011 and ii) number of new Residential and Commercial customers added each year. Please reconcile any material differences in the year over year growth rates between the two for each set of customers.
- b) Please breakdown the transformer ownership credit (page 15) for 2011 by customer class.
- c) Please provide the date of publication for the Conference Board forecast used for the economic variables in Table 17. If the forecast for any of the variables was obtained from another source please indicate both the source and the timing of its publication.
- d) Please provide any more recent forecast for these economic variables that Hydro Ottawa is aware of.
- e) Please provide the customer count forecast used for purposes of the load forecast (per C1, T1, S1, page 3).

Response

- a) Table 1 provides the actual/budgeted capital spending on new Residential and Commercial development for the period 2007-2011 and the actual/budgeted number of Residential and Commercial customers each year and their respective growth rates.



1

Table 1 – Capital Expenditures and Customer Growth

	Residential				Commercial			
	\$000	Annual Growth	Average Customers	Annual Growth	\$000	Annual Growth	Average Customers	Annual Growth
2007	8,335		258,262		7,832		26,478	
2008	8,916	7%	262,786	2%	7,078	-10%	26,642	1%
2009	8,334	-7%	267,225	2%	7,791	10%	26,669	0.1%
2010	6,552	-21%	271,587	2%	5,563	-29%	26,795	0.5%
2011	6,762	3%	276,039	2%	6,078	9%	26,896	0.4%

2

3 It is extremely difficult to reconcile the growth rate in capital spending on
4 development with the growth rate in customers. There is always a time delay,
5 sometimes up to five years, between the construction of a new Residential
6 subdivision and the customer moving in and becoming a Hydro Ottawa customer. In
7 addition, some of the capital spending on Commercial developments could in fact be
8 for multiunit residences which, if individually metered, would appear in future years
9 as Residential customers. Also, some of the commercial funds are for service
10 upgrades which would not be reflected in an increase in customer numbers.

11

12 b) Please see the response to VECC Interrogatory #9b.

13

14 c) The date of publication for the Conference Board of Canada forecast used for the
15 economic variables in Table 17 of Exhibit C1-1-1 is March 9, 2010. No other
16 economic variables are used in the forecast.

17

18 d) The forecast for the economic variables has been updated by the Conference Board
19 of Canada on August 24th, 2010. The updated numbers are shown in the response
20 to Energy Probe #18e.

21

22 e) The customer count forecasts used for the load forecast are shown in Exhibit C1-1-1
23 Tables 10 and 11. These forecasts are not an input to the class sales forecasts.



1 **Interrogatory**

2
3 **QUESTION #41**

4
5 Reference: Exhibit C1, Tab 1, Schedule 2, page 3

6
7 a) Please provide an estimate of the actual 2008 kWh savings by customer class due to
8 CDM based on Hydro Ottawa's CDM programs following a format similar to that used
9 in Hydro Ottawa's 2007 LRAM Application.

10
11 **Response**

12
13 a) The following table provides an estimate of the actual 2008 kWh savings by
14 customer class due to Conservation and Demand Management ("CDM") based on
15 Hydro Ottawa's CDM programs.



1

Table 1 – 2008 Actual kWh Savings due to CDM

Program	LDC Programs Net 2008 kWh from 2005, 2006, 2007	OPA Programs Net 2008 kWh from 2007 Programs
Residential		
Co-Branded Mass Markets	24,626,077	
Residential Load Control	233,161	
Energy Audit and Support	23,540,760	
Fridge Bounty	6,823,500	
Electric Avenue	13,941	
Social Housing	878,580	
Great Refrigerator Roundup		833,000
Cool & Hot Savings Rebate		1,186,000
Every Kilowatt Counts		7,025,000
Summer Savings		1,000
Affordable Housing Pilot		44,000
Social Housing Pilot		646,000
General Service < 50 kW		
Energy Audit and Support	377,321	
General Service > 50 kW		
Leveraging Energy Conservation and Load Management	6,408,070	
Electricity Retrofit Incentive		111,000
Overall Support Program	2,912,752	
Distribution Loss Reduction	1,850,000	
Total	67,664,162	9,846,000

2



Interrogatory

QUESTION #42

Reference: Exhibit C2, Tab 1, Schedule 1

a) Does the forecast of Other Revenue include any allowance for the revenue associated with the new MicroFit service charge introduced by the Board (EB-2009-0326)? If yes, where is it included and what is the estimated revenue in 2011? If not, why not?

b) Why isn't Hydro Ottawa updating its pole attachment charge (page 5) to reflect is 2011 forecast cost of service? What would the rate be based on 2011 costs?

Response

a) The revenues associated with the monthly microFIT service charge of \$5.25, would not be included in Other Revenue. Instead, it would be included in Distribution Revenue. At the time the budget was developed, the MicroFIT program was still in its early phases and the level of interest and take-up of the program was uncertain; therefore, there was insufficient data on which to base a reasonable budget forecast.

b) With reference to the 2006 Distribution Rate Handbook, Section 11.6 – *Specific Charge for Access to the Power Poles of a Distributor*, the Ontario Energy Board established the rates to be charged by distributors at \$22.35 per user, per pole, per year (reference: RP-2003-0249). There are no indications this rate will change in 2011.



Interrogatory

QUESTION #43

Reference: Exhibit C2, Tab 1, Schedule 1, Attachment V

- a) Please explain the continual decline from 2008 to 2010 in the Net Revenues associated with "Work for Others Net Revenue".
- b) Please explain why the value for 2011 (\$47,523) is positive suggesting the forecast calls for negative net revenues which will serve to reduce the overall level of Other Operating Revenue.
- c) The Application (Exhibit D4, Tab 1, Schedule 1, page 2) makes reference to hiring a Renewable Generation Engineer to interface with potential generators. Does Hydro Ottawa plan to charge potential generators for studies (e.g., connection impact assessments) undertaken in response to queries regarding connection to its system? If yes, where are the revenues reflected in the Application? If not, why not?

Response

- a) Please refer to EP #19e (ii) response.
- b) Please refer to EP #19e (iii) response.
- c) Yes, Hydro Ottawa plans to charge potential generators for Connection Impact Assessment ("CIA") studies undertaken in response to customer requests. Initial inquiries such as feeder, distribution station and sub-transmission station connections are not charged. The fees set out for CIA studies are listed in Hydro Ottawa's Application for Connection, Form B, according to the size of the generator. The 2011 Rate Application does not include CIA revenues, because a reasonable



- 1 estimate of potential generators could not be determined at the time. To date, Hydro
- 2 Ottawa has not collected any CIA revenue.



1 **Interrogatory**

2
3 **QUESTION #44**

4
5 Reference: Exhibit D1, Tab 1, Schedule 1, page 19

- 6
7 a) Is the Charitable Contributions for 2011 of \$51,510 (page 19) all for the Winter
8 Warmth Program? If not, how much is?
9
10 b) Please provide a schedule that sets out the Smart Meter OM&A costs included in the
11 2011 revenue requirement. Please also indicate which USOA accounts (per Table
12 1) these costs are included in.
13
14 c) Are the 2008-2010 OM&A costs associated with Smart Meters also included in Table
15 1?
16

17 **Response**

- 18
19 a) Hydro Ottawa has discovered during the process of answering VECC #44a that it
20 should not have stated that the charitable donations of \$51,510 were for the Winter
21 Warmth Program or Shelter and Warmth program. The Winter Warmth Program has
22 been budgeted elsewhere at \$65,000. The charitable donations that make up the
23 \$51,500 are not directly related to energy consumption and therefore are not eligible
24 to be included in revenue requirements. Before the final rates are approved this
25 correction will be made.
26
27 b) Hydro Ottawa is completing its Smart Meters deployment in 2010 and as such there
28 are no costs in the 2011 budget that is attributed to the Smart Meter deployment
29 program. Smart Meters are considered standard meter assets in 2011 and all costs
30 are included in either account 5065 – Meter Expense or in 5175 – Maintenance of
31 Meters.



- 1 c) Smart Meter costs from 2008 to 2010 have been included in Table 1 of Exhibit D1-1-
- 2 1.



Interrogatory

QUESTION #45

Reference: Exhibit D1, Tab 1, Schedule 2, page 3

Exhibit D1, Tab 5, Schedule 1, page 5 (Table 5)

- a) Please extend Table 5 to include 2011.
- b) Please provide more details on the basis for the \$2.4 M impact attributed to Workforce Planning Strategy in 2011 and how it was determined.
- c) How many of the apprentices retained through 2005-2010 have reached journey man status by 2010 and/or 2011? How is the fact that those reaching “journey men” status can fill an existing position taken into account in the cost driver table?
- d) What inflation rate was assumed for 2010 and 2011 for purposes of the Application and the Cost Driver Table?
- e) If the TOU roll out is a one-time 2010 expense, why isn’t the impact for 2011 a \$1.2 M reduction?
- f) Are there no meter reading savings accruing in 2011 from the introduction of smart meters?
- g) If the 2009 Vegetation Management program was not completed in that year why is there not a cost reduction showing for 2009?
- h) If the 2010 Vegetation Management expense increase is due to completing the 2009 work requirements, why isn’t there an offsetting reduction on 2011?



Response

a) Table 5 has been revised to include 2011.

Revised Table 5 – Apprentices Hired and Retained by Trade (Hired/Retained)

Hired/Retained	2005	2006	2007	2008	2009	2010	2011	TOTAL
PLM	8/6	0	10/10	8/8	0	0	14	40/24
Cable Joints	0	6/6	0	4/4	0	0	0	10/10
System Operator	0	2/0	4/4	5/4	0	2/1	0	13/9
Stations Electrician	0	2/0	2/1	1/1	3/3	3/3	0	11/8
Metering Technician	0	0	0	0	0	1/1	4	5/1
Total Hired	8	10	16	18	3	6	18	79
Total Retained	6	6	15	17	3	5	18	70

b) The \$2.4 M impact attributed to Workforce Planning Strategy in 2011 is determined by the new positions added as per Exhibit D4-1-1 as well as five internal positions which are currently vacant and will be staffed as power line maintainer (“PLM”) apprentices in 2011. Included as well is the provision for an overlap period for retiring managers and supervisors.

c) In 2010 there is expected to be six apprentices who have reached “Journey Man” status and another nine apprentices in 2011. The line item in “Work Force Planning” in the cost driver table takes into account the graduation of apprentices to full “Journey Man” status and is adjusted accordingly.

d) The aggregate inflation rate assumed for the purposes of the cost driver table is 2%.

e) The cost driver amount does not have a full \$1.2 Million reduction in 2011 because of some incremental and offsetting costs related to the Smart Meter program. In particular, there are increases for information technology (“IT”) such as licensing and maintenance arrangements because systems will be in operation instead of development. Furthermore, costs are expected in 2011 to complete business



1 continuity planning for the systems. Some amounts were also budgeted in 2011 for
2 ongoing training and customer communications, as discussed in the response to
3 OEB#17.

4

5 f) Hydro Ottawa has elected not to include meter reading savings in its cost driver table
6 since all of the savings have been offset by the additional cost of administering its
7 Smart Meter assets.

8

9 g) Please refer to the response to VECC #47c.

10

11 h) Please refer to the response to VECC #47c



Interrogatory

QUESTION #46

Reference: Exhibit D1, Tab 1, Schedule 2, page 10

a) Are all of the costs for the 2011 Rate Application included in the 2010 cost column?

b) What is the basis for the forecast 2011 Regulatory costs (e.g., Is Hydro Ottawa assuming another cost of service based application for 2012 Rates?)?

Response

a) and b) Please see the response to EP #22, CCC #6 and CCC #25.



Interrogatory

QUESTION #47

Reference: Exhibit D1, Tab 4, Schedule 2

- a) What is the basis for determining the “cost consequence” associated with a failure (per pages 3-4)?
- b) Please provide the actual vegetation management expenditures for 2006 and 2007 (per page 6).
- c) Please reconcile the year over year change in vegetation management expenditures (per page 6) with the \$800 k increase in vegetation management expenditures reported for 2010 in the Cost Driver Table (Exhibit D1, Tab 1, Schedule 2, Table 2).

Response

- a) Refer to Hydro Ottawa’s Asset Management Plan, chapter Overhead Line Easements, Rev 1, 2005-11-11, included as Attachment 1.
- b) The vegetation management expenditures for 2006 and 2007 are as follows:

Year	Expense \$000
2006 Actual	\$2,821
2007 Actual	3,247

- c) Hydro Ottawa inadvertently attributed the \$800k cost driver to vegetation management instead of the overall increase to Distribution Plant Maintenance which also includes other outside services such as cable locates. The actual increase in vegetation management from 2009 to 2010 is \$200k, and is a result of two factors:



- The overall 2010 trim area is bigger and more complex than the 2009 trim area which will increase cost by \$45K.
- One small trim area from the 2009 cycle was not completed and had to be carried over to 2010 which resulted in a budget increase of \$165k.

Hydro Ottawa experienced an increase in spot trims in past years and decided in 2008 to increase the trim cycle in our densely treed core area from 3 years to 2 years in an attempt to reduce the number of emergency or spot trims. Spot trims are much more expensive as they require the crew to respond immediately including after hours.

2010 is the first year that Hydro Ottawa will be returning to this core area after only 2 years of growth. Hydro Ottawa is anticipating some savings for the 2010 cycle which will minimize the year-over-year increases going forward. Although the exact savings will not be known until the actual costs have been incurred, the reduction in spot trimming will make Hydro Ottawa's vegetation management program more cost effective.



Asset Management Plan Overhead Line Easements

Rev. 1, 2005-11-11

Note: This document was originally produced during Phase III of Hydro Ottawa's Asset Management Program, but this version has been updated during Phase IV for format consistency and readability.

Latest revision can be found at the Hydro Ottawa Intranet Site → Policies and Procedures → Operations → Engineering Information.

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A. Summary

This document is a report on the pilot study of overhead line easements, performed during Phase III of the Asset Management Plan Development project at Hydro Ottawa.

1. Development and Implementation of Process

Hydro Ottawa's general asset management process was implemented for the easements, including the asset evaluations with demographics, health indexing, and consequence cost; risk-based economic analysis, and consideration of non-technical and non-economic drivers.

Most of the inputs required were available in some form for the pilot study. However, because time was limited, many assumptions and approximations were made, and these should be re-evaluated for the next budget cycle. A table documenting the main assumptions is included in the Appendix.

2. Results for 2005

This pilot study produced results supporting an asset management plan as well as budgeting and regulatory efforts for this year. These results include the following:

- Summary of asset demographics, including the quantity of easements and their condition. These results are based on a sample survey of the easements just before and just after trimming. These were scored using scales for asset health and consequence cost developed by Hydro Ottawa.
- Risk-based economic evaluation of the easement trimming program, which a format for optimizing the rate of trimming based on minimizing total cost.

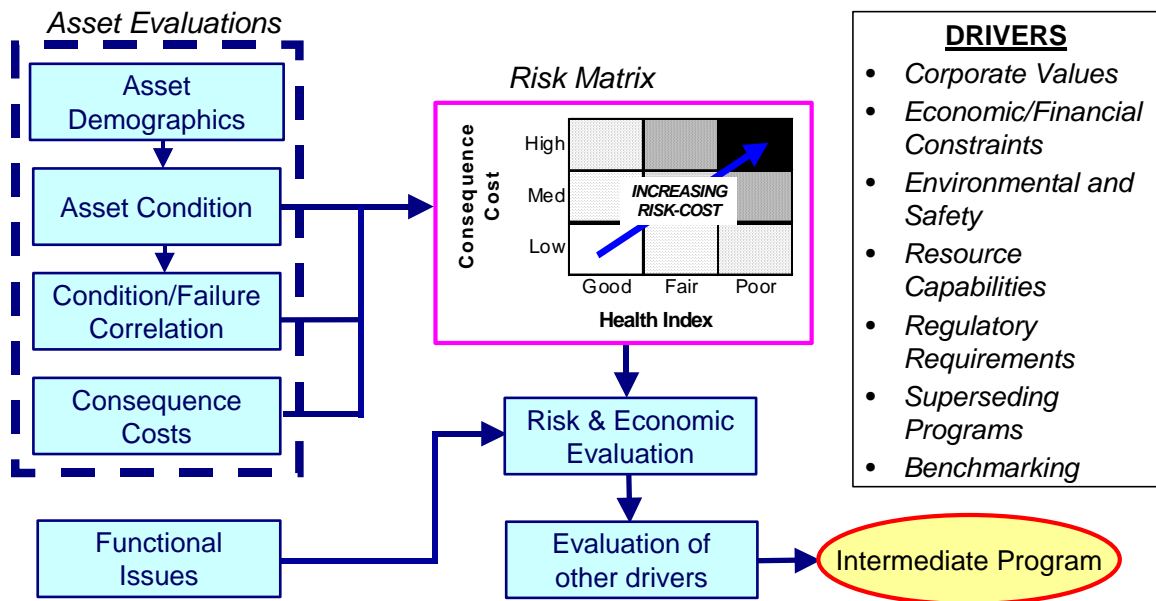
All of these results are discussed in more detail below. Of course, the most important result of the asset management process is that it provides a systematic method of collecting and comparing the diverse requirements from across the utility, and because it focuses on numeric, quantitative analysis, it assesses those requirements in a concrete way. This will allow the senior management and executive levels within Hydro Ottawa to evaluate the intermediate programs from various assets on equal footing.

B. Overhead Line Easements

1. General Processes

The process for development of an asset management plan for easements uses Hydro Ottawa's general asset management framework to develop an intermediate program, which is a plan for a particular asset class. The Figure 1 below shows this process.

Figure 1 Intermediate AM Framework



This process is intended to manage existing assets as they age and their condition degrades, in the context of pressure for financial and technical performance. The process allows ample opportunity for regulatory, financial, and other objectives to be considered alongside engineering considerations, to achieve a balanced, sustainable program. The details of this process are explained in the respective sections below.

2. Input Analysis

2.a. Easement Demographics

For any Asset Management process, demographic information on the assets is fundamental. This is information such as quantities, location, types and age. In the case of easements, little demographic data are available.

Demographic information for easements has been collected from various sources included in Hydro Ottawa's existing condition assessment and vegetation management programs. Hydro Ottawa manages about 4,830 km of lines that require tree clearance work. Those lines occupy easement corridors that must be maintained regularly to ensure the safe and reliable supply of electricity to Hydro Ottawa's customers.

Currently, Hydro Ottawa has a program of trimming approximately one third of its system each year. In general, vegetation is trimmed to the 10-foot limit of the easement at each cycle. In addition to the base, three-year cycle, some known problem areas are subject to an intermediate spot trim about two years after the main trim. An outside contractor performs all of this; - the cost is approximately \$1.72 million annually.

2.b. Easement Condition and Health Index

Condition demographics were developed as part of the asset management process. This is based on an initial survey of 12 areas scheduled for a full trim this year. The parameters and criteria used to define the health index are shown in Figure 2 below.

Figure 2 – Health Index Parameters

Tree Clearance		Overhang	
No Trees	0	No Overhang	0
<20% within 1 m of conductor	1	<20% of trees overhanging	1
20%-50% within less than 1 m	2	20%-50% of trees overhanging	2
>50% of trees less than 1 m	3	>50% of trees overhanging	3

Danger Trees		Tree Density (based on estimate or sample)	
No Danger Trees	0	No Trees	0
<20% of trees are danger trees	1	<30 trees/km	1
20%-50% of trees are danger trees	2	30-80 trees/km	2
>50% of trees are danger trees	3	>80 trees/km	3

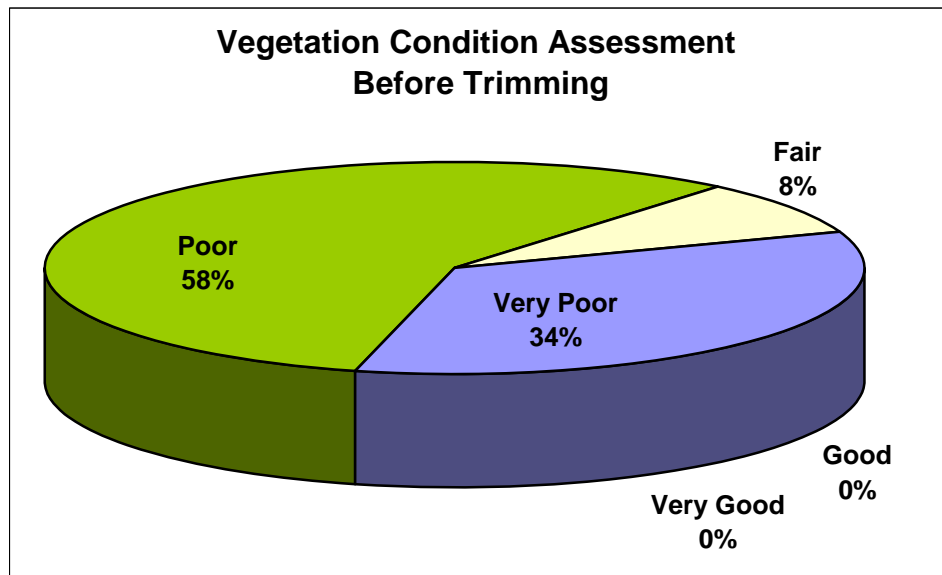
The survey measured the condition of each feeder in each of these areas. The Health Index weighted each parameter equally, reversing the scoring scale so a higher health index means better condition, as for all assets. The resulting Health Indices were used to determine the condition of the surveyed easements, using the following scale:

Table 1 – Condition Categories

Health Index	Condition
85-100	Very Good
70-85	Good
50-70	Fair
30-50	Poor
<30	Very Poor

Figure 3 shows the Health Index distribution of the 12 feeders surveyed in the sample. It shows that, immediately leading up to a trim, easements are generally in Poor and Very Poor condition. It is possible that there is a more efficient tree-trimming program that would produce condition results mostly in the Fair and Poor categories and would also result in fewer tree-related outages. Currently, the condition assessment of easements just prior to a trim suggests either that the program may be too slow or that the amount trimmed may need to increase. However, increased trimming amount may not be a viable option for other practical reasons such as general aesthetics, National Capital Commission guidelines, or customer expectations. The costs and benefits of a shorter period are considered later.

Figure 3 – Condition Assessment (pre-trim)



2.c. Consequence Cost

The first step in assessing the consequence cost of failure is to summarize the expected effects of failure. In general, these will include some or all of the following components:

- Customer outage effects. This will include "event" effects due to the outage (SAIFI), "duration" effects (SAIDI), and effects on critical customers.
- Health and safety consequences.
- Environmental consequences.

If other consequences are identified, these should be included as well. Consequence costs are scored using standardized scales based on the failure mode or modes. The total consequence cost is the sum of these components, so scoring scales are developed and weighted to ensure each component of the cost contributes the proper proportion to the total.

Failure of the easement asset class is really a subset of overhead line failures. Any outage caused by a tree contacting the line is a failure of the easement. This includes many failures that are categorized as "weather related," where wind or snow causes a tree to contact or down power lines.

2.d. Customer Effects

For most operational assets (i.e., wood poles, transformers, and other distribution equipment) the primary consequence of failure is the potential for interruption of service for some customers. This interruption comprises three parts:

- The event itself, regardless of its duration, expressed in customers interrupted.
- The duration of the event, expressed in customer-hours.
- Whether critical customers are affected by the outage.

Scoring for these is based on the scoring scales developed by Hydro Ottawa as part of the implementation of its Optimizer program. These scales indicate that avoiding about 3,900 customer outage events is worth three points. Although the scales used in the Optimizer are non-linear, this analysis uses a linear scale. If the Optimizer scales are changed in the future, it may be prudent to change the scale used in this process as well.

Hydro Ottawa keeps excellent databases of tree- and weather-related outages. This database includes the date, cause, and duration of the outage and the number of customers affected. Identifying which if the weather-related outages were actually caused by trees was based largely on the judgment and recollection of Hydro Ottawa staff. Table 2 summarizes the failure data from the last three years. Earlier data were not used because the current trimming program was not fully in effect then.

Table 2 – Outage Consequences

	Number of Customers	Duration of Outage
Adverse Weather Events	550	7.4
Tree Contact Events	190	2.4
Average	435	5.8

The table shows that there is a significant difference in terms of both customers affected and outage duration between the tree- and weather-related outage databases. As yet, no satisfactory explanation has been given for this, since we have assumed that the weather-related outages are simply tree contacts during a storm or other event. For this study, we have simply used the weighted averages, however future asset management work should ensure that data are in fact being collected consistently.

It was also possible to compare these databases with the easement-trimming program records to determine how long it had been since each failed feeder was trimmed. Figure 4 displays this relationship.

Figure 4 – Weather- and Tree-Related Outages



No data were available about the presence of critical customers; these consequences were ignored for this analysis. The result, then, is that the "event" cost plus "duration" cost gives the total cost in terms of customer effects.

2.e. Environmental Effects

No significant environmental effects are expected due to easement failures. However, environmental requirements may be important in selecting the best rate of trim and level of cutback.

2.f. Safety Effects

No significant safety effects are expected due to easement failures.

2.g. Weighting and Normalizing Consequence Costs

The only consequence identified for this analysis is customer outage. The "event" and "duration" components of this consequence are weighted based on scales developed for other assets, which were in turn based on the assumptions in the Optimizer. This also means that there is no need for further normalizing to ensure comparability across assets.

3. Failure Probability

Since approximately one third of the system is expected to be in each of these categories at any time (i.e., one third trimmed this year, one third trimmed last year, one third trimmed two years ago) Figure 4 above gives some insight into

the rate of failures as a function of the period between trim cycles. How this is used is discussed in the Analysis and Outputs section.

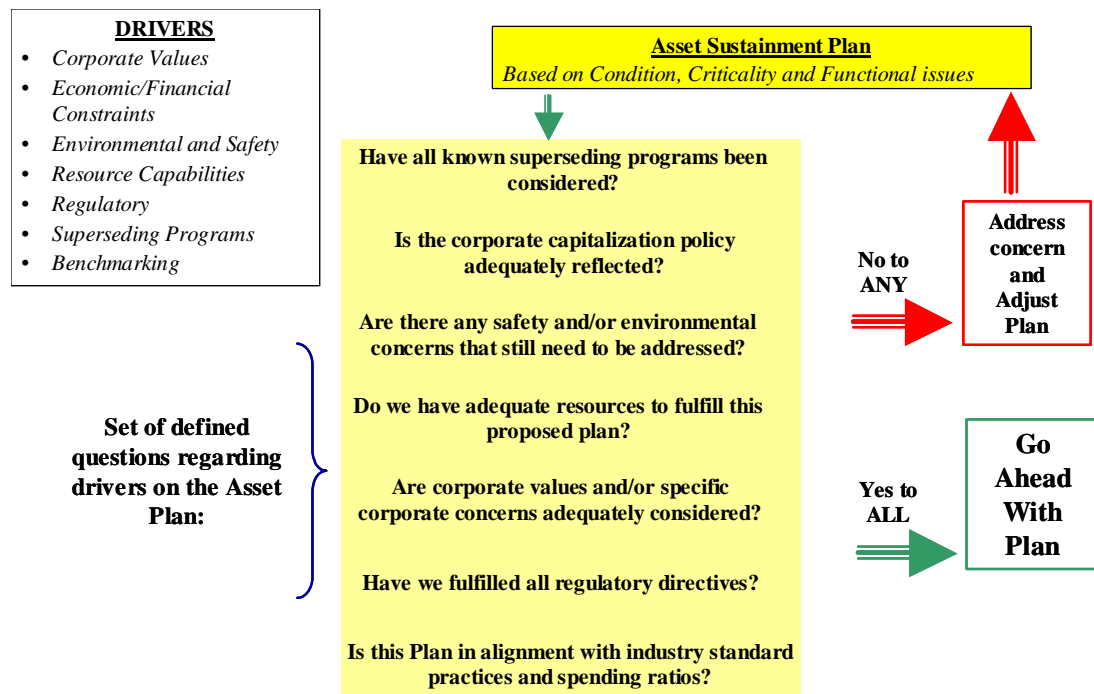
3.a. Functional

No functional issues related to management of the easements were identified.

4. Communication and Consideration of External Drivers

In the overall Asset Management Framework includes a process for identifying and evaluating the effect of relevant drivers to the asset managers. This is shown in Figure 5. These can generally affect any of the individual programs.

Figure 5 – External Drivers and the Asset Plan



Some of the drivers that may affect easements are:

4.a. Benchmarking

As a final check on any asset program, comparisons should be made on industry normal practices for such programs and ratios or benchmarks of spending. If the proposed plan is largely different from those benchmarks, the plan should be re-examined understanding the reasons for this difference. The plan may still go ahead unchanged but the reasons for the deviations from the normal benchmarks will be understood and documented. The plan may also be adjusted if something is found amiss.

4.b. Financial

Coordination between the asset management and financial groups is critical. It is important that the final asset management plan reflects the financial needs and objectives of Hydro Ottawa. This includes prioritizing spending needs to fit

within a budget, justifying increases or decreases in budgets, planning in order to address the capitalization policy, and other points. The asset managers must be aware of both short-term financial policy as well as long-term financial strategy.

4.c. Regulatory, Environmental

Successful asset management needs to incorporate strong ties to the corporate regulatory strategies and processes, such as for the justification of necessary asset sustainment spending in support of regulatory rate filings. Similarly, regulatory requirements can be inputs or drivers into program specific or overall decision-making. In the case of easements, the applicable regulatory requirements are most likely those dictating the degree to which trees can be cut back and the dimensions of the easements.

For this analysis, we have assumed that all trees are cut back to the maximum allowable amount every three years. However, if the actual allowable amount is greater or less than is currently trimmed, this may affect the optimum rate.

4.d. Resources

An important driver for any decision-making is resource capabilities and concerns. This goes both ways, necessary asset sustainment program can identify resources needed for the longer run while at the same time short run programs can only be done as available resources allow.

The easement-trimming program is contracted out, and administered by Hydro Ottawa. This means that a slower program is possible, and a faster one is as well, provided the contractor used has the available resources.

4.e. Corporate Objectives

Corporate objectives should be integrated into every phase of the asset management process. This pilot study incorporates corporate objectives as expressed in the scoring scales developed within the Optimizer as well as in the subjective judgments of the asset management personnel, who are familiar with Hydro Ottawa's objectives. These inputs show up mainly in the scoring of consequence cost and the weighting of various consequences against one another and against spending. As the scoring scales and explicit Corporate Objectives are updated by the executives, the asset management process should be adjusted to reflect them as needed.

5. Analysis and Outputs

The primary benefit of replacing, rehabilitating, or otherwise intervening to improve the condition of distribution assets is avoided risk. When assets are rehabilitated, their condition is improved, which decreases the likelihood of failure into the future. Quantifying this benefit is not always straightforward. Generally, risk-cost is defined as the probability of failure times the expected consequences of that failure.

In the case of the easements, the most likely cost-benefit tradeoff is between the rate of trimming and the cost of outages due to trees. The section below describes the way this tradeoff is analyzed and optimized.

6. Analytical Process

The period of the easement-trimming program, currently three years, can be adjusted up or down, with corresponding changes in cost and rates of tree-related outages. Using this method, we can estimate the benefit of a faster program. Unfortunately, we have no data on which to base a calculation of the cost (i.e., the increase in rate of failures) of a slower program.

6.a. Benefit of a Faster Program

The benefit of a faster program is the reduction in failure cost due to the fact that there will be fewer tree-related outages. This is calculated by estimating the number of failure events for a faster trim program, then calculating the total consequence cost of those failures, based on the average number of customers and outage duration. At the current rate, approximately one third of the system is in each of the three categories shown in Figure 4. If the period is cut to two years (i.e., a faster rate) then one half of the system will be in each of the two categories Zero years and One Year Since Last Trim. Finally, if the whole system is trimmed each year, then the whole system will be in the Zero Years category.

Table 3 shows the contribution of consequence cost from each third of the system in the current program. Remember that this is based on three years' worth of data, so the annual contributions will be one third of these values.

Table 3 – Consequence Cost Contribution

Years Since Trim	Average Annual Events	Consequence Cost
0	37	84
1	93	211
2	111	252

6.b. Cost of a Faster Program

Currently, Hydro Ottawa spends about \$1.72 million each year for its tree-trimming program. Since one third of the system is trimmed each year, this means that the cost to trim the entire system is approximately \$5.16 million, which would also be the annual cost of a one-year period program. A program of trimming every other year would cost approximately \$2.58 million.

In order to optimize the trade-off between costs and benefits, each of these terms must be expressed in the same units. As with other assets, we convert the dollar cost of the program into points, using the factor of 1 point / \$50,000. Table 4 shows the program direct cost, in both dollars and points, for periods of one, two, and three (current) years.

Table 5 – Direct Cost of Tree-Timing Programs for Various Periods

Trimming Period (years)	Annual Cost of Trimming (\$ mil)	Annual Cost of Trimming (pts.)
1	\$5.16	103.2
2	\$2.58	51.6
3	\$1.72	34.4

6.c. Optimizing the Program

The optimum program should minimize the total cost, including both direct cost and outage cost. Since both of these terms can be expressed in points, they can simply be added together for each period. However, the outage cost numbers must be adjusted to reflect the fraction of the total system that is expected to be in each state. The cost due to outage expected for one, two, and three year programs is calculated as follows:

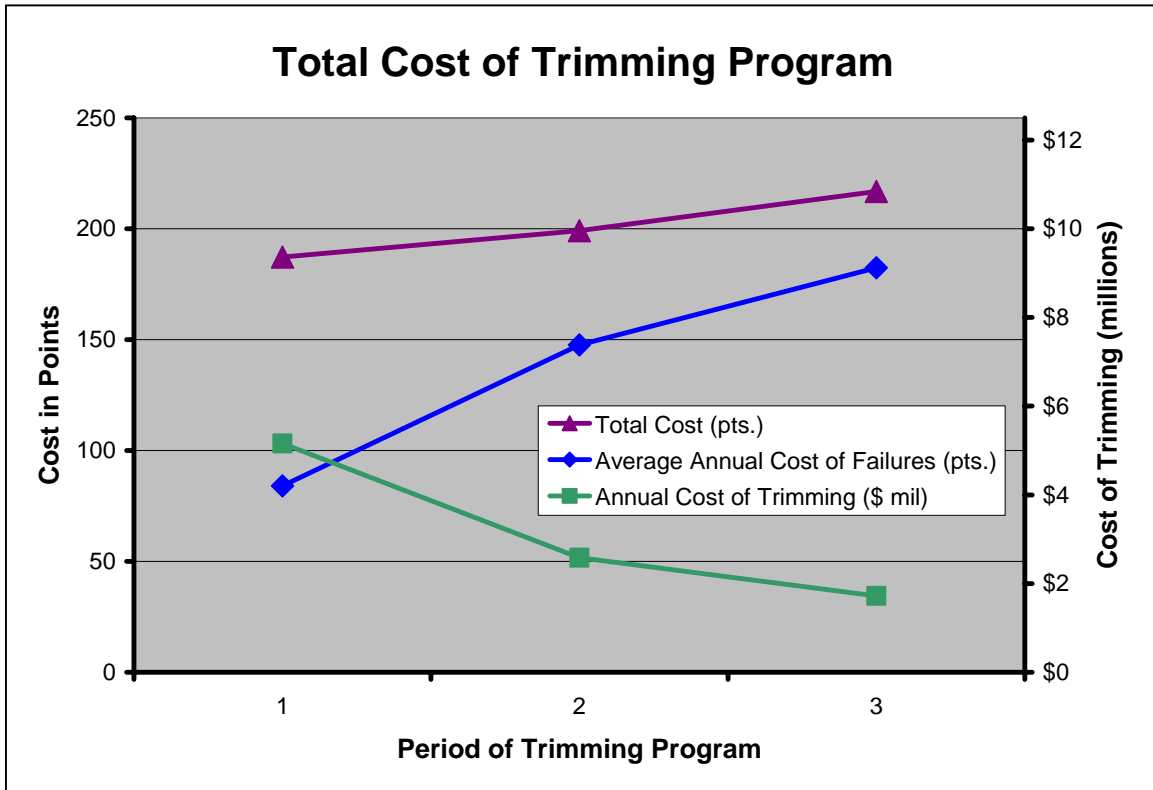
- Three-year program (current). The cost due to outages is the sum of the consequence cost figures divided by three (because the table reflects three years' data). This is approximately the average annual cost due to outages under the current program.
- Two-year program. Outage cost will be the sum of the first two rows' costs (i.e., Year 0 and Year 1) divided by three (since it includes three years), multiplied by 3/2 (since it includes only 2/3 of the system – the remaining third being in the 2 Years Since Trim row). The net result is to take the average of the 0 Years and 1 Year rows.
- One-year program. Using an argument similar to the one used for the two-year program, the annual outage cost if the entire system is trimmed each year is simply the 0 Years consequence cost

Table 6 shows the direct cost, outage cost, and total cost for tree-trimming programs of various periods. Figure 7 shows these results graphically.

Table 6 – Cost versus Period for Tree-Trimming Program

Trimming Period (years)	Annual Cost of Trimming (\$ mil)	Annual Cost of Trimming (pts.)	Average Annual Cost of Failures (pts.)	Total Cost (pts.)
1	\$5.16	103.2	84	187
2	\$2.58	51.6	148	199
3	\$1.72	34.4	182	217

Figure 6 – Cost versus Period for Tree-Trimming Program



The figure indicates that the optimum period of easement-clearing, from among the three periods considered, is one year. The total cost, shown by the purple line, is lowest with the fastest cycle.

It is extremely unlikely that a slower program with a period of more than three years will be better than the periods considered here. We did not consider the total cost of a slower cycle, mainly because no data were available for such a calculation, but also because the trend was clearly toward lower costs with a faster program. In addition, looking at the three-year point on Figure 6, it is clear that even if the cost of the trimming program dropped to zero and the cost of failures did not increase at all (both unrealistically optimistic assumptions) the total cost of this program would be just barely lower than the one-year period program.

6.d. Prioritization Based on Return

The tree-trimming program for the easements is optimized based on minimizing total cost. The next step is to determine the return on investment from spending additional capital or O&M dollars on tree-trimming. This allows the tree-trimming program to be prioritized relative other programs, such as pole replacements and transformer rewinds. This return is calculated as a benefit/cost ratio. As with other assets, this is expressed as the NPV of avoided risk divided by the NPV of the cost, multiplied by 1,000. (Since tree-trimming is a recurring, continuous process, the ratio of annual costs and benefits is equal to the ratio of

NPVs.) It is important the only *incremental* costs and benefits be included in this calculation.

The benefit/cost ratio for increasing the rate of tree-trimming is calculated in two steps: one for the move from a three- to a two-year cycle, and another for the move from two years to one.

Table 7 – Calculation of Benefit/Cost Ratio

Trimming Period (years)	Annual Cost of Trimming (\$ mil)	Average Annual Cost of Failures (pts.)	Benefit/Cost Ratio
1	\$5.16	84	0.0246
2	\$2.58	148	0.0405
3	\$1.72	182	--

The table shows that the return from moving the program from a three- to a two-year cycle is over 0.04. This is higher than most of the other assets considered to date, which suggests that increasing the rate of tree-trimming should be a relatively high priority within Hydro Ottawa. Decreasing the period further, from two years to one, is still advantageous, but the benefit/cost ratio of about 0.025, is lower than many other programs identified as part of the asset management process, and may not be justified on economic grounds.

7. Results for 2005

Based on these results, it appears that at least a two-year tree-trimming program is justified. Depending on the contracts currently in place and the ability of the contractor to gear up for more work, it may not be possible to implement the faster program immediately.

The method applied here is not perfectly precise. For example, we do not know how seasonal variations in growth rates or adverse affect failures. We do not know whether a targeted program, directed at highly critical areas or areas with high growth or heavy vegetation would be advantageous. However, it does help us to see that there is a good argument for a more aggressive tree-trimming program. It is likely that the benefit of the trimming program can be increased further by targeting the effort towards feeders with many customers or heavy or fast-growing vegetation.

8. Process Gaps

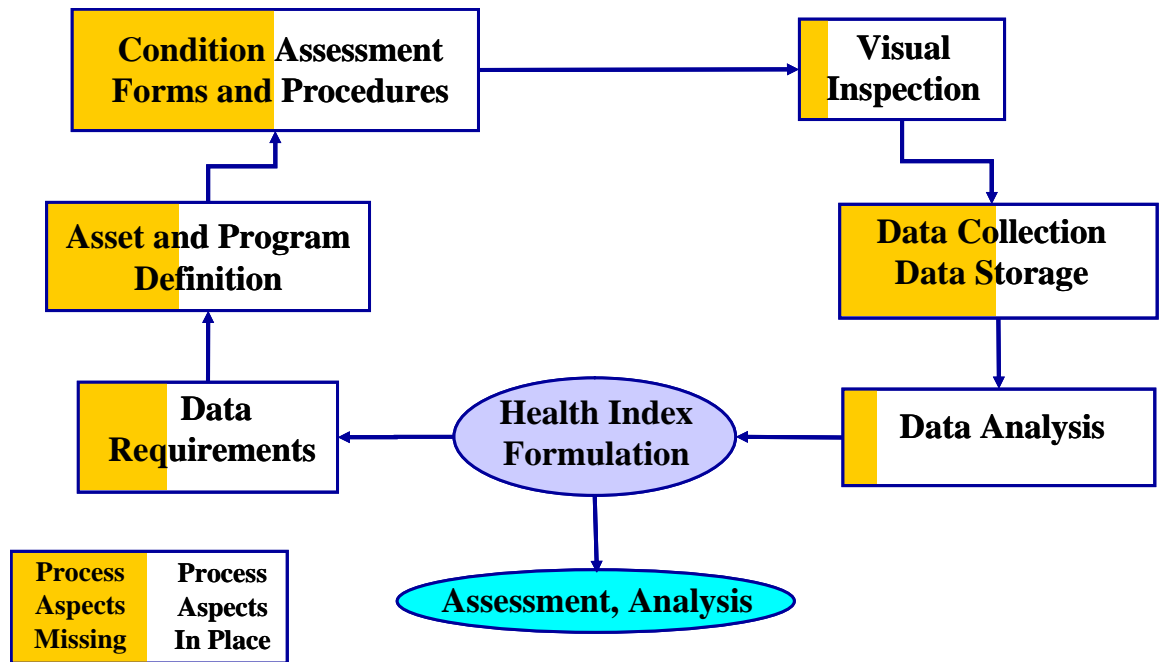
This section discusses process gaps related exclusively to the management of the easements. There are several global asset management gaps that have been identified as well, but these have been discussed elsewhere.

8.a. Condition Assessment Gaps

Currently, the condition of the easements is not assessed in any systematic way. The flowchart in Figure 7 below shows the process that has been used elsewhere inside Hydro Ottawa for developing health indexing programs for various assets. It is also the basis for the health indexing guidelines established for the easement sample. The process should be formalized so that easement management can be

optimized more precisely. Also shown on the figure is the estimated degree to which each of the steps shown is currently being carried out by Hydro Ottawa. This is not a rigorous gap analysis; it is intended only to give a general picture of the situation and work remaining.

Figure 7 - Health Indexing Process and Gaps



Of particular importance in this case is defining the asset properly. Currently, the easements are trimmed based on geographical areas. This is certainly the most straightforward way to do so, for the purposes of managing and prosecuting the trimming work, however it may not be helpful for identifying critical feeders or areas.

The final condition assessment and health indexing process should include standards for data collection and storage, forms, and other tools to ensure that data is collected consistently and comprehensively.

Effort required to close gaps: A significant effort will be required to close this gap. The work done to-date has been focused mainly on generating results quickly, rather than putting in place processes that will support management of the asset into the future. However, as with many assets, Hydro Ottawa already collects a good deal of relevant data, which mitigates the level of effort somewhat.

8.b. Consequence and Risk Analysis Gaps:

Collection of failure data

Hydro Ottawa does a good job of collecting failure data related to tree contact and weather, even noting the number of customers affected and the duration of

outages. The only significant gap in this area is that many outages are listed under “adverse weather” when in fact they are probably tree-related. This should be changed so all tree-related outages are noted. This may require explicit instructions to the line crews. Effort required to close gap: minimal

Evaluation of other intervention options

This analysis considers the benefit of only a faster program. Not considered were other options that might prove even more beneficial. The most promising strategy to consider is a targeted trimming approach, identifying highly critical feeders or areas, and concentrating the trimming resources on these. This will require additional data collection and analysis.

Effort required to close gap: Closing this gap requires some up-front, strategic work to develop a plan for correlating condition, failure, criticality, and geographic information in a meaningful, usable way. Once a plan is in place, some analysis will be required to devise an optimized plan. This plan must then be adjusted as needed to make it manageable in the context of contracting and managing the actual tree-trimming work.

Critical customers

Hydro Ottawa would like to include the presence of critical customers in scoring consequences of failure. Currently, the critical customers have been identified and scored based on their relative criticality, but it is not possible to associate them with a feeder or to correlate them in any other way with the tree-trimming program.



Interrogatory

QUESTION #48

Reference: Exhibit D1, Tab 4, Schedule 4

a) The GAP analysis appears to focus on where Hydro Ottawa's current performance is relative to "leaders in the industry". Did Hydro Ottawa undertake any analysis to determine if any "gaps" existed from its own customers' perspective? If yes, what were the results?

b) Can Hydro Ottawa demonstrate that customers currently desire and are willing to pay for an improved level of customer service?

c) Are the investments in improved customer service required in order to meet the OEB's Service Quality Measure targets?

Response

a) Hydro Ottawa conducts several research and analysis efforts to understand customer service "gaps" from its customers' perspective. Specifically, the following activities have been conducted and/or are ongoing:

- Focus Groups (with customers and separately with employees),
- An annual, residential customer satisfaction survey, and
- Monthly call centre customer surveys.

Hydro Ottawa recognizes that customer service standards defined by the Board help ensure that customers experience adequate levels of service for these regulated standards; however, Hydro Ottawa is also accountable to meet additional customer service expectations of its customers, stakeholders and shareholder that are not



1 measured by the Board but none-the-less are important. As a result Hydro Ottawa
2 needs to conduct ongoing research and analysis, to ensure it understands and stays
3 abreast of these other requirements as seen through the eyes of its customers,
4 stakeholders and shareholder.

5
6 Accordingly, in late 2008 Hydro Ottawa conducted a series of focus groups of its
7 residential and business customers and of its own employees and contractors. The
8 focus groups helped identify, clarify and validate areas of opportunity on which Hydro
9 Ottawa could focus its efforts, in order to improve customer service expectations
10 including the following top priorities and issues: Competence, Reliability of Service,
11 Responsiveness, Understanding, Accessibility, Communication and Courtesy. Hydro
12 Ottawa subsequently established its 'Guiding Principles For Customer Service'
13 based partially on the above focus group findings but also on other primary and
14 secondary research findings in terms of best and leading practices.

15
16 In addition to focus groups, Hydro Ottawa also conducts an annual Customer
17 Satisfaction survey across its residential customer base. This survey, when taken
18 with focus group findings, helps further validate and clarify customer and stakeholder
19 expectations and provides important insights into what Hydro Ottawa's customers
20 see as most important. For instance, the 2009 customer satisfaction survey
21 produced Table 1 which helps answer the question, "We are interested in knowing
22 what you think are the one or two most important things Hydro Ottawa could do or fix
23 to improve service to their customers?"



1

Table 1 – How to Improve Service

	% of all suggestions
Better prices	21%
Conservation / more information including rebates and incentives	9%
Be more environmentally sensitive	6%
Improve power reliability	6%
Better communication with customers	7%
Improve Billing	8%
Be more efficient	7%
Eliminate Smart meters	5%
Better maintenance and repairs	3%
Improve response times	4%

2

3 Hydro Ottawa also surveys a monthly sample of customers who have called into
4 Hydro Ottawa's call center for service. Given that its call center accounts for a
5 significant portion of customer contacts each month it is a key opportunity for Hydro
6 Ottawa to ensure it gets feedback from these customers on their customer service
7 experience and expectations. These surveys are timely and as such can be helpful
8 in identifying new emerging concerns (i.e. Time of use inquiries), emerging trends
9 and may even be operationally helpful.

10

11 b) While many customers are satisfied overall with Hydro Ottawa's level of customer
12 service, it is equally clear from Table 1 and from ongoing research, that many
13 customers do want service improvements. There is obviously a range in terms of
14 how adamant customers are in their desire for improvements but none-the-less, their
15 feedback provides Hydro Ottawa with an opportunity to continuously improve its
16 customer service performance and keep pace with expectations.

17

18 To the question of whether or not customers are willing to pay for improved levels of
19 service, the answer is it depends on the customer. Customers have varying
20 expectations for service level improvements and willingness to fund these



1 improvements. There is a portion of customers who accept the concept of paying for
2 electricity but are unwilling to pay incrementally more to fund service improvements.
3 Alternatively, there is a portion of customers who understand and agree that certain
4 service improvements may require investments that are not within the utility's
5 existing budget and should be funded.

6
7 For its part Hydro Ottawa endeavours to strike the right balance between meeting its
8 regulated service requirements, funding operational requirements in a sustainable
9 manner, meeting its shareholder expectations and meeting the service priorities
10 across its customer base.

11
12 c) Hydro Ottawa did meet the minimum standards for all 6 service quality indicators in
13 2006, 2007, 2008 and 2009 as shown in Exhibit B6-1-1. These investments in
14 improved customer service are specifically not required in order to meet the Ontario
15 Energy Board's Service Quality Measure targets.



1 **Interrogatory**

2
3 **QUESTION #49**

4
5 Reference: Exhibit D1, Tab 5, Schedule 1

6
7 a) Please outline the role of each of the new positions listed and reconcile with the
8 listing of new positions at Exhibit D4, Tab 1, Schedule 1, pages 2-3.

9
10 **Response**

11 a) The role of each new position is outlined below:

12
13 **Power Line Maintainer Apprentices**

14 The Power Line Maintainer Apprentice participates in a minimum five-year
15 apprenticeship program that includes on-the-job training and competency based trade
16 school.

17
18 Upon certification, the Power Line Maintainer works in an energized high voltage
19 electrical environment. The work includes locating, troubleshooting and restoring power
20 during power outages and disturbances, as well as constructing and maintaining the
21 overhead power distribution system.

22
23 **Meter Technician Apprentices**

24 The Meter Technician Apprentice participates in a minimum four-year apprenticeship
25 program that includes on-the-job training and competency based trade school.

26
27 Upon certification, the Meter Technician installs, removes and maintains meters and
28 metering equipment for verification in sub-stations, buildings and customer properties.
29 This includes working on new and existing construction and calibration of meters
30 according to Measurement Canada standards.



1 **Technical Specialist**

2 The System Operations Technical Specialist is responsible for field services for
3 residential, large commercial and industrial customers including power quality, radio
4 interference and magnetic field measurements. This position provides support for the
5 SCADA Engineering group by carrying out duties that may include preventative
6 maintenance, troubleshooting communications and providing assistance when work is
7 carried out from an aerial device.

8
9 **Stations Coordinator**

10 The Stations Coordinator plans, schedules, and coordinates fieldwork. In addition to
11 performing the work of the trade, Coordinators help coordinate the work activities of a
12 group or groups of trades' people to complete assigned tasks or projects on schedule
13 and on budget. The Coordinator assists the supervisor in ensuring the work is carried out
14 in a safe productive manner, in accordance with Company policy and procedures.

15
16 **Inspector**

17 The Inspector is responsible for overseeing the construction and maintenance of both
18 the overhead and underground distribution systems as well as the installation of third
19 party plant in or on Hydro Ottawa infrastructure.

20
21 **Field Representative**

22 The Field Representative is responsible for carrying out all field activities associated with
23 revenue retention and billing services. Work includes disconnects and reconnects while
24 working under live wire conditions.

25
26 **IT Systems Support**

27 The IT Systems Support is responsible for the operational support and implementation of
28 Information Technology systems residing on the Hydro Ottawa network infrastructure
29 across multiple sites.



1 **Customer Contact Agent**

2 The Customer Contact Agent responds to external and internal customer inquiries
3 relating to account management, billing, arrears, collections, payments, policies,
4 procedures, and regulations.

5
6 **Customer Communications Officer**

7 The Customer Communications Officer is responsible for the development and
8 management of communication materials for customers and other stakeholders including
9 written, audio-visual and web-based materials.

10
11 **CIS Technical Support Analyst**

12 The CIS Technical Support Analyst is responsible for interfacing with the CIS end users
13 and analyzing specifications, identifying possible options, and recommending
14 improvements and enhancements. The Analyst also assists staff with application issues
15 by researching and analyzing problems from a technical application perspective.

16
17 **Manager Human Resources - Overlap**

18 The Manager Human Resources is responsible for developing and implementing human
19 resources programs and policies in such areas as compensation and benefits, disability
20 management, and employee and labour relations.

21
22 **Supervisor Information Systems & Technology - Overlap**

23 The Supervisor Information Systems & Technology is responsible for the supervision,
24 development, planning, implementation and ongoing support of corporate technology
25 initiatives, strategies and programs.

26
27 **Supervisor Construction and Maintenance - Overlap**

28 The Supervisor Construction and Maintenance is responsible for project construction,
29 maintenance and repair activity associated with the overhead and underground power
30 distribution systems, and construction of new overhead pole lines and line rebuilds,
31 ensuring that all safety regulations, standards, project schedules and budgets are met.



1 **Supervisor CIS Technical Support - Overlap**

2 The Supervisor CIS Technical Support is responsible for the management of the CIS
3 Technical Support Section. This includes monitoring day-to-day service provider
4 operations and performance against service level agreements, examining measured
5 results for problem determination and root cause analysis and taking appropriate action
6 to correct failed activities, functions and processes.

7
8 **Renewable Generation Engineer (renamed Renewable Generation Supervisor)**

9 The Renewable Generation Supervisor is responsible for providing technical and
10 business development support for renewable generation projects. The Supervisor also
11 provides advice and support to customers enabling them to safely plan and connect
12 renewable generation projects to Hydro Ottawa's grid.

13
14 **Distribution Engineer**

15 The Distribution Engineer provides strategic and tactical advice and analysis on the
16 distribution system. The Distribution Engineer looks at reliability and economic
17 optimization of operating configurations, development of single and dual element
18 contingency plans for system operations, and provides real-time review of operating
19 constraints for switching and loading activities in daily operation.

20
21 **Environmental Officer**

22 The Environmental Officer is responsible for coordinating the implementation of the
23 Environmental Sustainability Strategy and monitoring and reporting on progress against
24 established plan deliverables, timelines and key performance indicators. The
25 Environmental Officer also provides support for the environmental compliance program
26 and ISO certified environmental management system.



1 **Interrogatory**

2
3 **QUESTION #50**

4
5 Reference: Exhibit D3, Tab 1, Schedule 3, page 3

6
7 a) Please provide a schedule that contrasts Hydro Ottawa's 2009 budget by USOA with
8 its 2009 actual spending. Please provide a variance analysis for each major OM&A
9 category (i.e., Operations, Maintenance, Billing & Collecting, etc.).

10
11 b) This Schedule states that a significant portion of the incremental maintenance
12 expense associated with the Beacon Hill Substation fires was recovered through
13 insurance expense. However, Exhibit D2, Tab 1, Schedule 1, page 3 states that the
14 extent of insurance coverage is still being discussed with the insurer. Please
15 reconcile. Please also indicate the dollar value of the incremental maintenance
16 expenses covered by insurance.

17
18 c) What 2009 Maintenance activities, if any, were postponed as a result of the
19 incremental work created by the Beacon Hill Substation fire? What were the
20 associated "savings"?

21
22 **Response**

23
24 a) The following table shows 2009 actual vs. 2009 budget.
25
26
27
28
29



	US of A	2009 Budget	2009 Actual	Variance (\$)	Percent Change %
Operation		\$16,227,254	\$11,364,065	(\$4,863,189)	(42.8%)
Load Dispatching	5010	4,451,793	3,177,345	(1,274,448)	(40.1)
Station Buildings and Fixtures	5012	671,061	623,465	(47,596)	(7.6)
Trans. Station Equip. - Labour	5014	134,696	98,211	(36,485)	(37.1)
Trans. Station Equip. - Expenses	5015	18,733	43,680	24,947	57.1
Distribution Station Equipment - Labour	5016	399,033	269,275	(129,758)	(48.2)
Distribution Station Equipment - Expenses	5017	61,983	108,428	46,445	42.8
Overhead Distribution Lines and Feeders - Labour	5020	635,624	743,584	107,960	14.5
Overhead Distribution Lines and Feeders - Expenses	5025	2,377,358	1,668,647	(708,711)	(42.5)
Overhead Distribution Transformers - Operation	5035	2,069	12,295	10,226	83.2
Underground Distribution Lines - Labour	5040	423,029	806,140	383,111	47.5
Underground Distribution Lines - Expenses	5045	1,583,155	1,491,329	(91,826)	(6.2)
Underground Distribution Trans - Operation	5055	18,645	33,366	14,721	44.1
Meter Expense	5065	3,008,039	1,588,162	(1,419,877)	(89.4)
Miscellaneous Distribution Expense	5085	2,442,037	700,138	(1,741,899)	(249)
Maintenance		\$4,604,090	\$5,171,079	\$566,989	11.0%
Maintenance of Transformer Stations Equipment	5112	82,877	336,148	253,271	75.3
Maintenance of Distribution Stations Equipment	5114	659,897	1,049,989	390,092	37.2
Maintenance of Poles, Towers a Fixtures	5120	24,151	300,728	276,577	92.0
Maintenance of Overhead Conductors and Devices	5125	696,492	738,310	41,818	5.7
Maintenance of Overhead Services	5130	825,660	502,993	(322,667)	(64.1)



	US of A	2009 Budget	2009 Actual	Variance (\$)	Percent Change %
Maintenance of Underground Conduit	5145	29,974	174,315	144,341	82.8
Maintenance of Underground Conductors and Devices	5150	599,658	713,449	113,791	15.9
Maintenance of Underground Services	5155	413,308	327,659	(85,649)	(26.1)
Maintenance of Line Transformers	5160	711,032	451,095	(259,937)	(57.6)
Maintenance of Meters	5175	561,042	576,393	15,351	2.7
Billing and Collecting		\$10,514,386	\$10,233,636	(\$280,750)	(2.7%)
Meter Reading Expense	5310	285,502	497,472	211,970	42.6
Customer Billing	5315	6,822,982	6,454,518	(368,464)	(5.7)
Collecting	5320	1,905,902	1,766,044	(139,858)	(7.9)
Collections Charges	5330	-	(709)	(709)	100.0
Bad Debt Expenses	5335	1,500,000	1,516,311	16,311	1.1
Community Relations		\$4,840,285	\$4,594,942	(\$245,343)	(5.3%)
Community Relations - Sundry	5410	4,589,150	4,470,513	(118,637)	(2.7)
Demonstration and Selling Expenses	5510	251,136	124,429	(126,707)	(101.8)
Administrative and General		\$21,837,628	\$20,670,993	(\$1,166,635)	(5.6%)
Executive Salaries and Expenses	5605	2,269,745	2,699,842	430,097	15.9
Management Salaries and Expenses	5610	5,272,794	5,206,365	(66,429)	(1.3)
General Administrative Salaries and Expenses	5615	2,463,701	2,452,624	(11,077)	(0.5)
Office Supplies and Expenses	5620	4,119,077	3,356,987	(762,090)	(22.7)
Administrative Expense Transferred - Credit	5625	(2,972,197)	(2,445,112)	527,085	(21.6)
Outside Services Employed	5630	655,000	201,012	(453,988)	(225.9)



	US of A	2009 Budget	2009 Actual	Variance (\$)	Percent Change %
Insurance Expenses	5635	344,176	338,543	(5,633)	(1.7)
Injuries and Damages	5640	781,773	628,598	(153,175)	(24.4)
Employee Pensions and Benefits	5645	640,003	605,814	(34,189)	(5.6)
Regulatory Expenses	5655	1,097,800	1,127,054	29,254	2.6
General Advertising Expenses	5660	-	3,843	3,843	100.0
Miscellaneous General Expenses	5665	2,601,140	2,166,054	(435,086)	(20.1)
Maintenance of General Plant	5675	4,514,116	4,266,187	(247,929)	(5.8)
Charitable Contributions	6205	50,500	63,182	12,682	20.1
Sub Total		\$58,023,644	\$52,034,715	(\$5,988,929)	(11.5%)
Taxes Other Than Income Taxes	6105	1,810,998	1,793,952	(17,045)	(1.0)
Total OM&A Expenses		\$59,834,641	\$53,828,667	(\$6,005,974)	(11.2%)

In general the 2009 OM&A costs were below budget as more labour was diverted to capital programs than anticipated.

The cost reduction in operations occurred as a result of increased capital allocations and a reduction in meter expense. Hydro Ottawa's workforce was diverted to complete both demand and sustainment capital which was higher then budgeted by approximately \$3 Million. Meter expense was down by \$1.4 Million as Hydro Ottawa transitioned to its Smart Meter assets and fewer traditional meters required repairs.

Cost reductions in Administrative and General Expenses were a result of costs saving in office supplies of \$760k as well as reductions in outside services of \$454k. Each year Hydro Ottawa strives to reduce costs where it can as it attempts to become more efficient. Programs such as Lean¹ are used to find areas of waste and

¹ Exhibit D1-1-1 Section 6.6



1 correct processes that can be more efficient. These savings are realized without
2 reducing Hydro Ottawa's effectiveness.

3
4 b) The incremental OM&A costs associated with the Beacon Hill fire as reported in
5 Exhibit D2-1-1 Table 1 was \$1.594 Million. In 2009, Hydro Ottawa recorded a
6 provision for a recovery from the insurance carrier of \$1.1 million, although insurance
7 compensation has not yet been finalized. The remainder, \$494k remains as an
8 expense in the maintenance category.

9
10 c) No specific maintenance programs were deferred as a result of the Beacon Hill fire
11 however costs were reduced in areas not associated with distribution stations. The
12 provision recorded for the insurance payment did offset the costs.



1 **Interrogatory**

2
3 **QUESTION #51**

4
5 Reference: Exhibit D3, Tab 1, Schedule 3, page 4

6
7 a) Please reconcile the explanation provided here for the higher vegetation
8 management costs in 2010 (versus 2009) with that provided in Exhibit D1, Tab 1,
9 Schedule 2, page 7.

10
11 **Response**

12
13 a) Hydro Ottawa's vegetation management program for 2009 was not completed as
14 expected. Hydro Ottawa's 2010 budget includes costs to complete the 2009 program
15 as well as the entire 2010 program. This will require additional funds in 2010.



1 **Interrogatory**

2
3 **QUESTION #52**

4
5 Reference: Exhibit D4, Tab 1, Schedule 1, Attachment Y

6
7 a) Given that capital expenditures increase by over 17% between 2009 and 2011
8 (Exhibit B4, Tab 5, Schedule 1, Table 1), why does the capitalized Compensation
9 only increase by less than 3%.

10
11 **Response**

12
13 a) The capital increases from 2009 to 2011 are in large part due to the construction of
14 substations for capacity planning. These types of capital expenditure are focused
15 primarily on material purchases and have very little Hydro Ottawa labour content
16 relative to other assets.



1 **Interrogatory**

2
3 **QUESTION #53**

4
5 Reference: Exhibit D6, Tab 1, Schedule 1

6
7 a) Please confirm that Hydro Ottawa uses the ½ year rule for determining depreciation
8 on assets the year they are placed in-service.

9
10 b) Please also confirm that Hydro Ottawa uses the ½ year rule for determining the rate
11 base impact of such assets.

12
13 **Response**

14
15 a) Hydro Ottawa uses the ½ year rule for determining depreciation on assets the year
16 they are placed in-service.

17
18 b) Hydro Ottawa uses the ½ year rule for determining the rate impact of such assets.



Interrogatory

QUESTION #54

Reference: Exhibit E1, Tab 1, Schedule 1

a) Has Hydro Ottawa investigated as to whether the required new debt can be obtained from other sources on better terms than those offered by the Holding Company? If not, why not? If yes, what are the terms and why is Hydro Ottawa obtaining the new debt from the Holding Company?

b) Do the interest rates paid to the Holding Company reflect the actual cost of borrowing by the Holding Company? If not, what is the difference and what is the basis for this difference?

Response

a) Hydro Ottawa transacts all of its short and long-term debt requirements through the Holding Company which maintains a strong credit rating for the Hydro Ottawa Group of Companies. The Holding Company enters into short term credit facilities and places long-term debt issuances to meet these funding requirements. Hydro Ottawa feels the financing strength of the Holding Company optimizes its borrowing requirements, in terms of both rates and terms and conditions. To this extent, Hydro Ottawa considers its financing arrangements flexible, efficient and effective and does not seek alternative financing sources.

b) Please refer to EP #40b.



Interrogatory

QUESTION #55

Reference: Exhibit F1, Tab 1, Schedule 1

- a) With respect to page 1, please confirm that the revenue deficiency/sufficiency was calculated using the forecasted 2011 revenue based on the 2010 Smart Meter rate adder (as opposed to the 2010 revenue as suggested).
- b) With respect to Table 1, please confirm that the reported Distribution Expenses of \$64,766 k exclude amortization (as opposed to include as suggested).
- c) Please provide a table that shows the derivation of the revenues based on 2011 loads and 2010 rates by customer class. In doing so, please set out the rates and loads used by class.
- d) Exhibit C1, Tab 1, Schedule 1, page 15 states that the 2011 forecast TOC was added to the Base Revenue Requirement before the Revenue Deficiency/Sufficiency was calculated. Please indicate where/how this adjustment is included in Table 1.

Response

- a) The revenue deficiency/sufficiency was inadvertently calculated using the forecasted 2010 revenue based on the 2010 Smart Meter rate. Note that using the forecasted 2011 revenue based on the 2010 Smart Meter rate reduces the shown revenue deficiency by only \$92k, however this does not affect the proposed rates as they were calculated using the modified EDR model.
- b) Yes, Table 1 should say Distribution Expenses excluding amortization.
- c) Please see the response to VECC Interrogatory #9a.



1 d) Exhibit C1-1-1 page 15 states that the 2011 forecast Transformer Ownership Credit
2 (“TOC”) was added to the Base Revenue Requirement before the Revenue
3 Deficiency/Sufficiency was calculated. This comment refers to the revenue deficiency
4 that is used to adjust the 2010 base rates in the modified version of the 2006
5 Electricity Distribution Rate (“EDR”) Model; a copy of which is included as
6 Attachment AH in Exhibit H1-2-1. Table 1 of Exhibit F1-1-1 does not include this
7 adjustment as it is a reflection of the Ontario Energy Board’s Revenue Requirement
8 Work Form. As noted in Exhibit A2-1-2 the Revenue Requirement Work Form does
9 not take into account the TOC of \$1,171,602 which should be added to the 2011
10 Base Revenue Requirement before distribution rates are calculated.



Interrogatory

QUESTION #56

Reference: Exhibit G1, Tab 1, Schedule 1 and Attachment AD

a) Attachment AD (page 5) states that Hydro Ottawa's 2011 Model has been corrected for the Transformer Ownership Allowance (TOA). Please confirm that while the Board's 2009 Filing Guidelines direct that the cost of the TOA be excluded from the cost allocation and the revenues by customer class reduced, Hydro Ottawa's model includes the TOC as a cost (albeit allocated to specific customer classes) and has not adjusted the revenues by class.

b) Attachment AD (page 11) shows the Revenue to Cost ratios for 2011 scaled to 100%. Was the "scaling" performed by i) increasing the total revenues attributed to each class or ii) increasing the distribution revenue attributed to each class by the same percentage?

c) With respect to Schedule 1, page 4, please provide the annual customer count for the Sentinel Light class for 2008 through 2011.

Response

a) Yes, the Ontario Energy Board's (the "Board") May 27, 2009 Filing Guidelines do state that the cost of the transformer ownership allowance should be excluded from the cost allocation and the revenues reduced by customer class. As an alternative, Hydro Ottawa chose to continue to use the transformer ownership allowance correction methodology that was agreed to in the Settlement to the 2008 Distribution Rate Application (EB-2007-0713), i.e. allocate the transformer ownership credit expense to those customer classes that receive it. Hydro Ottawa was of the opinion that this correction accomplished the same goal as the Board's direction but continued to allow comparability with previous year's cost allocation studies.



- 1 b) The distribution revenue for each class was scaled by the same percentage.
2
3 c) The following table provides the annual count of Sentinel Lights for 2008 through
4 2011.
5
6

Table 1 – Sentinel Lights

Year	Sentinel Light count
2008 Actual	86
2009 Actual	82
2010 Forecast	82
2011 Forecast	75

7



Interrogatory

QUESTION #57

Reference: Exhibit G1, Tab 1, Attachment AD and AE

- a) Please reconcile the customer count, kWh and kW by class reported in Attachment AE, Sheet I6 with those from the Load Forecast as set out in Exhibit C1, Tab 1, Schedule 1, pages 10, 12 & 14. Contrary to the statement in Attachment AD (page 6) the customer, demand and energy values by class used in the Cost Allocation do not appear to match those from the Load Forecast.
- b) Please reconcile the 2011 revenue at current rates used in Attachment AE, Sheet O1 with that set out in Exhibit F1, Tab 1, Schedule 1, Table 1.

Response

- a) The customer count, kWh and kW by class reported in Attachment AE, Sheet I6 and in the load forecast as set out in Exhibit C1-1-1 are the same, with some adjustments between classes to account for Standby/Backup Power customers and Sentinel Lights. This is explained in the following three tables.



1

Table 1 – kWh in Cost Allocation and Load Forecast

Class	Sheet I6 of Cost Allocation kWh	Table 8 MWH	Notes
Residential	2,229,674,945	2,229,754	In Table 8 Residential includes Sentinel Lights
GS <50	756,993,599	756,994	
GS1000NI		1,651,810	In Sheet I6 these are included in GS>50 kW < 1500kW. In Table 8 includes Back-up/Standby Power customers
GS1000I		1,021,506	
GS5000		345,895	
GS>50 kW < 1500 kW	3,002,209,934		
GS>1500 kW < 5000 kW	787,344,031	839,344	In Table 8 includes Back-up/Standby Power
Large Use >5MW	645,268,861	645,269	
Street Light	38,922,344	38,922	
Sentinel	79,553		In Table 8 included in Residential
Unmetered Scattered Load	17,001,652	17,002	
Back-up/Standby Power	69,000,000		In Table 8 included in GS>50 and>1500 classes
TOTAL	7,546,494,919	7,546,496	

2

3

4



1

Table 2 – kW in Cost Allocation and Load Forecast

Class	Sheet I6 of Cost Allocation kW	Table 13 kW	Notes
GS1000NI		4,351,162	In Sheet I6 these are included in GS>50 kW < 1500kW. In Table 13 includes Back-up/Standby Power customers
GS1000I		2,405,768	
GS5000		807,483	
GS>50 kW < 1500 kW	7,529,413		
GS>1500 kW < 5000 kW	1,690,025	1,787,025	In Table 13 includes Back-up/Standby Power
Large Use >5MW	1,197,001	1,197,001	
Street Light	118,127	118,127	
Sentinel	221	221	Not shown in Table 13
Back-up/Standby Power	132,000		In Table 13 included in GS>50 and > 1500 classes
Back-up/Standby Power	115,200	115,200	Not shown in Table 13, shown in Table 15
TOTAL	10,781,987	10,781,987	

2



1 **Table 3 – Average Customer Count in Cost Allocation and Load Forecast**

Class	Sheet I6 of Cost Allocation customer #s	Table 10	Notes
Residential	276,039	276,039	
GS <50	23,554	23,554	
GS1000NI		2,640	In Sheet I6 these are included in GS>50 kW < 1500kW. In Table 10 includes 2 Back-up/Standby Power customers
GS1000I		572	
GS5000		53	
GS>50 kW < 1500 kW	3,263		
GS>1500 kW < 5000 kW	64	66	In Table 10 includes 2 Back-up/Standby Power
Large Use >5MW	12	12	
Street Light	3,643	54,645	In Sheet I6 S/L # is divided by 15
Sentinel	82		Not shown on Table 10
Unmetered Scattered Load	2,853	2,853	
Back-up/Standby Power	4		In Table 10 included in GS>50 and > 1500 classes

- 2
- 3 b) The 2011 distribution revenue at current rates used in Attachment AE, Sheet O1 line
- 4 \$146,578k and the 2011 revenue at current rates in Exhibit F1-1-1, Table 1 is
- 5 \$146,491k. There are two reasons for the small difference:



- 1
 - 2
 - 3
 - 4
 - 5
- the revenue from backup/standby power rates is included in the Cost Allocation sheet, and
 - the Exhibit F1-1-1, Table 1 used monthly customer figures while Attachment AE used yearly averages.



1 **Interrogatory**

2
3 **QUESTION #58**

4
5 Reference: Exhibit G1, Tab 1, Schedule 1 and Attachment AF

6
7 a) Please explain how the “Test Year Revenue Assuming Current Revenue to Cost
8 Ratio” values were determined. In doing so, please clarify the basis for the first
9 column in the Table – “Current Revenue (2009) \$”.

10
11 **Response**

12
13 a) In the Test Year Revenue Impacts Table shown in Attachment AF, the “Current
14 Revenue (2009)” dollars represents the actual distribution revenue received from
15 customers in 2009. Miscellaneous revenue is not included. The “Test Year
16 Revenue Assuming Current Revenue to Cost Ratios” represents the total test year
17 distribution revenue only times the calculated revenue to cost ratios from Attachment
18 AF. The “Test Year Revenue Assuming Proposed Revenue to Cost Ratios” is the
19 same as the previous column as there are no proposed changes to the Revenue to
20 Cost ratios.



Interrogatory

QUESTION #59

Reference: Exhibit H1, Tab 2, Schedule 1, page 2
Attachment AH, Sheet 10-4

- a) Why isn't the cost of the Transformer Ownership Allowance allocated directly to relevant customer classes (as it was for purposes of cost allocation) as opposed to being pro-rated as part of the overall deficiency?
- b) Please confirm that, despite the comments at Exhibit G1, Tab 1, Schedule 1, page 4, Hydro Ottawa is proposing to increase the monthly service charges for the GS 50-1,499; GS 1,500 to 4,999 and Large Use classes, even though their 2010 service charge already exceeds the OEB's upper boundary. If yes, please explain why.

Response

- a) Hydro Ottawa has followed the standard practice, which was established in the 2006 Electricity Distribution Rate Model, of including the Transformer Ownership Allowance ("TOC") into the revenue requirement before determining the required percentage increase in fixed and volumetric rates. As a result the TOC is allocated across all classes.
- b) Yes, Hydro Ottawa is proposing to increase the monthly service charges for the GS 50-1,499; GS 1,500 to 4,999 and Large Use classes. Exhibit G1-1-1 page 4 states "Hydro Ottawa is not proposing any changes to the Monthly Service Charges as calculated by the Electricity Distribution Rate model in Exhibit H1-2-1." The intent of this comment was to say that after the EDR model had calculated the fixed service charges, no changes related to Cost Allocation are proposed, i.e. reducing the monthly service charge to bring it below the upper boundary. This is consistent with



- 1 the Cost Allocation Report which states that distributors that have Monthly Service
- 2 Charges (“MSC”) that are above the upper bound are not required to make changes
- 3 to their current MSC to bring it to or below this level at this time.



1 **Interrogatory**

2
3 **QUESTION #60**

4
5 Reference: Exhibit H1, Tab 3, Schedule 2, page 2

6
7 a) What is the basis for the \$303,000 and \$315,000 in LV costs projected for 2010 and
8 2011 respectively?

9
10 b) Please provide a schedule that sets out LV charges based on Hydro One Networks'
11 2010 approved rates and the 2009 actual billing determinants for the "Remainder of
12 Delivery Points".

13
14 **Response**

15
16 a) The basis for the 2010 and 2011 forecasts of Low Voltage charges was the 2009
17 actual charges for all embedded delivery points except Richmond DS and Fallowfield
18 DS adjusted for the May 1, 2010 increase in Hydro One's rates.

19
20 b) There are 13 delivery points included in "Remainder of Delivery Points" for which
21 Hydro Ottawa receives LV charges. In addition, Hydro One Network's Sub
22 Transmission rate has numerous components with different billing determinants, i.e.
23 kW, km, fixed monthly service charge. Hydro Ottawa feels that the method used to
24 forecast the 2010 and 2011 LV Charges, as described above, is reasonable, given
25 that the amount is small and the charges and revenue will be tracked through a
26 variance account.



Interrogatory

QUESTION #61

Reference: Exhibit H1, Tab 4, Schedule 1, page 2
Exhibit H1, Tab 4, Schedule 3, page 6

a) Please explain why it is reasonable to base the 2011 Loss Factor on a 5-year historical average when Hydro Ottawa is working to reduce losses and has concluded (see second reference) that losses are trending downwards?

Response

a) Hydro Ottawa has used a 5 year average to determine the applied for loss factor (1.0380), as directed in the Board's Filing Requirements for Transmission and Distribution Applications. It is reasonable to base the 2011 Loss Factor on a 5-year historical average because although as indicated in Exhibit H1-4-3 the overall trend is a decline in losses, there is still variability in the yearly loss factors and it would not be prudent to base the loss factor on one year's results, i.e. 1.0308. If the 3 year average was to be used, as was originally envisioned by the 2006 Electricity Distribution Rate Handbook, then the applied for loss factor would be higher still at 1.0393.



Interrogatory

QUESTION #62

Reference: Exhibit I2, Tab 1, Schedule 1
Exhibit G, Attachment AE, Sheet I-7.1

- a) Please reconcile the unit smart costs used in the Cost Allocation with those reported in Exhibit I2, Table 3. In particular where are the smart meters for the AMCD customers captured in the Cost Allocation?
- b) Has the cost of the additional functionality of remote disconnection been included at all in the 2011 revenue requirement or recorded in the deferral and variance accounts (First Reference, page 9)?

Response

- a) The costs for Smart Meters for the Advanced Metering Collection Device ("AMCD") Residential and General Service < 50kW customers shown in Exhibit I2-1-1 Table 3 are included in Uniform System of Accounts ("USoA") account 1860 which is a 100% Customer related account that is allocated based on the Customer Weighted Meter Capital ("CWMC") allocator. A weighted number of meters takes into account both the number of metering points and the capital costs of the applicable metering devices for each customer rate classification.

Table 3 shows an average unit cost per installed meter of \$157. The Cost Allocation model uses \$134 per unit for a Smart Meter, which was the estimated cost of a Smart Meter when the 2006 Cost Allocation report was produced. The use of this dollar amount is acceptable because only the relative ratios are being used in the Cost Allocation model. It is believed that the resultant relative costs of installed meters between rate classifications based on these standard meter costs is still applicable, even if the absolute dollar value of the cost of meters differs.



- 1 b) The cost of the additional functionality of remote disconnection has been included in
- 2 rate base and therefore is included in the 2011 revenue requirement and not
- 3 recorded in the deferral and variance accounts.



Interrogatory

QUESTION #63

Reference: i) OEB Guideline G-2008-0002:
ii) OEB Filing Requirements for Smart Meter Investment Plans, October 26, 2006
iii) Exhibit I1, Tab 1, Schedule 2, Page 3, Table 2

a) Confirm that Guideline G-2008-0002 has not superseded the Filing Requirements for Smart Meter Investment Plans, October 26, 2006

b) Confirm that paragraph 7 of the Filing Requirements specifies that 7. Specifically, and in as much detail as possible, please provide the following information for your planned implementation of the SMIP:

- the number of meters installed by class and by year, both in absolute terms and as a percentage of the class;
- the capital expenditures and amortization by class and by year;
- the operating expenses by class and by year;
- the effect of the SMIP on the level of the allowance for PILs.

c) Has Hydro Ottawa Limited kept records by class as required and are accounts 1555 and 1556 segregated by rate class? Please elaborate.

Response

a) It is Hydro Ottawa's opinion that the Smart Meter Funding and Cost Recovery Guideline G-2009-022 ("Smart Meter Guideline") does supersede anything that was asked for in the 2006 Smart Meter Investment Plans ("SMIP"). The basis for this opinion is as follows:



- 1 1. On October 13, 2006, the Ontario Energy Board (the “Board”) sent a letter to
2 electricity distribution companies regarding the “Filing of Smart Meter Investment
3 Plans for the 2006 Rate Year”. The letter was posted on the Board’s web site.
4 This letter states as follows: “Accordingly, the Board will require distributors to file
5 their plans for smart meter investment in the 2006 rate year (May 1, 2006 to April
6 30, 2007) within 90 days of the issuance of the Regulations i.e. by December 15,
7 2006.” The Smart Meter Investment plans were therefore specifically for the 2006
8 rate year. There was no requirement to provide information beyond 2006, though
9 some distributors such as Hydro Ottawa provided additional details.
10
11 2. On October 26, 2006, the Board issued the Filing Requirements for Smart Meter
12 Investment Plans (“2006 Filing Requirements”). Page 2 of the 2006 Filing
13 Requirements referred to the Board’s Decision in EB-2005-0529. In particular,
14 aspects of the Board’s Decision was summarized as follows: “As there have been
15 variance accounts established and for simplicity, the Board did not make any
16 distinction for purposes of setting rates between the meter costs for residential
17 and non-residential customers. Furthermore, the Generic Decision stated that
18 this smart meter revenue will be allocated to all metered customers and
19 recovered through the monthly service charges.” This supports the position that
20 there was no intention to track costs by class of customer.
21
22 3. In the Purpose of the Smart Meter Guideline the Board states as follows: “This
23 guideline sets out the Board’s filing instructions in relation to the funding of, and
24 the recovery of costs associated with, smart meter activities conducted by
25 electricity distributors. It reflects amendments to a number of smart metering
26 regulations that were enacted on June 25, 2008 as well as the direction provided
27 by the Board in its combined proceeding on smart meter costs (proceeding EB-
28 2007-0063). It also includes a synthesis of the practices that have emerged from
29 recent decisions of the Board.” While the Smart Meter Guideline does not
30 specifically state that it supersedes the 2006 Filing Requirements, Hydro Ottawa
31 submits that this is because they were always intended as only filing



1 requirements for the 2006 rate year, and as such were no longer relevant. Hydro
2 Ottawa has understood that the Smart Meter Guideline is now the basis on which
3 distributors should file for Smart Meter funding and cost recovery, and it does not
4 have a requirement to track costs by class of customer.

5

6 4. The Board held a combined proceeding on Smart Meters (EB-2006-0063) and
7 Hydro Ottawa was one of the applicants. As part of the proceeding, the
8 applicants were required to provide details of their Smart Meter costs in specific
9 cost categories. There was no requirement to separate these costs between
10 customer classes, other than to keep costs with respect to demand customers
11 separate. In this proceeding, the Board determined that Hydro Ottawa's costs to
12 April 30, 2007 had been prudently incurred.

13

14

15 b) Hydro Ottawa agrees that the 2006 Filing Requirements included those details in
16 paragraph 7.

17

18 c) Hydro Ottawa disagrees that tracking costs by class of customer is a requirement, for
19 the reasons highlighted in a) above. Hydro Ottawa does have the capital costs for
20 Smart Meter deployment by class of customers; however, there are numerous
21 common costs to the overall Smart Meter program that are not available by class of
22 customer. Accounts 1555 and 1556 have not been recorded by class of customer
23 and Hydro Ottawa does not see any requirement within the Accounting Procedures
24 Handbook ("APH") , or the frequently asked questions to the APH, that require the
25 recording of the these accounts by class of customer.



Interrogatory

QUESTION #64

References: i) Exhibit I2, Tab 1, Schedule 1, Page 1/2, Tables 1-4

ii) Exhibit I2, Tab 1, Schedule 1, Page 3, Line 11, Capital Additions 2010

iii) Exhibit I1, Tab 1, Schedule 2, Page 3 Table 2

a) Provide a breakdown of Residential and Commercial meter installations in 2006-2009 (actual) and forecast 2010.

b) Provide by year Support/details of the 2006-2009 and forecast 2010 *Residential Class SM Unit costs* (procurement and installation separately).

c) Provide by year support/details of the 2006-2009 actual and forecast 2010 *Residential Class SM AMI*, communications and back office costs (procurement and installation).

d) Provide by year support/details of the 2006-2009 and forecast 2010 *Commercial Class (GS<50kw) SM Unit costs* (procurement and installation separately).

e) Provide by year support/details of the 2006-2009 actual and forecast 2010 *Commercial Class (GS<50kw) SM AMI*, communications and back office costs (procurement and installation).

f) Provide a schedule that gives a breakdown of the 2006 - 2009 and forecast 2010 Capital Costs between the Residential and GS<50kw classes. Reconcile to Tables 2&3.

g) Provide a breakdown of the O&M costs for meters installed in 2006 - 2009 and forecast 2010, between the Residential, GS<50kw classes. Reconcile to Table 4.



- h) Were/are any SM installed in other classes? If so provide details of costs, if any, to be recovered for these classes.
- i) Provide the details of the actual and forecast balances and the amounts remaining to be disposed of (later) in Accounts 1555 and 1556 by class. Include the carrying cost calculation(s). Reconcile with Exhibit I1 Tab 1 Schedule 2 Page 3 Table 2

Response

- a) This information was provided in Exhibit I2-1-1 Table 1.
- b) Table 1 below shows details by year of the 2006-2009 actual and 2010 budget residential Smart Meter Unit installed costs.

Table 1 - Residential Class Smart Meter Unit Cost¹

	2006	2007	2008	2009	2010 Budget	Total
Meters	\$13,333,140	\$5,409,629	\$6,988,221	\$2,912,412	\$582,615	\$29,226,017
Installation	1,644,192	2,494,155	2,905,266	2,244,550	546,067	9,834,230
Total Smart Meter Costs	14,977,332	7,903,784	9,893,487	5,156,962	1,128,682	39,060,247
Number of Meters	96,570	70,694	73,798	26,454	5,292	272,808
Unit Cost	155	112	134	195	213	143

- c) and e) Exhibit I2-1-1 Table 3 provides the costs by year for the common costs of the Smart Meter program. These have been separated into two groups, the Advanced Metering Regional Collectors (“AMRC”), which is the collector network for gathering metering data throughout the service area, and the Advanced Metering Control Computer (“AMCC”), which includes all systems costs as discussed in the responses to OEB #34 and CCC #34. These are common costs, and as such, Hydro Ottawa has not

¹ The Smart Meter costs shown here include only the smart meters and installation costs for the meters that were and will be installed for residential class customers. Collectors, Work Force Management and AMI costs that are common to all customer classes are not included.



tracked them by class of customer. As discussed in the response to VECC #63, it is Hydro Ottawa's opinion that recording costs by customer class was not a requirement.

For the purposes of discussion only, Table 2 shows an allocation of the AMRC and AMCC costs based on number of meters, given that many of the system costs are driven by volumes.

Table 2 – AMRC and AMCC Capital Additions

	2006	2007	2008	2009	2010 Budget	Total
Total AMCC Costs	-	\$453,258	\$987,925	\$113,462	\$2,155,615	\$3,710,260
Total Collectors Costs	65,606	428,528	358,645	173,790	399,518	1,426,087
Total AMRC and AMCC Costs (Incl. Collectors) ¹	65,606	881,786	1,346,570	287,252	2,555,133	5,136,347
Total Number of Meters (Excl. Collectors)	97,570	76,437	84,961	32,282	7,683	298,933
Total Number of Residential Meters	96,570	70,694	73,798	26,454	5,292	272,808
Total Number of General Service ("GS") < 50 kW Meters	765	5,606	10,269	5,053	1,678	23,371
Total Number Demand Customer Meters	235	137	894	775	713	2,754
% of Residential Meters						91.3%
% of GS < 50 kW meters						7.8%
% Demand Customers ²						0.9%
Residential Class Costs						\$4,687,460
GS < 50 kW Costs						\$401,567
Demand Customer Costs						\$47,320

d) Table 3 below shows details by year of the 2006-2009 actual and 2010 budget GS < 50 kW Class unit cost of installed meters.

¹ Does not include the workforce management costs included in Tables 4, 5, 6 and 7.

² It is likely inappropriate to allocate all systems costs to demand customers because they do not use the meter data management and repository ("MDM/R"). Hydro Ottawa did not record the common costs by class of customer therefore a further breakdown of costs is not available. The amount allocated to the demand customers is minimal using number of meters, and this allocation is for the purposes of discussion only. Hydro Ottawa is not proposing any changes to its existing approach.



Table 3 – GS <50kW Smart Meter Unit Cost¹

	2006	2007	2008	2009	2010 Budget	Total
Meters	\$341,444	\$2,201,202	\$2,306,215	\$670,691	\$546,849	\$6,066,401
Installation	72,056	274,492	454,338	506,302	199,067	1,506,255
Total Smart Meter Costs	413,500	2,475,694	2,760,553	1,176,993	745,915	7,572,656
Number of Meters	765	5,606	10,269	5,053	1,678	23,371
Unit Cost	541	442	269	233	445	324

e) Included in c) above.

f) Table 4 below shows a summary of the 2006-2009 actual and 2010 budget capital costs reconciling to Exhibit I2-1-1 Tables 2 & 3.

Table 4 – Total Capital Additions

All Classes	2006	2007	2008	2009	2010 Budget	Total
Smart Meters - Residential	\$14,977,332	\$7,903,784	\$9,893,487	\$5,156,962	\$1,128,682	\$39,060,247
Smart Meters - GS<50kW	413,500	2,475,694	2,760,553	1,176,993	745,915	7,572,656
Smart Meters - Demand Customers	135,045	119,185	571,867	484,635	445,783	1,756,515
Advanced Metering Regional Collector	65,606	428,528	358,645	173,790	399,518	1,426,087
Work Force Management	838,597	9,112	-	-	-	847,709
Advanced Metering Control Computer	-	453,258	987,925	113,462	2,155,615	3,710,260
Total Capital	16,430,082	11,389,561	14,572,477	7,105,842	4,875,512	54,373,473

While Hydro Ottawa disagrees that the common costs of the program were to be recorded by customer class, for the purposes of discussion, if these common costs were allocated by # meters, following is the result in Tables 5, 6 and 7.

¹ The Smart Meter costs shown here include only the smart meters and installation costs for the meters that were and will be installed for GS<50kW class customers. Collectors, Work Force Management, and AMI costs are not included.



1 **Table 5 – Residential Class Using # of Meters to Allocate Common Costs**

Residential Class	2006	2007	2008	2009	2010 Budget	Total
Total Capital Cost Installed Meter	\$14,977,332	\$7,903,784	\$9,893,487	\$5,156,962	\$1,128,682	\$39,060,247
Work Force Management	765,309	8,316	0	0	0	773,624
Advanced Metering Regional Collector	59,872	391,077	327,302	158,602	364,602	1,301,455
Advanced Metering Control Computer	0	413,646	901,586	103,546	1,967,227	3,386,005
Total Capital Costs	\$15,802,513	\$8,716,823	\$11,122,375	\$5,419,110	\$3,460,511	\$44,521,331

2

3 **Table 6 – GS < 50kW Class Using # of Meters to Allocate Common Costs**

GS<50kW Class	2006	2007	2008	2009	2010 Budget	Total
Total Capital Cost Installed Meter	\$413,500	\$2,475,694	\$2,760,553	\$1,176,993	\$745,915	\$7,572,656
Work Force Management	65,563	712	0	0	0	66,275
Advanced Metering Regional Collector	5,129	33,503	28,039	13,587	31,235	111,493
Advanced Metering Control Computer	0	35,436	77,237	8,871	168,529	290,073
Total Capital Costs	\$484,192	\$2,545,346	\$2,865,830	\$1,199,451	\$945,679	\$8,040,498

4

5 **Table 7 – Demand Customers Using # of Meters to Allocate Common Costs**

Demand Customers	2006	2007	2008	2009	2010 Budget	Total
Total Capital Cost Installed Meter	\$135,045	\$119,185	\$571,867	\$484,635	\$445,783	\$1,756,515
Work Force Management	7,726	84	0	0	0	7,810
Advanced Metering Regional Collector	604	3,948	3,304	1,601	3,681	13,138
Advanced Metering Control Computer	0	4,176	9,102	1,045	19,859	34,182
Total Capital Costs	\$143,375	\$127,393	\$584,273	\$487,281	\$469,323	\$1,811,645

6

7 g) As noted previously, Hydro Ottawa disagrees that Smart Meter costs were to be
8 recorded by class of customer. Hydro Ottawa's OM&A costs were for the total project
9 for all customer classes. For the purposes of discussion only, Hydro Ottawa is
10 showing in Table 8 the OM&A costs if allocated to customer classes based on the



number of meters. The number of meters was used because a major driver of costs is the volume of activity.

Table 8 – OM&A Costs if Allocated to Classes by Number of Meters

All Classes	2006	2007	2008	2009	2010 Budget	Total
Total OM&A Costs	0	\$603,150	\$715,611	\$1,129,771	\$2,845,707	\$5,294,239
Residential Allocation	0	550,438	653,071	1,031,036	2,597,009	4,831,553
General Service < 50kW Allocation	0	47,155	55,947	88,327	222,481	413,911
Demand Customer Allocation	0	5,557	6,593	10,408	26,217	48,775

h) The costs associated with demand customers have been included in Tables 2, 4, 7 and 8 above.

i) Hydro Ottawa has provided the detailed spending for its Smart Meter program in the tables above. Hydro Ottawa did not track or record common costs for the Smart Meter program by class of customer, and as discussed in the response to VECC #63, it is Hydro Ottawa opinion that this was not a requirement. The calculation of the revenue requirement and resultant variance accounts is complicated and time-consuming. Given that the Accounting Procedures Handbook does not direct distributors to record Smart Meter variance accounts by class of customer, Hydro Ottawa is not prepared to retroactively do this calculation by class as part of an interrogatory process.

Exhibit I2-1-1 Table 5 provides details of the calculation of the balances in Account 1555 and 1556 to the end of 2009. Table 9 below shows the balances budgeted to the end of 2010.



1 **Table 9 – Actual and Budgeted Balances to 2010 in Accounts 1555 and 1556**

Item	2006 \$000	2007 \$000	2008 \$000	2009 \$000	2010 Budget \$000
Investment in Smart Meters	\$13,533	\$27,820	\$42,392	\$49,498	\$54,373
Approved in EDR Rate Base to 2007/04/30			15,724	15,724	15,724
Smart Meters Investment not in rate base	13,533	27,820	26,668	33,773	38,649
Accumulated Amortization	465	402	1,819	4,011	6,754
Net Book Value	13,068	27,418	24,849	29,763	31,895
Average Net Book Value Investments not in rate base	6,534	20,243	12,424	27,306	30,829
Return on Rate base debt	206	617	579	856	974
Return on Rate base equity	235	705	634	941	1,069
Add:					
OM&A		603	716	1,130	2,846
Depreciation Expense	465	1,416	1,381	2,192	2,743
Carrying Charges		(17)	(65)	(21)	(5)
PILs	101	385	174	311	293
Revenue Requirement	1,007	3,710	3,419	5,410	7,920
Less:					
Funding collected in rates	1,011	4,482	4,651	5,292	5,997
Net Entry to 1555 and 1556	(4)	(772)	(1,232)	117	1,923
Closing Balance 1555 and 1556 ¹	(4)	(776)	(2,009)	(\$1,891)	32
Stranded Meter Sub-Account	4,777	9,135	12,951	11,758	8,955
Closing Balance Including Stranded Meters	\$4,773	\$8,359	\$10,942	\$9,867	\$8,987

2

3

¹ Not including stranded meters



Interrogatory

QUESTION #65

References: i) Exhibit I2, Tab 1, Schedule 1, Page 2, Table 2

ii) Exhibit I2 Tab 1, Schedule 1 Page 3 Line 11. Capital Additions 2010

iii) Exhibit I2, Tab 1, Schedule 1, Page 10, Table 5

- a) Provide a Copy of OEB Worksheets that calculate the net fixed assets, revenue requirement for 2009 (and forecast 2010) by rate class (Residential, GS<50kw) Reconcile with Table 4 and Table 7
- b) Provide a Copy of OEB Worksheets that calculate the actual and forecast (end of 2010) revenue requirement by rate class (Residential, GS<50kw). Compare with the additions to rate base in Tables 2 and 2010 Capital additions shown on Page 3, line 11.
- c) Compare this (answer to part b) to the revenue requirement included in 2011 rates for the Residential and GS<50 kW rate classes.
- d) Reconcile the answer to the above questions to Table 5. Include a version of Table 5 by rate class. Add the 2010 forecast (not included in as filed Table 5)

Response

- a) The Ontario Energy Board has not provided worksheets for the net fixed assets and revenue requirement associated with Smart Meter spending. The G-2008-0002 Guideline Smart Meter Funding and Cost Recovery includes Appendix C entitled Calculation of Smart Meters Approved Revenue Requirement per Assumptions Provided. Hydro Ottawa followed this format for Exhibit I2-1-1 Table 5. Included as Attachment 1 is a copy of Hydro Ottawa's spreadsheet for calculating the net book value of assets and revenue requirement used to determine the balances in



the Smart Meter variance accounts (Accounts 1555 and 1556). Exhibit I2-1-1 Tables 4 and 7 show the total capital additions and Operations, Maintenance and Administration (“OM&A”) costs for Hydro Ottawa’s Smart Meter program budgeted to the end of 2010 to be \$54,373,474 and \$5,294,239 respectively. This is also consistent with the capital additions in Exhibit 12-1-1 Table 2 and the 2010 capital additions shown on Page 3 of the exhibit.

The reconciliation between the spreadsheet provided as Attachment 1 and the balances recorded in Smart Meter variance accounts is shown in Table 1 below.

Table 1 – Reconciliation Between Attachment 1 and Variance Account Balances 2009 and 2010

As at December 31, 2009 (\$000)	Per Attachment 1	Per Exhibit I2-1-1	Difference
Investment in Smart Meters	\$ 49,498	\$ 49,498	\$ -
Approved in EDR Rate Base to 2007/04/30	15,724	15,724	-
Smart Meters Investment not in Rate Base	33,773	33,773	-
Accumulated Amortization	4,011	4,011	-
Net Book Value	29,763	29,763	-
Return on Rate Base Debt	2,258	2,258	-
Return on Rate Base Equity	2,515	2,515	-
Add: OM&A	2,449	2,449	-
Depreciation Expense	5,455	5,455	-
Carrying Charges	(103)	(103)	-
PILs	966	972	(6)
Revenue Requirement	13,539	13,545	(6)
Less: Funding Collected in Rates	(15,436)	(15,436)	-
Net Entry to 1555 and 1556	(1,897)	(1,891)	(6)
Closing Balance 1555 and 1556	(1,897)	(1,891)	(6)



As at December 31, 2010 (\$000)	Per Attachment 1	Per Exhibit I2-1-1	Difference
Investment in Smart Meters	\$ 54,373	\$ 54,373	\$ -
Approved in EDR Rate Base to 2007/04/30	15,724	15,724	-
Smart Meters Investment not in Rate Base	38,649	38,649	-
Accumulated Amortization	6,754	6,754	-
Net Book Value	31,895	31,895	-
Return on Rate Base Debt	3,233	3,233	-
Return on Rate Base Equity	3,584	3,584	-
Add: OM&A	5,294	5,294	-
Depreciation Expense	8,198	8,198	-
Carrying Charges	(108)	(108)	-
PILs	1,258	1,264	(6)
Revenue Requirement	21,459	21,465	(6)
Less: Funding Collected in Rates	(21,433)	(21,433)	(0)
Net Entry to 1555 and 1556	26	32	(6)
Closing Balance 1555 and 1556	26	32	(6)

As shown in the above tables, the combined balance recorded in Accounts 1555 and 1556 as at December 31, 2009 calculated by Attachment 1 is \$6k lower than the balance shown in Table 5 of Exhibit I2-1-1. This variance results from some minor differences in 2006 and 2007 that were inadvertently carried forward. However, it should be noted that the total 2006 to 2010 capital additions used in Attachment 1 to calculate balances in Accounts 1555 and 1556 are the same as shown in Exhibit I2-1-1 Tables 4 and 7. Hydro Ottawa is not seeking to clear the balances in Accounts 1555 and 1556 at this time, and therefore will address this difference at a later date when the balances are cleared.

As discussed in the response to VECC #63 and #64, Hydro Ottawa is not prepared to retroactively calculate the balances in Accounts 1555 and 1556 by customer class as part of the interrogatory process.



1 b) Included in the response to a) above.

2

3 c) Hydro Ottawa does not have a calculation for the revenue requirement included in
4 2011 for Smart Meters. For the purposes of setting 2011 rates, Hydro Ottawa
5 included all capital additions to end of 2010 for the Smart Meter program in the net
6 fixed assets that formed the 2011 rate base. Any metering costs budgeted for 2011
7 were considered part of normal operations. As a result of this approach, any revenue
8 requirement in 2011 related to metering is just part of the overall proposed revenue
9 requirement.

10

11 d) Exhibit I2-1-1 Table 5 shows the calculation of Hydro Ottawa's balances in Accounts
12 1555 and 1556. The budgeted balance for 2010 was provided in the response to
13 VECC #64i).



Input Rates for Smart Meter Variance Accounts Calculation

	2006/2007	2008	2009	2010
Deemed Debt	60%			
Short Term Debt		4%	4%	
Long Term Debt		56%	56%	
Deemed Equity	40%	40%	40%	
Weighted Debt Rate	5.25%	5.21%	5.21%	
Short Term Debt Rate		4.47%	4.47%	
Long Term Debt Rate		5.26%	5.26%	
Proposed ROE	9.00%	8.57%	8.57%	
Weighted Average Cost of Capital	6.75%		6.55%	
Corporate Income Tax Rate	36.12%	33.50%	33.00%	30.99%

Capital Data:	31-Dec-06	01-Jan-07 to 30-Apr-07	Subtotal 30-Apr-07	CIP 31-Dec-07	01-May-07 to 31-Dec-07	01-Jan-07 to 31-Dec-07	Total to 31-Dec-07	01-Jan-08 to 31-Dec-08	Total to 31-Dec-08	01-Jan-09 to 31-Dec-09	Total to 31-Dec-09	01-Jan-10 to 31-Dec-10	Total to 31-Dec-10
Smart Meter including Installation	\$ 12,694,621	\$ 2,017,264	\$ 14,711,885	\$ (926,519)	\$ 12,063,121	\$ 14,080,385	\$ 26,775,006	\$ 13,720,884	\$ 40,495,890	\$ 6,992,380	\$ 47,488,270	\$ 2,719,897	\$ 50,208,167
Tools and Equipment (Work Force Management)	\$ 838,597	\$ 9,112	\$ 847,709			\$ 9,112	\$ 847,709	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Computer Hardware	\$ -	\$ 53,131	\$ 53,131			\$ 53,131	\$ 53,131	\$ 5,138	\$ 5,138	\$ -	\$ -	\$ -	\$ -
Computer Software	\$ -	\$ 111,744	\$ 111,744			\$ 111,744	\$ 111,744	\$ 849,220	\$ 849,220	\$ 113,462	\$ 113,462	\$ 2,155,615	\$ 2,155,615
Total Capital Costs	\$ 13,533,218	\$ 2,191,251	\$ 15,724,469		\$ 12,063,121	\$ 14,254,372	\$ 27,787,590	\$ 14,575,242	\$ 41,350,247	\$ 7,105,842	\$ 47,601,732	\$ 4,875,512	\$ 52,363,782

LDC Amortization Policy:

Smart Meters	15 Years
Tools and Equipment (Work Force Management)	10 Years
Computer Hardware	5 Years
Computer Software	5 Years

Operating Expense Data:	2006	to April 30, 2007	Subtotal to April 30, 2007	01-May-07 to 31-Dec-07	Total 2007	01-Jan-08 to 31-Dec-08	01-Jan-09 to 31-Dec-09	01-Jan-10 to 31-Dec-10
Incremental OM&A Expenses	\$ -	\$ 221,124	\$ 221,124	\$ 382,026	\$ 603,150	\$ 715,611	\$ 1,129,772	\$ 2,845,706
Total Incremental Operating Expense	\$ -	\$ 221,124	\$ 221,124	\$ 382,026	\$ 603,150	\$ 715,611	\$ 1,129,772	\$ 2,845,706



2006 Smart Meter Revenue Requirement Calculation

Average Asset Values		2006
Net Fixed Assets Smart Meters		\$ 6,135,733
Net Fixed Assets Tools and Equipment		\$ 398,334
Net Fixed Assets Computer Hardware		\$ -
Net Fixed Assets Computer Software		\$ -
Total Net Fixed Assets		\$ 6,534,067
Operating Expenses		
Incremental Operating Expenses		\$ -
Working Capital		
Operation Expense		\$ -
15 % Working Capital		\$ -
Smart Meters included in Rate Base		<u>\$ 6,534,067</u>
Return on Rate Base		
Deemed Debt	60.0%	\$ 3,920,440
Deemed Equity	40.0%	\$ 2,613,627
		<u>\$ 6,534,067</u>
Weighted Debt Rate	5.25%	\$ 205,823
Proposed ROE	9.00%	\$ 235,226
Return on Rate Base		<u>\$ 441,050</u>
Amortization Expenses		
Amortization Expenses - Smart Meters		\$ 423,154
Amortization Expenses - Tools and equipment		\$ 41,930
Amortization Expenses - Computer Hardware		\$ -
Amortization Expenses - Computer Software		\$ -
Total Amortization Expenses		<u>\$ 465,084</u>
Revenue Requirement Before PILs		<u>\$ 906,133</u>
Calculation of Taxable Income		
Incremental Operating Expenses		\$ -
Depreciation Expenses		-\$ 465,084
Interest Expense		-\$ 205,823
Taxable Income For PILs		<u>\$ 235,226</u>
Grossed up PILs		<u>\$ 98,688</u>
Revenue Requirement Before PILs		\$ 906,133
Grossed up PILs		\$ 98,688
Revenue Requirement for Smart Meters		<u>\$ 1,004,821</u>
Revenue Collected from Rate Adder		-1,010,867
Amount to clear from variance accounts		-\$ 6,046
Interest		-139
Total balances to clear		-6,185
Variance Account Entries		
Account 1555		
Return on rate base		441,050
Revenue Collected from Rate Adder		-1,010,867
Total additions to Account 1555		-569,817
Account 1556		
Incremental Operating Expenses		0
Depreciation Expenses		465,084
Grossed up PILs		98,688
Interest		-139
Total additions to Account 1556		563,633
Total 2006 additions 1555 and 1556 combined		-6,185



2006 PILs Calculation

	2006
INCOME TAX	
Net Income	\$ 235,226
Amortization	\$ 465,084
CCA - Class 47 (8%) Smart Meters	-\$ 507,785
CCA - Class 8 (20%) Tools and Equipment	-\$ 83,860
CCA - Class 45 (45%) Computers	\$ -
Change in taxable income	\$ 108,666
Tax Rate	36.12%
Income Taxes Payable	\$ 39,250

ONTARIO CAPITAL TAX	
Smart Meters	\$ 12,271,467
Tools and Equipment	\$ 796,667
Computer Hardware	\$ -
Computer Software	\$ -
Rate Base	\$ 13,068,134
Less: Exemption	\$ -
Deemed Taxable Capital	\$ 13,068,134
Ontario Capital Tax Rate	0.285%
Net Amount (Taxable Capital x Rate)	\$ 37,244

Gross Up

	PILs Payable	Gross Up	Grossed Up PILs
Change in Income Taxes Payable	\$ 39,250	36.12%	\$ 61,443
Change in OCT	\$ 37,244		\$ 37,244
PIL's	\$ 76,494		\$ 98,688



2006 Smart Meter Average Net Fixed Assets

Net Fixed Assets - Smart Meters

	2005	2006
Opening Capital Investment	\$ -	\$ -
Capital Investment Year 1	\$ -	-
Capital Investment Year 2		\$ 12,694,621
Closing Capital Investment	\$ -	\$ 12,694,621
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (15 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (15 Years Straight Line)		\$ 423,154
Closing Accumulated Amortization	\$ -	\$ 423,154
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 12,271,467
Average Net Fixed Assets	\$ -	\$ 6,135,733

Net Fixed Assets - Tools and Equipment

	2005	2006
Opening Capital Investment	\$ -	\$ -
Capital Investment Year 1	\$ -	-
Capital Investment Year 2		\$ 838,597
Closing Capital Investment	\$ -	\$ 838,597
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (10 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (10 Years Straight Line)		\$ 41,930
Closing Accumulated Amortization	\$ -	\$ 41,930
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 796,667
Average Net Fixed Assets	\$ -	\$ 398,334

Net Fixed Assets - Computer Hardware

	2005	2006
Opening Capital Investment	\$ -	\$ -
Capital Investment Year 1	\$ -	-
Capital Investment Year 2		\$ -
Closing Capital Investment	\$ -	\$ -
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (5 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (5 Years Straight Line)		\$ -
Closing Accumulated Amortization	\$ -	\$ -
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ -
Average Net Fixed Assets	\$ -	\$ -

Net Fixed Assets - Computer Software

	2005	2006
Opening Capital Investment	\$ -	\$ -
Capital Investment Year 1	\$ -	-
Capital Investment Year 2		\$ -
Closing Capital Investment	\$ -	\$ -
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (5 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (5 Years Straight Line)		\$ -
Closing Accumulated Amortization	\$ -	\$ -
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ -
Average Net Fixed Assets	\$ -	\$ -

Total Assets

Total Fixed Assets	\$ -	\$ 13,533,218
Total Accumulated Amortization	\$ -	\$ 465,084
Closing Net Fixed Assets	\$ -	\$ 13,068,134



2006 Smart Meter Average Net Fixed Assets

Net Fixed Assets - Smart Meters 2005 2006

For PILs Calculation

UCC - Smart Meters

CCA Class 47 (8%)	2005	2006
Opening UCC	\$ -	\$ -
Capital Additions	\$ -	\$ 12,694,621
UCC Before Half Year Rule	\$ -	\$ 12,694,621
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 6,347,311
Reduced UCC	\$ -	\$ 6,347,311
CCA Rate Class 47	8%	8%
CCA	\$ -	\$ 507,785
Closing UCC	\$ -	\$ 12,186,836

UCC - Tools and Equipment

CCA Class 8 (20%)	2005	2006
Opening UCC	\$ -	\$ -
Capital Additions	\$ -	\$ 838,597
UCC Before Half Year Rule	\$ -	\$ 838,597
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 419,299
Reduced UCC	\$ -	\$ 419,299
CCA Rate Class 8	20%	20%
CCA	\$ -	\$ 83,860
Closing UCC	\$ -	\$ 754,737

UCC - Computer Equipment

CCA Class 45 (45%)	2005	2006
Opening UCC	\$ -	\$ -
Capital Additions Hardware	\$ -	\$ -
Capital Additions Software	\$ -	\$ -
UCC Before Half Year Rule	\$ -	\$ -
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ -
Reduced UCC	\$ -	\$ -
CCA Rate Class 45	45%	45%
CCA	\$ -	\$ -
Closing UCC	\$ -	\$ -



2007 Smart Meter Revenue Requirement Calculation

Average Asset Values		31-Dec-07	Total	01-Jan-07	01-Feb-07	01-Mar-07	01-Apr-07	01-May-07	01-Jun-07	01-Jul-07	01-Aug-07	01-Sep-07	01-Oct-07	01-Nov-07	01-Dec-07	01-Jan-08												
Net Fixed Assets Smart Meters		\$ 18,653,832																										
Net Fixed Assets Tools and Equipment		\$ 759,066																										
Net Fixed Assets Computer Hardware		\$ 23,909																										
Net Fixed Assets Computer Software		\$ 50,285																										
Total Net Fixed Assets		\$ 19,487,091		\$ 19,487,091	\$ 19,487,091	\$ 19,487,091	\$ 19,487,091	\$ 19,487,091	\$ 19,487,091	\$ 19,487,091	\$ 19,487,091	\$ 19,487,091	\$ 19,487,091	\$ 19,487,091	\$ 19,487,091													
Operating Expenses																												
Incremental Operating Expenses		\$ 603,150	603,149.87	41,430.76	64,876.63	55,799.23	73,790.63	120,137.83	75,641.45	(80,175.18)	50,215.35	46,409.59	96,394.85	45,552.04	13,076.69													
Working Capital																												
Operation Expense		\$ 603,150	603,149.87	41,431	64,877	55,799	73,791	120,138	75,641	\$ 80,175	\$ 50,215	\$ 46,410	\$ 96,395	\$ 45,552	\$ 13,077													
15 % Working Capital		\$ 90,473	90,472.48	6,215	9,731	8,370	11,069	18,021	11,346	\$ 12,026	\$ 7,532	\$ 6,961	\$ 14,459	\$ 6,833	\$ 1,962													
Smart Meters included in Rate Base		\$ 19,577,564	19,577,563.85	\$ 1,630,139	\$ 1,633,656	\$ 1,632,294	\$ 1,634,993	\$ 1,641,945	\$ 1,635,270	\$ 1,611,898	\$ 1,631,457	\$ 1,630,886	\$ 1,638,384	\$ 1,630,757	\$ 1,625,886													
Return on Rate Base																												
Deemed Debt	60.0%	\$ 11,746,538	11,746,538.31	\$ 978,083	\$ 980,193	\$ 979,376	\$ 980,996	\$ 985,167	\$ 981,162	\$ 967,139	\$ 978,874	\$ 978,531	\$ 983,030	\$ 978,454	\$ 975,531													
Deemed Equity	40.0%	\$ 7,831,026	7,831,025.54	\$ 652,056	\$ 653,462	\$ 652,918	\$ 653,997	\$ 656,778	\$ 654,108	\$ 644,759	\$ 652,583	\$ 652,354	\$ 655,353	\$ 652,303	\$ 650,354													
		\$ 19,577,564	19,577,563.85	\$ 1,630,139	\$ 1,633,656	\$ 1,632,294	\$ 1,634,993	\$ 1,641,945	\$ 1,635,270	\$ 1,611,898	\$ 1,631,457	\$ 1,630,886	\$ 1,638,384	\$ 1,630,757	\$ 1,625,886													
Weighted Debt Rate	5.3%	\$ 616,693	616,693.26	\$ 51,349	\$ 51,460	\$ 51,417	\$ 51,502	\$ 51,721	\$ 51,511	\$ 50,775	\$ 51,391	\$ 51,373	\$ 51,609	\$ 51,369	\$ 51,215													
Proposed ROE	9.0%	\$ 704,792	704,792.30	\$ 58,685	\$ 58,812	\$ 58,763	\$ 58,860	\$ 59,110	\$ 58,870	\$ 58,028	\$ 58,732	\$ 58,712	\$ 58,982	\$ 58,707	\$ 58,532													
Return on Rate Base		\$ 1,321,486	1,321,485.56	\$ 110,034	\$ 110,272	\$ 110,180	\$ 110,362	\$ 110,831	\$ 110,381	\$ 108,803	\$ 110,123	\$ 110,085	\$ 110,591	\$ 110,076	\$ 109,747													
Amortization Expenses																												
Amortization Expenses - Smart Meters		\$ 1,315,654																										
Amortization Expenses - Tools and equipment		\$ 84,315																										
Amortization Expenses - Computer Hardware		\$ 5,313																										
Amortization Expenses - Computer Software		\$ 11,174																										
Total Amortization Expenses		\$ 1,416,457	1,416,457.02	118,038.08	118,038.08	118,038.08	118,038.08	118,038.08	118,038.08	118,038.08	118,038.08	118,038.08	118,038.08	118,038.08	118,038.08													
Revenue Requirement Before PILs		\$ 3,341,093	\$ 3,341,092	\$ 269,503	\$ 293,186	\$ 284,017	\$ 302,191	\$ 349,007	\$ 304,060	\$ 146,666	\$ 278,377	\$ 274,532	\$ 325,024	\$ 273,666	\$ 240,862													
Calculation of Taxable Income																												
Incremental Operating Expenses	-\$	603,150	(603,149.87)	-\$	41,431	-\$	64,877	-\$	55,799	-\$	73,791	-\$	120,138	-\$	75,641	-\$	80,175	-\$	50,215	-\$	46,410	-\$	96,395	-\$	45,552	-\$	13,077	
Depreciation Expenses	-\$	1,416,457	(1,416,457.02)	-\$	118,038	-\$	118,038	-\$	118,038	-\$	118,038	-\$	118,038	-\$	118,038	-\$	118,038	-\$	118,038	-\$	118,038	-\$	118,038	-\$	118,038	-\$	118,038	
Interest Expense	-\$	616,693	(616,693.26)	-\$	51,349	-\$	51,460	-\$	51,417	-\$	51,502	-\$	51,721	-\$	51,511	-\$	50,775	-\$	51,391	-\$	51,373	-\$	51,609	-\$	51,369	-\$	51,215	
Taxable Income For PILs		\$ 704,792	704,792.30	\$ 58,685	\$ 58,812	\$ 58,763	\$ 58,860	\$ 59,110	\$ 58,870	\$ 58,028	\$ 58,732	\$ 58,712	\$ 58,982	\$ 58,707	\$ 58,532													
Grossed up PILs		\$ 382,039	382,039.07	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837													
Revenue Requirement Before PILs		\$ 3,341,093	3,341,092.45	\$ 269,503	\$ 293,186	\$ 284,017	\$ 302,191	\$ 349,007	\$ 304,060	\$ 146,666	\$ 278,377	\$ 274,532	\$ 325,024	\$ 273,666	\$ 240,862													
Grossed up PILs		\$ 382,039	382,039.07	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837	\$ 31,837													
Revenue Requirement for Smart Meters		\$ 3,723,132	3,723,131.52	\$ 301,340	\$ 325,023	\$ 315,854	\$ 334,027	\$ 380,844	\$ 335,897	\$ 178,503	\$ 310,213	\$ 306,369	\$ 356,860	\$ 305,503	\$ 272,699													
Revenue Collected from Rate Adder		-4,481,727	(4,481,727.00)	0.0459	0.0459	0.0459	0.0459	0.0459	0.0459	0.0459	0.0459	0.0459	0.0459	0.0459	0.0459													
Amount to clear from variance accounts	-\$	758,595	(758,595.48)	\$ 174,842	\$ 197,674	\$ 188,421	\$ 206,515	-\$ 113,528	-\$ 158,695	-\$ 317,049	-\$ 185,786	-\$ 190,323	-\$ 140,753	-\$ 193,221	-\$ 226,692													
Interest		-17,416	7,838.94	-24	594	1,429	2,093	2,968	2,444	1,907	671	-52	-795	-1,301	-2,097													
Total balances to clear		-776,011	-750,757	-758,595.48	-6,046	168,796.31	366,470.34	554,891.19	761,406.04	647,877.54	489,182.91	172,133.52	(13,652.32)	(203,974.97)	(344,728.46)	(537,949.66)	(764,641.45)											
Variance Account Entries																												
Account 1555																												
Return on rate base		1,321,486	1,321,486																									
Revenue Collected from Rate Adder		-4,481,727	-4,481,727																									
Total additions to Account 1555		-3,160,241	-3,160,241																									
Account 1556																												
Incremental Operating Expenses		603,150	603,150																									
Depreciation Expenses		1,416,457	1,416,457																									
Grossed up PILs		382,039	382,039																									
Interest		7,839	7,839																									
Total additions to Account 1556		2,384,230	2,409,485																									
Total 2007 additions 1555 and 1556 combined		-776,011	-750,757																									



2007 PILs Calculation

	31-Dec-07
INCOME TAX	
Net Income	\$ 704,792
Amortization	\$ 1,416,457
CCA - Class 47 (8%) Smart Meters	-\$ 1,538,162
CCA - Class 8 (20%) Tools and Equipment	-\$ 911
CCA - Class 45 (45%) Computers	-\$ 37,097
Change in taxable income	\$ 545,079
Tax Rate	36.12%
Income Taxes Payable	\$ 196,883

ONTARIO CAPITAL TAX	
Smart Meters	\$ 25,036,197
Tools and Equipment	\$ 721,464
Computer Hardware	\$ 47,818
Computer Software	\$ 100,570
Rate Base	\$ 25,906,049
Less: Exemption	\$ -
Deemed Taxable Capital	\$ 25,906,049
Ontario Capital Tax Rate	0.285%
Net Amount (Taxable Capital x Rate)	\$ 73,832

Gross Up

	PILs Payable	Gross Up	Grossed Up PILs
Change in Income Taxes Payable	\$ 196,883	36.12%	\$ 308,207
Change in OCT	\$ 73,832		\$ 73,832
PIL's	\$ 270,715		\$ 382,039



2007 Smart Meter Average Net Fixed Assets

Net Fixed Assets - Smart Meters	31-Dec-06	31-Dec-07
Opening Capital Investment	\$ -	\$ 12,694,621
Capital Investment Year 1	\$ 12,694,621	
Capital Investment Year 2		\$ 14,080,385
Closing Capital Investment	\$ 12,694,621	\$ 26,775,006
Opening Accumulated Amortization	\$ -	\$ 423,154
Amortization Year 1 (15 Years Straight Line)	\$ 423,154	\$ 846,308
Amortization Year 2 (15 Years Straight Line)		\$ 469,346
Closing Accumulated Amortization	\$ 423,154	\$ 1,738,808
Opening Net Fixed Assets	\$ -	\$ 12,271,467
Closing Net Fixed Assets	\$ 12,271,467	\$ 25,036,197
Average Net Fixed Assets	\$ 6,135,733	\$ 18,653,832

Net Fixed Assets - Tools and Equipment	31-Dec-06	31-Dec-07
Opening Capital Investment	\$ -	\$ 838,597
Capital Investment Year 1	\$ 838,597	
Capital Investment Year 2		\$ 9,112
Closing Capital Investment	\$ 838,597	\$ 847,709
Opening Accumulated Amortization	\$ -	\$ 41,930
Amortization Year 1 (10 Years Straight Line)	\$ 41,930	\$ 83,860
Amortization Year 2 (10 Years Straight Line)		\$ 456
Closing Accumulated Amortization	\$ 41,930	\$ 126,245
Opening Net Fixed Assets	\$ -	\$ 796,667
Closing Net Fixed Assets	\$ 796,667	\$ 721,464
Average Net Fixed Assets	\$ 398,334	\$ 759,066

Net Fixed Assets - Computer Hardware	31-Dec-06	31-Dec-07
Opening Capital Investment	\$ -	\$ -
Capital Investment Year 1	\$ -	
Capital Investment Year 2		\$ 53,131
Closing Capital Investment	\$ -	\$ 53,131
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (5 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (5 Years Straight Line)		\$ 5,313
Closing Accumulated Amortization	\$ -	\$ 5,313
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 47,818
Average Net Fixed Assets	\$ -	\$ 23,909

Net Fixed Assets - Computer Software	31-Dec-06	31-Dec-07
Opening Capital Investment	\$ -	\$ -
Capital Investment Year 1	\$ -	
Capital Investment Year 2		\$ 111,744
Closing Capital Investment	\$ -	\$ 111,744
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (5 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (5 Years Straight Line)		\$ 11,174
Closing Accumulated Amortization	\$ -	\$ 11,174
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 100,570
Average Net Fixed Assets	\$ -	\$ 50,285

Total Assets		
Total Fixed Assets	\$ 12,694,621	\$ 27,787,590
Total Accumulated Amortization	\$ 423,154	\$ 1,881,541
Closing Net Fixed Assets	\$ 12,271,467	\$ 25,906,049



2007 Smart Meter Average Net Fixed Assets

Net Fixed Assets - Smart Meters 31-Dec-06 31-Dec-07

For PILs Calculation

UCC - Smart Meters

CCA Class 47 (8%)	31-Dec-06	31-Dec-07
Opening UCC	\$ -	\$ 12,186,836
Capital Additions	\$ 12,694,621	\$ 14,080,385
UCC Before Half Year Rule	\$ 12,694,621	\$ 26,267,221
Half Year Rule (1/2 Additions - Disposals)	\$ 6,347,311	\$ 7,040,192
Reduced UCC	\$ 6,347,311	\$ 19,227,028
CCA Rate Class 47	8%	8%
CCA	\$ 507,785	\$ 1,538,162
Closing UCC	\$ 12,186,836	\$ 24,729,058

UCC - Tools and Equipment

CCA Class 8 (20%)	31-Dec-06	31-Dec-07
Opening UCC	\$ -	\$ -
Capital Additions	\$ -	\$ 9,112
UCC Before Half Year Rule	\$ -	\$ 9,112
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 4,556
Reduced UCC	\$ -	\$ 4,556
CCA Rate Class 8	20%	20%
CCA	\$ -	\$ 911
Closing UCC	\$ -	\$ 8,201

UCC - Computer Equipment

CCA Class 45 (45%)	31-Dec-06	31-Dec-07
Opening UCC	\$ -	\$ -
Capital Additions Hardware	\$ -	\$ 53,131
Capital Additions Software	\$ -	\$ 111,744
UCC Before Half Year Rule	\$ -	\$ 164,875
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 82,438
Reduced UCC	\$ -	\$ 82,438
CCA Rate Class 45	45%	45%
CCA	\$ -	\$ 37,097
Closing UCC	\$ -	\$ 127,718



2008 Smart Meter Revenue Requirement Calculation

Average Asset Values		2008 Yearly Estimate		Total Year	Q1	Q2	Q3	Q4	01-Jan-08	01-Feb-08	01-Mar-08	01-Apr-08	01-May-08	01-Jun-08	01-Jul-08	01-Aug-08	01-Sep-08	01-Oct-08	01-Nov-08	01-Dec-08
Net Fixed Assets Smart Meters		\$	17,890,673	17,890,673.18	13,179,354.80	14,998,016.06	16,540,281.57	17,890,673.18	12,399,952.45	12,861,180.03	13,179,354.80	13,903,164.53	14,420,765.08	14,998,016.06	15,556,088.90	15,914,795.03	16,540,281.57	17,063,594.84	17,489,271.25	17,890,673.18
Net Fixed Assets Tools and Equipment		\$	8,201	8,200.80	8,542.50	8,428.60	8,314.70	8,200.80	8,618.43	8,580.47	8,542.50	8,504.53	8,466.57	8,390.63	8,390.63	8,352.67	8,314.70	8,276.73	8,238.77	8,200.80
Net Fixed Assets Computer Hardware		\$	44,817	44,816.77	47,335.53	45,985.57	44,635.60	44,816.77	51,781.13	47,508.00	47,335.53	46,885.54	46,435.55	45,985.57	45,535.58	45,085.59	44,635.60	44,185.61	43,735.62	44,816.77
Net Fixed Assets Computer Software		\$	471,544	471,544.19	214,445.93	326,478.21	399,828.28	471,544.19	118,833.32	194,393.42	214,445.93	269,960.83	294,396.75	326,478.21	401,461.54	401,340.35	399,828.28	409,869.46	432,832.61	471,544.19
Total Net Fixed Assets		\$	18,415,235	18,415,234.94	13,449,678.76	15,378,908.44	16,993,060.15	18,415,234.94	12,579,185.34	13,111,661.93	13,449,678.76	14,228,515.43	14,770,063.95	15,378,908.44	16,011,476.65	16,369,573.63	16,993,060.15	17,525,926.65	17,974,078.25	18,415,234.94
Operating Expenses																				
200760				682,890.73	130,897.32	165,112.58	187,734.33	199,146.50	46,369.62	61,612.69	22,915.01	63,284.74	74,891.71	26,936.13	95,423.99	22,232.81	70,077.53	106,246.36	(7,442.68)	100,342.82
200770				32,720.16	2,589.48	9,019.20	11,706.48	9,405.00	-	366.36	2,223.12	2,870.28	3,560.64	2,588.28	5,718.36	2,041.32	3,946.80	3,505.38	3,171.90	2,727.72
Incremental Operating Expenses		\$	715,611	715,610.89	133,486.80	174,131.78	199,440.81	208,551.50	46,369.62	61,979.05	25,138.13	66,155.02	78,452.35	29,524.41	101,142.35	24,274.13	74,024.33	109,751.74	(4,270.78)	103,070.54
Working Capital																				
Operation Expense		\$	715,611	715,610.89	133,486.80	174,131.78	199,440.81	208,551.50	46,369.62	61,979.05	25,138.13	66,155.02	78,452.35	29,524.41	101,142.35	24,274.13	74,024.33	109,751.74	(4,270.78)	103,070.54
12.5 % Working Capital		12.5%	\$ 89,451	89,451.36	16,685.85	21,766.47	24,930.10	26,068.94	5,796.20	7,747.38	3,142.27	8,269.38	9,806.54	3,690.55	12,642.79	3,034.27	9,253.04	13,718.97	(533.85)	12,883.82
Smart Meters included in Rate Base		\$	18,504,686	18,504,686.30	3,379,105.54	4,348,801.00	5,080,271.00	5,696,508.76	1,054,061.65	1,144,758.92	1,180,284.97	1,388,688.16	1,421,161.38	1,538,951.46	1,663,216.62	1,576,055.31	1,840,999.07	1,873,862.73	1,870,765.67	1,951,880.36
Return on Rate Base																				
Deemed Debt - Short Term		4.0%	\$ 740,187	740,187.45	135,164.22	173,952.04	203,210.84	227,860.35	42,162.47	45,790.36	47,211.40	55,547.53	56,846.46	61,558.06	66,528.66	63,042.21	73,639.96	74,954.51	74,830.63	78,075.21
Deemed Debt - Long Term		56.0%	\$ 10,362,624	10,362,624.33	1,892,299.10	2,435,328.56	2,844,951.76	3,190,044.91	590,274.52	641,065.00	660,959.58	777,665.37	795,850.37	861,812.82	931,401.31	882,590.97	1,030,959.48	1,049,363.13	1,047,628.78	1,093,053.00
Deemed Equity		40.0%	\$ 7,401,875	7,401,874.52	1,351,642.22	1,739,520.40	2,032,108.40	2,278,603.50	421,624.66	457,903.57	472,113.99	555,475.27	568,464.55	615,580.58	665,286.65	630,422.12	736,399.63	749,545.09	748,306.27	780,752.14
		\$	18,504,686	18,504,686.30	3,379,105.54	4,348,801.00	5,080,271.00	5,696,508.76	1,054,061.65	1,144,758.92	1,180,284.97	1,388,688.16	1,421,161.38	1,538,951.46	1,663,216.62	1,576,055.31	1,840,999.07	1,873,862.73	1,870,765.67	1,951,880.36
Debt Rate - Short Term		4.47%	\$ 33,086	33,086.38	6,041.84	7,775.66	9,083.52	10,185.36	1,884.66	2,046.83	2,110.35	2,482.97	2,541.04	2,751.65	2,973.83	2,817.99	3,291.71	3,350.47	3,344.93	3,489.96
Debt Rate - Long Term		5.26%	\$ 545,074	545,074.04	99,534.93	128,098.28	149,644.46	167,796.36	31,048.44	33,720.02	34,766.47	40,905.20	41,861.73	45,331.35	48,991.71	46,424.29	54,228.47	55,196.50	55,105.27	57,494.59
Proposed ROE		8.6%	\$ 634,341	634,340.65	115,835.74	149,076.90	174,151.69	195,276.32	36,133.23	39,242.34	40,460.17	47,604.23	48,717.41	52,755.26	57,015.07	54,027.18	63,109.45	64,236.01	64,129.85	66,910.46
Return on Rate Base		\$	1,212,501	1,212,501.07	221,412.51	284,950.84	332,879.68	373,258.04	69,066.34	75,009.18	77,336.99	90,992.40	93,120.18	100,838.26	108,980.61	103,269.45	120,629.62	122,782.98	122,580.05	127,895.01
Amortization Expenses																				
Amortization Expenses - Smart Meters		\$	1,261,571	1,261,570.84	228,259.81	293,778.16	346,802.32	392,730.55	71,320.65	76,872.47	80,066.69	93,206.90	96,078.90	104,492.36	110,864.87	108,774.39	127,163.06	129,199.65	129,783.15	133,747.76
Amortization Expenses - Tools and equipment		\$	911	911.20	227.80	227.80	227.80	227.80	75.93	75.93	75.93	75.93	75.93	75.93	75.93	75.93	75.93	75.93	75.93	75.93
Amortization Expenses - Computer Hardware		\$	11,140	11,139.97	2,699.93	2,699.93	3,040.18	3,040.18	959.57	830.98	909.38	899.98	899.98	899.98	899.98	899.98	899.98	899.98	899.98	1,240.23
Amortization Expenses - Computer Software		\$	107,271	107,270.80	11,570.27	23,972.11	31,106.70	40,621.71	2,185.00	4,783.40	4,601.87	7,818.36	7,182.77	8,970.98	15,580.66	7,807.64	7,718.41	9,904.35	13,062.66	17,654.70
Total Amortization Expenses		\$	1,380,893	1,380,892.81	242,757.82	320,677.99	380,836.75	436,620.25	74,541.15	82,562.78	85,653.88	102,001.17	104,237.58	114,439.25	127,421.43	117,557.95	135,857.37	140,079.90	143,821.72	152,718.62
Revenue Requirement Before PILs		\$	3,309,005	3,309,004.77	597,657.13	779,760.61	913,157.24	1,018,429.79	189,977.11	219,551.01	188,129.01	259,148.59	275,810.11	244,801.91	337,544.39	245,101.52	330,511.33	372,614.63	262,130.99	383,684.17
Calculation of Taxable Income																				
Incremental Operating Expenses		\$	(715,611)	(715,610.89)	(133,486.80)	(174,131.78)	(199,440.81)	(208,551.50)	(46,369.62)	(61,979.05)	(25,138.13)	(66,155.02)	(78,452.35)	(29,524.41)	(101,142.35)	(24,274.13)	(74,024.33)	(109,751.74)	4,270.78	(103,070.54)
Depreciation Expenses		\$	(1,380,893)	(1,380,892.81)	(242,757.82)	(320,677.99)	(380,836.75)	(436,620.25)	(74,541.15)	(82,562.78)	(85,653.88)	(102,001.17)	(104,237.58)	(114,439.25)	(127,421.43)	(117,557.95)	(135,857.37)	(140,079.90)	(143,821.72)	(152,718.62)
Interest Expense		\$	(578,160)	(578,160.42)	(105,576.77)	(135,873.94)	(158,727.99)	(177,981.72)	(32,933.10)	(35,766.85)	(36,876.82)	(43,388.17)	(44,402.77)	(48,083.00)	(51,965.54)	(49,242.27)	(57,520.17)	(58,540.97)	(58,450.20)	(60,984.55)
Taxable Income For PILs		\$	634,341	634,340.65	115,835.74	149,076.90	174,151.69	195,276.32	36,133.23	39,242.34	40,460.17	47,604.23	48,717.41	52,755.26	57,015.07	54,027.18	63,109.45	64,236.01	64,129.85	66,910.46
Grossed up PILs		\$	173,696	173,696.15	43,424.04	43,424.04	43,424.04	43,424.04	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68
Revenue Requirement Before PILs		\$	3,309,005	3,309,004.77	597,657.13	779,760.61	913,157.24	1,018,429.79	189,977.11	219,551.01	188,129.01	259,148.59	275,810.11	244,801.91	337,544.39	245,101.52	330,511.33	372,614.63	262,130.99	383,684.17
Grossed up PILs		\$	173,696	173,696.15	43,424.04	43,424.04	43,424.04	43,424.04	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68	14,474.68
Revenue Requirement for Smart Meters		\$	3,482,701	3,482,700.91	641,081.16	823,184.65	956,581.27	1,061,853.83	204,451.79	234,025.69	202,603.69	273,623.27	290,284.78	259,276.59	352,019.07	259,576.20	344,986.00	387,089.30	276,605.67	398,158.85
Interest rate																				
Revenue Collected from Rate Adder		\$	(4,651,361)	(4,651,361.16)	(1,502,470.86)	(1,160,983.38)	(991,456.86)	(996,450.06)	(500,255.22)	(500,902.50)	(501,313.14)	(502,047.42)	(329,277.60)	(329,658.36)	(330,258.00)	(330,546.42)	(330,652.44)	(331,741.14)	(332,166.36)	(332,542.56)
Amount to clear from variance accounts		\$	(1,168,660)	(1,168,660.25)	(861,389.70)	(337,798.73)	(34,875.59)	65,403.77	(295,803.43)	(266,876.81)	(298,709.45)	(228,424.15)	(38,992.82)	(70,381.77)	21,761.07	(70,970.22)	14,333.56	55,348.16	(55,560.69)	65,616.29
Interest		\$	(64,831)	(64,831.18)	(13,385.63)	(18,166.88)	(16,604.78)	(16,673.90)	-3,312	-4,306	-5,768	-5,432	-6,405	-6,329	-5,570	-5,508	-5,526	-5,670	-5,334	-5,670
Total New balances to clear		\$	(1,233,491)	(1,233,491.00)	-874,775	-355,966	-51,480	48,730												
Total Historical balances to clear		\$	(2,015,688)	(2,015,688.00)					-758,595	(1,054,398.78)	(1,321,275.59)	(1,619,985.05)	(1,848,409.20)	(1,887,402.01)	(1,957,783.78)	(1,936,022.71)	(2,006,992.93)	(1,992,659.37)	(1,937,311.20)	(1,992,871.89)
Variance Account Entries																				
Account 1555																				
Return on rate base			1,212,501	1,212,501	221,413	284,951	332,880	373,258	69,066	75,009	77,337	90,992	93,120	100,838						



2008 PILs Calculation

	31-Dec-08
INCOME TAX	
Net Income	\$ 634,341
Amortization	\$ 1,380,893
CCA - Class 47 (8%) Smart Meters	-\$ 1,475,283
CCA - Class 8 (20%) Tools and Equipment	-\$ 1,640
CCA - Class 50 (55%) Computers (As of May 07)	-\$ 305,226
Change in taxable income	<u>\$ 233,084</u>
Tax Rate	33.50%
Income Taxes Payable	<u>\$ 78,083</u>

ONTARIO CAPITAL TAX	
Smart Meters	\$ 24,120,330
Tools and Equipment	\$ 7,745
Computer Hardware	\$ 41,816
Computer Software	<u>\$ 842,519</u>
Rate Base	<u>\$ 25,012,409</u>
Less: Exemption	\$ -
Deemed Taxable Capital	<u>\$ 25,012,409</u>
Ontario Capital Tax Rate	0.225%
Net Amount (Taxable Capital x Rate)	<u>\$ 56,278</u>

Gross Up

	PILs Payable	Gross Up	Grossed Up PILs
Change in Income Taxes Payable	\$ 78,083	33.50%	\$ 117,418
Change in OCT	\$ 56,278		\$ 56,278
PIL's	<u>\$ 134,361</u>		<u>\$ 173,696</u>



2008 Smart Meter Average Net Fixed Assets

	In rates in 2008 31-Dec-06	Up to April 2007 in rates in 2008 31-Dec-07	31-Dec-08
Net Fixed Assets - Smart Meters			
Opening Capital Investment	\$ -	\$ -	\$ 12,063,121
Capital Investment Year 1			
Capital Investment Year 2		\$ 12,063,121	\$ 13,720,884
Closing Capital Investment	\$ -	\$ 12,063,121	\$ 25,784,005
Opening Accumulated Amortization	\$ -	\$ -	\$ 402,104
Amortization Year 1 (15 Years Straight Line)	\$ -	\$ -	\$ 804,208
Amortization Year 2 (15 Years Straight Line)		\$ 402,104	\$ 457,363
Closing Accumulated Amortization	\$ -	\$ 402,104	\$ 1,663,675

Opening Net Fixed Assets	\$ -	\$ -	\$ 11,661,017
Closing Net Fixed Assets	\$ -	\$ 11,661,017	\$ 24,120,330
Average Net Fixed Assets	\$ -	\$ 5,830,508	\$ 17,890,673

Net Fixed Assets - Tools and Equipment

	31-Dec-06	31-Dec-07	31-Dec-08
Opening Capital Investment	\$ -	\$ -	\$ 9,112
Capital Investment Year 1			
Capital Investment Year 2		\$ 9,112	\$ -
Closing Capital Investment	\$ -	\$ 9,112	\$ 9,112
Opening Accumulated Amortization	\$ -	\$ -	\$ 456
Amortization Year 1 (10 Years Straight Line)	\$ -	\$ -	\$ 911
Amortization Year 2 (10 Years Straight Line)		\$ 456	\$ -
Closing Accumulated Amortization	\$ -	\$ 456	\$ 1,367

Opening Net Fixed Assets	\$ -	\$ -	\$ 8,656
Closing Net Fixed Assets	\$ -	\$ 8,656	\$ 7,745
Average Net Fixed Assets	\$ -	\$ 4,328	\$ 8,201

Net Fixed Assets - Computer Hardware

	31-Dec-06	31-Dec-07	31-Dec-08
Opening Capital Investment	\$ -	\$ -	\$ 53,131
Capital Investment Year 1	\$ -		
Capital Investment Year 2		\$ 53,131	\$ 5,138
Closing Capital Investment	\$ -	\$ 53,131	\$ 58,269
Opening Accumulated Amortization	\$ -	\$ -	\$ 5,313
Amortization Year 1 (5 Years Straight Line)	\$ -	\$ -	\$ 10,626
Amortization Year 2 (5 Years Straight Line)		\$ 5,313	\$ 514
Closing Accumulated Amortization	\$ -	\$ 5,313	\$ 16,453

Opening Net Fixed Assets	\$ -	\$ -	\$ 47,818
Closing Net Fixed Assets	\$ -	\$ 47,818	\$ 41,816
Average Net Fixed Assets	\$ -	\$ 23,909	\$ 44,817

Net Fixed Assets - Computer Software

	31-Dec-06	31-Dec-07	31-Dec-08
Opening Capital Investment	\$ -	\$ -	\$ 111,744
Capital Investment Year 1	\$ -		
Capital Investment Year 2		\$ 111,744	\$ 849,220
Closing Capital Investment	\$ -	\$ 111,744	\$ 960,964
Opening Accumulated Amortization	\$ -	\$ -	\$ 11,174
Amortization Year 1 (5 Years Straight Line)	\$ -	\$ -	\$ 22,349
Amortization Year 2 (5 Years Straight Line)		\$ 11,174	\$ 84,922
Closing Accumulated Amortization	\$ -	\$ 11,174	\$ 118,445

Opening Net Fixed Assets	\$ -	\$ -	\$ 100,570
Closing Net Fixed Assets	\$ -	\$ 100,570	\$ 842,519
Average Net Fixed Assets	\$ -	\$ 50,285	\$ 471,544

Total Assets

Total Fixed Assets	\$ -	\$ 12,237,108	\$ 26,812,349
Total Accumulated Amortization	\$ -	\$ 419,047	\$ 1,799,940
Closing Net Fixed Assets	\$ -	\$ 11,818,060	\$ 25,012,409

	Total Year	Q1	Q2	Q3	Q4	1 01-Jan-08	2 01-Feb-08	3 01-Mar-08	4 01-Apr-08	5 01-May-08	6 01-Jun-08	7 01-Jul-08	8 01-Aug-08	9 01-Sep-08	10 01-Oct-08	11 01-Nov-08	12 01-Dec-08
Previous Spend	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121	\$ 12,063,121
2008 Spend																	
New Monthly Spend	13,720,884	3,264,936	3,931,101	3,431,333	3,093,514	1,549,193	999,328	716,416	1,540,826	1,131,280	1,258,994	1,227,011	826,187	1,378,136	1,175,826	981,136	936,552
Monthly closing Balance	\$ 25,784,005	\$ 15,328,057	\$ 15,994,221	\$ 15,494,454	\$ 15,156,634	\$ 13,612,313	\$ 14,611,641	\$ 15,328,057	\$ 16,868,883	\$ 18,000,163	\$ 19,259,158	\$ 20,486,168	\$ 21,312,355	\$ 22,690,491	\$ 23,866,317	\$ 24,847,453	\$ 25,784,005
Opening Accumulated Amortization	\$ 402,104	\$ 402,104	\$ 577,953	\$ 1,513,197	\$ 2,431,783	\$ 402,104	\$ 473,425	\$ 550,297	\$ 630,364	\$ 723,571	\$ 819,650	\$ 924,142	\$ 1,035,007	\$ 1,143,781	\$ 1,270,944	\$ 1,400,144	\$ 1,529,927
Monthly Dep Prev year	804,208	\$ 67,017	\$ 804,208	\$ 804,208	\$ 804,208	\$ 67,017	\$ 67,017	\$ 67,017	\$ 67,017	\$ 67,017	\$ 67,017	\$ 67,017	\$ 67,017	\$ 67,017	\$ 67,017	\$ 67,017	\$ 67,017
Monthly Dep this year	457,363	\$ 108,831	\$ 131,037	\$ 114,378	\$ 103,117	\$ 4,303	\$ 9,855	\$ 13,049	\$ 26,190	\$ 29,062	\$ 37,475	\$ 43,848	\$ 41,757	\$ 60,146	\$ 62,182	\$ 62,766	\$ 66,730
	\$ 1,663,675	\$ 577,953	\$ 1,513,197	\$ 2,431,783	\$ 3,339,108	\$ 473,425	\$ 550,297	\$ 630,364	\$ 723,571	\$ 819,650	\$ 924,142	\$ 1,035,007	\$ 1,143,781	\$ 1,270,944	\$ 1,400,144	\$ 1,529,927	\$ 1,663,675

Opening Net Fixed Assets	\$ 11,661,017	\$ 11,661,017	\$ 14,750,104	\$ 14,481,024	\$ 13,062,671	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017	\$ 11,661,017
Closing Net Fixed Assets	\$ 24,120,330	\$ 14,750,104	\$ 14,481,024	\$ 13,062,671	\$ 11,617,526	\$ 13,138,888	\$ 14,061,344	\$ 14,697,693	\$ 16,145,313	\$ 17,180,514	\$ 18,335,016	\$ 19,451,161	\$ 20,168,574	\$ 21,419,547	\$ 22,466,173	\$ 23,317,526	\$ 24,120,330
Average Net Fixed Assets	\$ 17,890,673	\$ 13,205,560	\$ 14,615,564	\$ 13,771,847	\$ 12,440,098	\$ 12,399,952	\$ 12,861,180	\$ 13,179,355	\$ 13,903,165	\$ 14,420,765	\$ 14,998,016	\$ 15,556,089	\$ 15,914,795	\$ 16,540,282	\$ 17,063,595	\$ 17,489,271	\$ 17,890,673

	1 01-Jan-08	2 01-Feb-08	3 01-Mar-08	4 01-Apr-08	5 01-May-08	6 01-Jun-08	7 01-Jul-08	8 01-Aug-08	9 01-Sep-08	10 01-Oct-08	11 01-Nov-08	12 01-Dec-08
Previous Spend	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112
2008 Spend												
New Monthly Spend	-	-	-	-	-	-	-	-	-	-	-	-
Monthly closing Balance	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112	\$ 9,112
Opening Accumulated Amortization	\$ 456	\$ 456	\$ 506	\$ 1,114	\$ 1,721	\$ 456	\$ 532	\$ 607	\$ 683	\$ 759	\$ 835	\$ 911
Monthly Dep Prev year	911	\$ 51	\$ 607	\$ 607	\$ 607	\$ 76	\$ 76	\$ 76	\$ 76	\$ 76	\$ 76	\$ 76
Monthly Dep this year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ 1,367	\$ 506	\$ 1,114	\$ 1,721	\$ 2,329	\$ 532	\$ 607	\$ 683	\$ 759	\$ 835	\$ 911	\$ 987

Opening Net Fixed Assets	\$ 8,656	\$ 8,656	\$ 8,606	\$ 7,998	\$ 7,391	\$ 8,656	\$ 8,656	\$ 8,656	\$ 8,656	\$ 8,656	\$ 8,656	\$ 8,656	\$ 8,656	\$ 8,656	\$ 8,656	\$ 8,656	\$ 8,656
Closing Net Fixed Assets	\$ 7,745	\$ 8,606	\$ 7,998	\$ 7,391	\$ 6,783	\$ 8,580	\$ 8,505	\$ 8,429	\$ 8,353	\$ 8,277	\$ 8,201	\$ 8,125	\$ 8,049	\$ 7,973	\$ 7,897	\$ 7,821	\$ 7,745
Average Net Fixed Assets	\$ 8,201	\$ 8,631	\$ 8,302	\$ 7,695	\$ 7,087	\$ 8,618	\$ 8,580	\$ 8,543	\$ 8,505	\$ 8,467	\$ 8,429	\$ 8,391	\$ 8,353	\$ 8,315	\$ 8,277	\$ 8,239	\$ 8,201

	1 01-Jan-08	2 01-Feb-08	3 01-Mar-08	4 01-Apr-08	5 01-May-08	6 01-Jun-08	7 01-Jul-08	8 01-Aug-08	9 01-Sep-08	10 01-Oct-08	11 01-Nov-08	12 01-Dec-08
Previous Spend	\$ 53,131	\$ 53,131	\$ 53,131	\$ 53,131	\$ 53,131	\$ 53,131	\$ 53,131	\$ 53,131	\$ 53,131	\$ 53,131	\$ 53,131	\$ 53,131
2008 Spend												
New Monthly Spend	5,138	1,735	-	-	3,403	8,886	(7,715)	564	-	-	-	3,403
Monthly closing Balance	\$ 58,269	\$ 54,866	\$ 53,131	\$ 53,131	\$ 56,534	\$ 62,017	\$ 54,866	\$ 54,866	\$ 54,866	\$ 54,866	\$ 54,866	\$ 58,269
Opening Accumulated Amortization	\$ 5,313	\$ 5,313	\$ 5,666	\$ 9,208	\$ 12,750	\$ 5,313	\$ 6,273	\$ 7,104	\$ 8,013	\$ 8,913	\$ 9,813	\$ 10,713
Monthly Dep Prev year	10,626	\$ 295	\$ 3,542	\$ 3,542	\$ 3,542	\$ 886	\$ 886	\$ 886	\$ 886	\$ 886	\$ 886	\$ 886
Monthly Dep this year	514	\$ 58	\$ -	\$ -	\$ 113	\$ 74	\$ 24	\$ 14	\$ 14	\$ 14	\$ 14	\$ 14
	\$ 16,453	\$ 5,666	\$ 9,208	\$ 12,750	\$ 16,406	\$ 6,273	\$ 7,104	\$ 8,013	\$ 8,913	\$ 9,813	\$ 10,713	\$ 11,613

Opening Net Fixed Assets	\$ 47,818	\$ 47,818	\$ 49,200	\$ 43,923	\$ 40,381	\$ 47,818	\$ 47,818	\$ 47,818	\$ 47,818	\$ 47,818	\$ 47,818	\$ 47,818	\$ 47,818	\$ 47,818	\$ 47,818	\$ 47,818	\$ 47,818
Closing Net Fixed Assets	\$ 41,816	\$ 49,200	\$ 43,923	\$ 40,381	\$ 40,128	\$ 55,744	\$ 47,198	\$ 46,853	\$ 45,953	\$ 45,053	\$ 44,153	\$ 43,253	\$ 42,353	\$ 41,453	\$ 40,553	\$ 39,653	\$ 41,816
Average Net Fixed Assets	\$ 44,817	\$ 48,509	\$ 46,561	\$ 42,152	\$ 40,254	\$ 51,781	\$ 47,508	\$ 47,336	\$ 46,886	\$ 46,436	\$ 45,986	\$ 45,536	\$ 45,086	\$ 44,636	\$ 44,186	\$ 43,736	\$ 44,817

	1 01-Jan-08	2 01-Feb-08	3 01-Mar-08	4 01-Apr-08	5 01-May-08	6 01-Jun-08	7 01-Jul-08	8 01-Aug-08	9 01-Sep-08	10 01-Oct-08	11 01-Nov-08	12 01-Dec-08
Previous Spend	\$ 111,744	\$ 111,744	\$ 111,744	\$ 111,744	\$ 111,744	\$ 111,744	\$ 111,744	\$ 111,744	\$ 111,744	\$ 111,744	\$ 111,744	\$ 111,744
2008 Spend												
New Monthly Spend	849,220	239,323	248,037	177,807	184,054	38,712	155,904	44,707	118,848	56,055	73,134	165,547
Monthly closing Balance	\$ 960,964	\$ 351,067	\$ 359,781	\$ 289,551	\$ 295,798	\$ 150,456	\$ 306,360	\$ 351,067	\$ 469,915	\$ 525,970	\$ 599,104	\$ 764,651
Opening Accumulated Amortization	\$ 11,174	\$ 11,174	\$ 19,773	\$ 35,490	\$ 48,867	\$ 11,174	\$ 13,359	\$ 18,143	\$ 22,745	\$ 30,563	\$ 37,746	\$ 46,717
Monthly Dep Prev year	22,349	\$ 621	\$ 7,450	\$ 7,450	\$ 7,450	\$ 1,862	\$ 1,862	\$ 1,862	\$ 1,862	\$ 1,862	\$ 1,862	\$ 1,862
Monthly Dep this year	84,922	\$ 7,977	\$ 8,268	\$ 5,927	\$ 6,135	\$ 323	\$ 2,921	\$ 2,739	\$ 5,956	\$ 5,320	\$ 7,109	\$ 13,718
	\$ 118,445	\$ 19,773	\$ 35,490	\$ 48,867	\$ 62,451	\$ 13,359	\$ 18,143	\$ 22,745	\$ 30,563	\$ 37,746	\$ 46,717	\$ 62,297

Opening Net Fixed Assets	\$ 100,570	\$ 100,570	\$ 331,294	\$ 324,291	\$ 240,684	\$ 100,570	\$ 100,570	\$ 100,570	\$ 100,570	\$ 100,570	\$ 100,570	\$ 100,570	\$ 100,570	\$ 100,570	\$ 100,570	\$ 100,570	\$ 100,570
Closing Net Fixed Assets	\$ 842,519	\$ 331,294	\$ 324,291	\$ 240,684	\$ 233,346	\$ 137,097	\$ 288,217	\$ 328,322	\$ 439,352	\$ 488,224	\$ 552,387	\$ 702,111	\$ 702,111	\$ 699,087	\$ 719,169	\$ 765,096	\$ 842,519
Average Net Fixed Assets	\$ 471,544	\$ 215,932	\$ 327,792	\$ 282,487	\$ 237,015	\$ 118,833	\$ 194,393	\$ 214,446	\$ 269,961	\$ 294,397	\$ 326,478	\$ 401,462	\$ 401,340	\$ 399,828	\$ 409,869	\$ 432,833	\$ 471,544



For PILs Calculation

UCC - Smart Meters

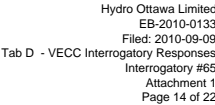
CCA Class 47 (8%)	31-Dec-06	31-Dec-07	31-Dec-08
Opening UCC	\$ -	\$ -	\$ 11,580,596
Capital Additions	\$ -	\$ 12,063,121	\$ 13,720,884
UCC Before Half Year Rule	\$ -	\$ 12,063,121	\$ 25,301,480
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 6,031,560	\$ 6,860,442
Reduced UCC	\$ -	\$ 6,031,560	\$ 18,441,038
CCA Rate Class 47	8%	8%	8%
CCA	\$ -	\$ 482,525	\$ 1,475,253
Closing UCC	\$ -	\$ 11,580,596	\$ 23,826,197

UCC - Tools and Equipment

CCA Class 8 (20%)	31-Dec-06	31-Dec-07	31-Dec-08
Opening UCC	\$ -	\$ -	\$ 8,201
Capital Additions	\$ -	\$ 9,112	\$ -
UCC Before Half Year Rule	\$ -	\$ 9,112	\$ 8,201
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 4,556	\$ -
Reduced UCC	\$ -	\$ 4,556	\$ 8,201
CCA Rate Class 8	20%	20%	20%
CCA	\$ -	\$ 911	\$ 1,640
Closing UCC	\$ -	\$ 8,201	\$ 6,561

UCC - Computer Equipment

CCA Class 45 (45%) As of May 07 CCA Class 50 (55%)	31-Dec-06	31-Dec-07	31-Dec-08
Opening UCC	\$ -	\$ -	\$ 127,778
Capital Additions Hardware	\$ -	\$ 53,131	\$ 5,138
Capital Additions Software	\$ -	\$ 111,744	\$ 849,220
UCC Before Half Year Rule	\$ -	\$ 164,875	\$ 982,136
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 82,438	\$ 427,179
Reduced UCC	\$ -	\$ 82,438	\$ 554,957
CCA Rate Class 45	45%	45%	55%
CCA	\$ -	\$ 37,097	\$ 305,226
Closing UCC	\$ -	\$ 127,778	\$ 676,909



Average Asset Values

Average Asset Values		2009 Yearly Estimate		Total Year	Q1	Q2	Q3	Q4	01-Jan-09	01-Feb-09	01-Mar-09	01-Apr-09	01-May-09	01-Jun-09	01-Jul-09	01-Aug-09	01-Sep-09	01-Oct-09	01-Nov-09	01-Dec-09
Net Fixed Assets Smart Meters	\$	26,292,758		26,292,757.60	24,793,579.82	25,658,945.28	26,004,907.46	26,292,757.60	24,017,741.30	24,357,061.02	24,793,579.82	25,127,356.42	25,386,587.45	25,658,945.28	25,756,543.55	25,927,922.31	26,004,907.46	26,151,571.29	26,269,112.85	26,292,757.60
Net Fixed Assets Tools and Equipment	\$	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Fixed Assets Computer Hardware	\$	4,412		4,411.78	4,834.81	4,693.80	4,552.79	4,411.78	4,928.82	4,881.82	4,834.81	4,787.81	4,740.81	4,693.80	4,646.80	4,599.80	4,552.79	4,505.79	4,458.79	4,411.78
Net Fixed Assets Computer Software	\$	1,008,609		1,008,609.07	1,056,290.27	1,042,251.98	1,028,411.08	1,008,609.07	1,073,867.89	1,066,895.03	1,056,290.27	1,048,995.84	1,047,346.41	1,042,251.98	1,040,853.95	1,036,584.84	1,028,411.08	1,019,401.87	1,013,791.30	1,008,609.07
Total Net Fixed Assets	\$	27,305,778		27,305,778.45	25,854,704.90	26,705,891.06	27,037,871.33	27,305,778.45	25,096,538.01	25,428,837.86	25,854,704.90	26,181,140.06	26,438,674.67	26,705,891.06	26,802,044.30	26,969,106.94	27,037,871.33	27,175,478.94	27,287,362.94	27,305,778.45
Operating Expenses																				
200760				1,096,341.23	161,494.37	212,843.38	179,685.59	542,317.89	69,927.91	51,223.43	40,343.03	72,000.78	82,321.61	58,520.99	68,612.14	49,877.59	61,195.86	143,140.73	125,228.76	273,948.40
200770				33,430.36	6,762.64	8,604.97	13,534.68	4,528.07	3,596.77	1,559.58	1,606.29	2,786.09	3,503.29	2,315.59	2,951.50	2,829.09	917.20	2,729.68	1,394.83	403.56
Incremental Operating Expenses	\$	1,129,772		1,129,771.59	168,257.01	221,448.35	193,220.27	546,845.96	73,524.68	52,783.01	41,949.32	74,786.87	85,824.90	60,836.58	78,278.12	52,925.09	62,113.06	145,870.41	126,623.59	274,351.96
Working Capital				27,305,778.45	6,463,676.22	6,889,269.30	6,925,457.97	7,027,374.95	2,091,378.17	2,146,761.48	2,225,536.58	2,263,370.46	2,289,067.76	2,336,831.08	2,281,580.31	2,344,878.79	2,298,998.87	2,367,828.95	2,367,183.57	2,292,362.42
Operation Expense	\$	1,129,772		1,129,771.59	168,257.01	221,448.35	193,220.27	546,845.96	73,524.68	52,783.01	41,949.32	74,786.87	85,824.90	60,836.58	78,278.12	52,925.09	62,113.06	145,870.41	126,623.59	274,351.96
12.5 % Working Capital	12.5% \$	141,221		141,221.45	21,032.13	27,681.04	24,152.53	68,355.75	9,190.59	6,597.88	5,243.67	9,348.36	10,728.11	7,604.57	9,784.76	6,603.64	7,764.13	18,233.80	15,827.95	34,294.00
Smart Meters included in Rate Base	\$	27,447,000		27,446,999.89	6,484,708.35	6,916,950.35	6,949,610.50	7,095,730.69	2,100,568.75	2,153,359.35	2,230,780.25	2,272,718.82	2,299,795.87	2,344,435.66	2,291,365.08	2,351,482.42	2,306,763.00	2,386,062.75	2,383,011.52	2,326,656.42
Return on Rate Base																				
Deemed Debt - Short Term	4.0% \$	1,097,880		1,097,880.00	259,388.33	276,678.01	277,984.42	283,829.23	84,022.75	86,134.37	89,231.21	90,908.75	91,991.83	93,777.43	91,654.60	94,059.30	92,270.52	95,442.51	95,320.46	93,066.26
Deemed Debt - Long Term	56.0% \$	15,370,320		15,370,319.94	3,631,436.68	3,873,492.19	3,891,781.88	3,973,609.19	1,176,318.50	1,205,881.24	1,249,236.94	1,272,722.54	1,287,885.69	1,312,883.97	1,283,164.44	1,316,830.16	1,291,787.28	1,336,195.14	1,334,486.45	1,302,927.59
Deemed Equity	40.0% \$	10,978,800		10,978,799.96	2,593,883.34	2,766,780.14	2,779,844.20	2,838,292.28	840,227.50	861,343.74	892,312.10	909,087.53	919,918.35	937,774.26	916,546.03	940,592.92	922,770.20	954,425.10	953,204.61	930,662.57
	\$	27,447,000		27,446,999.89	6,484,708.35	6,916,950.35	6,949,610.50	7,095,730.69	2,100,568.75	2,153,359.35	2,230,780.25	2,272,718.82	2,299,795.87	2,344,435.66	2,291,365.08	2,351,482.42	2,306,763.00	2,386,062.75	2,383,011.52	2,326,656.42
Debt Rate - Short Term																				
Debt Rate - Long Term	4.47% \$	49,075		49,075.24	11,594.66	12,367.51	12,425.90	12,687.17	3,755.82	3,850.21	3,988.64	4,063.62	4,112.04	4,191.85	4,096.96	4,204.45	4,124.49	4,266.28	4,260.82	4,160.06
Proposed ROE	5.26% \$	808,479		808,478.83	191,013.57	203,745.69	204,707.73	209,011.84	61,874.35	63,429.35	65,709.86	66,945.21	67,742.79	69,057.70	67,494.45	69,265.27	67,948.01	70,283.86	70,193.99	68,533.99
	8.6% \$	940,883		940,883.16	222,295.80	237,113.06	238,232.65	243,241.65	72,007.50	73,817.16	76,471.15	77,908.80	80,367.25	78,547.99	80,608.82	79,075.84	81,794.23	81,689.64	79,757.78	
Return on Rate Base	\$	1,798,437		1,798,437.22	424,904.03	453,226.25	455,366.28	464,940.66	137,637.67	141,096.72	146,169.64	148,917.63	150,691.82	153,616.80	150,139.41	154,078.53	151,148.34	156,344.38	156,144.45	152,451.84
Amortization Expenses																				
Amortization Expenses - Smart Meters	\$	1,925,953		1,925,952.66	444,153.54	481,015.99	492,187.57	508,595.56	142,904.16	147,493.79	153,755.59	157,215.28	159,761.98	164,038.73	161,123.37	166,501.57	164,562.63	170,364.46	171,185.93	167,045.17
Amortization Expenses - Tools and equipment	\$	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amortization Expenses - Computer Hardware	\$	1,128		1,128.08	282.02	282.02	282.02	282.02	94.01	94.01	94.01	94.01	94.01	94.01	94.01	94.01	94.01	94.01	94.01	94.01
Amortization Expenses - Computer Software	\$	265,128		265,128.00	63,628.57	65,499.73	67,554.61	68,445.08	21,148.48	21,270.57	21,209.52	21,437.82	22,047.81	22,014.10	22,681.36	22,626.30	22,246.95	22,202.32	22,965.05	23,277.71
Total Amortization Expenses	\$	2,192,209		2,192,208.74	508,064.14	546,797.74	560,024.20	577,322.66	164,146.65	168,858.36	175,059.12	178,747.11	181,903.80	186,146.84	183,898.73	189,221.88	186,903.59	192,660.78	194,244.99	190,416.89
Revenue Requirement Before PILs	\$	5,120,418		5,120,417.55	1,101,225.18	1,221,472.35	1,208,610.75	1,589,109.28	375,309.00	362,738.09	363,178.08	402,451.60	418,420.52	400,600.22	412,316.26	396,129.50	400,164.99	494,875.57	477,013.03	617,220.69
Calculation of Taxable Income																				
Incremental Operating Expenses	\$	(1,129,772)		(1,129,771.59)	(168,257.01)	(221,448.35)	(193,220.27)	(546,845.96)	(73,524.68)	(52,783.01)	(41,949.32)	(74,786.87)	(85,824.90)	(60,836.58)	(78,278.12)	(52,829.09)	(62,113.06)	(145,870.41)	(126,623.59)	(274,351.96)
Depreciation Expenses	\$	(2,192,209)		(2,192,208.74)	(508,064.14)	(546,797.74)	(560,024.20)	(577,322.66)	(164,146.65)	(168,858.36)	(175,059.12)	(178,747.11)	(181,903.80)	(186,146.84)	(183,898.73)	(189,221.88)	(186,903.59)	(192,660.78)	(194,244.99)	(190,416.89)
Interest Expense	\$	(857,554)		(857,554.06)	(202,608.23)	(216,113.20)	(217,133.63)	(221,699.01)	(65,630.17)	(67,279.56)	(69,698.50)	(73,469.72)	(71,008.83)	(73,249.55)	(71,591.41)	(73,469.72)	(72,072.50)	(145,550.14)	(145,550.14)	(72,694.05)
Taxable Income For PILs	\$	940,883		940,883.16	222,295.80	237,113.06	238,232.65	243,241.65	72,007.50	73,817.16	76,471.15	77,908.80	78,837.00	80,367.25	78,547.99	80,608.82	79,075.84	81,794.23	81,689.64	79,757.78
Grossed up PILs																				
	\$	311,262		311,262.45	77,815.61	77,815.61	77,815.61	77,815.61	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54
Revenue Requirement Before PILs	\$	5,120,418		5,120,417.55	1,101,225.18	1,221,472.35	1,208,610.75	1,589,109.28	375,309.00	362,738.09	363,178.08	402,451.60	418,420.52	400,600.22	412,316.26	396,129.50	400,164.99	494,875.57	477,013.03	617,220.69
Grossed up PILs	\$	311,262		311,262.45	77,815.61	77,815.61	77,815.61	77,815.61	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54	25,938.54
Revenue Requirement for Smart Meters	\$	5,431,680		5,431,680.00	1,179,040.79	1,299,287.96	1,286,426.36	1,666,924.89	401,247.54	388,676.63	389,116.62	428,390.14	444,359.06	426,538.76	438,254.80	422,068.04	426,103.53	520,814.10	502,951.56	643,159.22
Interest rate																				
Revenue Collected from Rate Adder	\$	(5,292,458)		(5,292,457.74)	(1,000,332.90)	(1,320,062.04)	(1,482,292.56)	(1,489,770.24)	(333,101.16)	(333,554.88)	(333,676.86)	(334,063.32)	(492,796.08)	(493,202.64)	(493,718.40)	(493,715.04)	(494,859.12)	(495,794.88)	(496,683.60)	(497,291.76)
Amount to clear from variance accounts	\$	139,222		139,222.26	178,707.89	(20,774.08)	(195,866.20)	177,154.65	68,146.38	55,121.75	55,439.76	94,326.82	(48,437.02)	(66,663.88)	(55,463.60)	(71,647.00)	(68,755.59)	25,019.22	6,267.96	145,867.46
Interest	\$	(20,723)		(20,723.32)	(11,252.28)	(4,239.14)	(2,534.83)	(2,697.07)	-4,008	-3,492	-3,752	-1,436	-1,404	-1,399	-826	-852	-857	-918	-877	-903
Total New balances to clear	\$	118,499		118,499	167,456	-25,013	-198,401	174,458	-1,926,283	(1,858,136.54)	(1,803,014.79)	(1,747,575.03)	(1,653,248.21)	(1,701,685.23)	(1,768,349.11)	(1,823,812.72)	(1,895,459.72)	(1,964,215.31)	(1,939,196.09)	(1,932,928.13)
Total Historical balances to clear	\$	(1,890,031)		-1,897,189																
Variance Account Entries																				
Account 1555																				
Return on rate base	\$	1,798,437		1,798,437	424,904	453,226	455,366	464,941	137,638	141,097	146,170	148,918	150,692	153,617	150,139	154,079	151,148	156,344	156,144	
Revenue Collected from Rate Adder	\$	(5,292,458)		(5,292,458)	(1,000,333)	(1,320,062)	(1,482,293)	(1,489,770)	(333,101)	(333,555)	(333,677)	(334,063)	(492,796)	(493,203)	(493,718)	(493,715)	(494,859)	(495,795)	(496,684)	
Total additions to Account 1555	\$	(3,494,021)		(3,494,021)	(575,429)	(866,836)	(1,026,926)	(1,024,830)	(195,463)	(192,458)	(187,507)	(185,146)	(342,104)	(339,586)	(343,579)	(339,637)	(343,711)	(339,451)	(340,539)	0
Account 1556																				
Incremental Operating Expenses	\$	1,129,772		1,129,772	168,257	221,448	193,220	546,846	73,525	52,783	41,949	74,787	85,825	60,837	78,278	52,829	62,113	145,870	126,624	
Depreciation Expenses	\$	2,192,209		2,192,209	508,064	546,798	560,024	577,323	164,147	168,858	175,059	178,747	181,904	186,147	183,899	189,222	186,904	192,661	194,245	
Grossed up PILs	\$	311,262		311,262	77,816	77,816	77,816	77,816	25,939	25,939</										



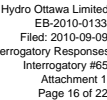
2009 PILs Calculation

	31-Dec-09	
INCOME TAX		
Net Income	\$ 940,883	
Amortization	\$ 2,192,209	
CCA - Class 47 (8%) Smart Meters	-\$ 2,157,344	
CCA - Class 8 (20%) Tools and Equipment	\$ -	
CCA - Class 50 (55%) Computers (As of May 07)	-\$ 479,751	
Change in taxable income	<u>\$ 495,996</u>	\$ 332,317
Tax Rate	<u>33.00%</u>	
Income Taxes Payable	<u>\$ 163,679</u>	

ONTARIO CAPITAL TAX	
Smart Meters	\$ 28,825,971
Tools and Equipment	\$ -
Computer Hardware	\$ 3,848
Computer Software	<u>\$ 932,776</u>
Rate Base	<u>\$ 29,762,595</u>
Less: Exemption	<u>\$ -</u>
Deemed Taxable Capital	<u>\$ 29,762,595</u>
Ontario Capital Tax Rate	<u>0.225%</u>
Net Amount (Taxable Capital x Rate)	<u>\$ 66,966</u>

Gross Up

	PILs Payable	Gross Up	Grossed Up PILs
Change in Income Taxes Payable	\$ 163,679	33.00%	\$ 244,297
Change in OCT	<u>\$ 66,966</u>		<u>\$ 66,966</u>
PIL's	<u>\$ 230,645</u>		<u>\$ 311,262</u>



Net Fixed Assets - Computer Software	31-Dec-06	31-Dec-07	31-Dec-08	31-Dec-09
Opening Capital Investment	\$ -	\$ -	\$ 287,880	\$ 1,268,909
Capital Investment Year 1	\$ -			
Capital Investment Year 2		\$ 287,880	\$ 981,029	\$ 113,462
Closing Capital Investment	\$ -	\$ 287,880	\$ 1,268,909	\$ 1,382,371
Opening Accumulated Amortization	\$ -	\$ -	\$ 28,788	\$ 184,467
Amortization Year 1 (5 Years Straight Line)	\$ -	\$ -	\$ 57,576	\$ 253,776
Amortization Year 2 (5 Years Straight Line)		\$ 28,788	\$ 98,103	\$ 11,346
Closing Accumulated Amortization	\$ -	\$ 28,788	\$ 184,467	\$ 449,595
Opening Net Fixed Assets	\$ -	\$ -	\$ 259,092	\$ 1,084,542
Closing Net Fixed Assets	\$ -	\$ 259,092	\$ 1,084,442	\$ 932,776
Average Net Fixed Assets	\$ -	\$ 129,546	\$ 671,767	\$ 1,008,669

[illegible]

						1	2	3	4	5	6	7	8	9	10	11	12
Previous Spend	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909	\$ 1,268,909
2009 Spend								-	7,325	7,325	14,174	32,923	44,748	64,633	78,721	84,621	100,549
New Monthly Spend	113,462	7,325	37,423	39,873	28,841	-	7,325	-	6,849	18,749	11,825	19,885	14,088	5,899	4,184	11,774	12,913
Monthly closing Balance	\$ 1,382,371	\$ 1,276,234	\$ 1,306,332	\$ 1,308,782	\$ 1,297,750	\$ 1,268,909	\$ 1,276,234	\$ 1,276,234	\$ 1,283,083	\$ 1,301,832	\$ 1,313,657	\$ 1,333,542	\$ 1,347,630	\$ 1,353,530	\$ 1,357,714	\$ 1,369,458	\$ 1,382,371
	\$ 184,467	\$ 184,467	\$ 191,761	\$ 277,602	\$ 363,525	\$ 184,467	\$ 205,615	\$ 226,886	\$ 248,096	\$ 269,533	\$ 291,581	\$ 313,595	\$ 336,277	\$ 358,903	\$ 381,150	\$ 403,352	\$ 426,317
Monthly Dep Prev year	253,782	7,049	84,594	84,594	84,594	21,148	21,148	21,148	21,148	21,148	21,148	21,148	21,148	21,148	21,148	21,148	21,148
Monthly Dep this year	11,346	244	1,247	1,329	961	-	122	61	289	899	866	1,533	1,478	1,098	1,054	1,817	2,129
	\$ 449,595	\$ 191,761	\$ 277,602	\$ 363,525	\$ 449,080	\$ 205,615	\$ 226,886	\$ 248,096	\$ 269,533	\$ 291,581	\$ 313,595	\$ 336,277	\$ 358,903	\$ 381,150	\$ 403,352	\$ 426,317	\$ 449,595
	\$ 1,084,442	\$ 1,084,442	\$ 1,084,473	\$ 1,028,730	\$ 945,257	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442	\$ 1,084,442
	\$ 932,776	\$ 1,084,473	\$ 1,028,730	\$ 945,257	\$ 848,670	\$ 1,063,294	\$ 1,049,348	\$ 1,028,138	\$ 1,013,550	\$ 1,010,251	\$ 1,000,062	\$ 997,266	\$ 998,728	\$ 972,380	\$ 954,362	\$ 943,140	\$ 932,776
	\$ 1,008,609	\$ 1,084,458	\$ 1,056,602	\$ 986,994	\$ 896,963	\$ 1,073,868	\$ 1,066,895	\$ 1,056,290	\$ 1,048,996	\$ 1,047,346	\$ 1,042,252	\$ 1,040,854	\$ 1,036,585	\$ 1,028,411	\$ 1,019,402	\$ 1,013,791	\$ 1,008,609



Total Assets

Total Fixed Assets	\$	-	\$	12,095,173	\$	26,667,649	\$	33,773,491
Total Accumulated Amortization	\$	-	\$	422,398	\$	1,818,687	\$	4,010,896
Closing Net Fixed Assets	\$	-	\$	11,672,775	\$	24,848,962	\$	29,762,595

For PILs Calculation

UCC - Smart Meters

CCA Class 47 (8%)		31-Dec-06		31-Dec-07		31-Dec-08		31-Dec-09
Opening UCC	\$	-	\$	-	\$	11,334,518	\$	23,470,614
Capital Additions	\$	-	\$	11,806,790	\$	13,586,310	\$	6,992,380
UCC Before Half Year Rule	\$	-	\$	11,806,790	\$	24,920,828	\$	30,462,995
Half Year Rule (1/2 Additions - Disposals)	\$	-	\$	5,903,395	\$	6,793,155	\$	3,496,190
Reduced UCC	\$	-	\$	5,903,395	\$	18,127,673	\$	26,966,804
CCA Rate Class 47		8%		8%		8%		8%
CCA	\$	-	\$	472,272	\$	1,450,214	\$	2,157,344
Closing UCC	\$	-	\$	11,334,518	\$	23,470,614	\$	28,305,650

UCC - Tools and Equipment

CCA Class 8 (20%)		31-Dec-06		31-Dec-07		31-Dec-08		31-Dec-09
Opening UCC	\$	-	\$	-	\$	-	\$	-
Capital Additions	\$	-	\$	-	\$	-	\$	-
UCC Before Half Year Rule	\$	-	\$	-	\$	-	\$	-
Half Year Rule (1/2 Additions - Disposals)	\$	-	\$	-	\$	-	\$	-
Reduced UCC	\$	-	\$	-	\$	-	\$	-
CCA Rate Class 8		20%		20%		20%		20%
CCA	\$	-	\$	-	\$	-	\$	-
Closing UCC	\$	-	\$	-	\$	-	\$	-

UCC - Computer Equipment

CCA Class 45 (45%) As of May 07 CCA Class 50 (55%)		31-Dec-06		31-Dec-07		31-Dec-08		31-Dec-09
Opening UCC	\$	-	\$	-	\$	223,497	\$	815,544
Capital Additions Hardware	\$	-	\$	503	\$	5,138	\$	-
Capital Additions Software	\$	-	\$	287,880	\$	981,029	\$	113,462
UCC Before Half Year Rule	\$	-	\$	288,383	\$	1,209,663	\$	929,006
Half Year Rule (1/2 Additions - Disposals)	\$	-	\$	144,191	\$	493,083	\$	56,731
Reduced UCC	\$	-	\$	144,191	\$	716,580	\$	872,275
CCA Rate Class 45		45%		45%		55%		55%
CCA	\$	-	\$	64,886	\$	394,119	\$	479,751
Closing UCC	\$	-	\$	223,497	\$	815,544	\$	449,255



Variance Account Entries

Account 1555																		
Return on rate base	2,043,342	2,043,342	494,700	526,163	509,771	512,707	165,130	164,735	164,835	164,636	191,748	169,779	169,554	169,483	170,734	170,650	170,725	171,333
Revenue Collected from Rate Adder	-5,997,058	-5,997,058	-1,492,800	-1,497,217	-1,501,472	-1,505,569	-497,098	-497,605	-498,096	-498,588	-499,076	-499,553	-500,025	-500,494	-500,953	-501,409	-501,863	-502,298
Total additions to Account 1555	-3,953,716	-3,953,716	-998,100	-971,054	-991,701	-992,862	-331,968	-332,870	-333,261	-333,951	-307,329	-329,774	-330,471	-331,011	-330,218	-330,759	-331,138	-330,965
Account 1556																		
Incremental Operating Expenses	2,845,706	2,845,706	813,639	695,216	666,061	670,791	303,579	250,678	259,382	232,973	229,801	232,442	218,159	224,038	223,864	221,923	218,239	230,629
Depreciation Expenses	2,742,859	2,742,859	615,244	730,453	691,565	705,598	203,802	205,081	206,361	207,640	295,331	227,482	228,761	230,041	232,762	233,605	235,054	236,938
Grossed up PILs	292,793	292,793	73,198	73,198	73,198	73,198	24,399	24,399	24,399	24,399	24,399	24,399	24,399	24,399	24,399	24,399	24,399	24,399
Interest	-4,790	-4,790	-2,177	-1,529	-851	-233	-835	-670	-673	-580	-538	-411	-353	-287	-211	-148	-75	-10
Total additions to Account 1556	5,876,568	5,876,568	1,499,904	1,497,338	1,429,973	1,449,354	530,945	479,489	489,469	464,433	548,994	483,912	470,967	478,191	480,814	479,780	477,617	491,957
Total 2007 addditions 1555 and 1556 combined																		
	1,922,852	1,922,852	501,804	526,283	438,272	456,492	-497,098	-497,605	-498,096	-498,588	-499,076	-499,553	-500,025	-500,494	-500,953	-501,409	-501,863	-502,298

What variance was prior to rate adder - from cell E59												
4,012,856.92												
Used for Plan and Forecast Purpose												
Current rate is until April 30, 2010												
	Jan	Feb	March	April	May	June	July	August	September	October	November	December
Rider	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68
# customers	295,892	296,194	296,486	296,778	297,069	297,353	297,634	297,913	298,186	298,458	298,728	298,987



2010 PILs Calculation

Need to update formula

31-Dec-10

INCOME TAX

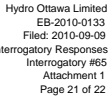
Net Income	\$	1,069,009	
Amortization	\$	2,742,859	
CCA - Class 47 (8%) Smart Meters	-\$	2,373,248	
CCA - Class 8 (20%) Tools and Equipment	\$	-	
CCA - Class 50 (55%) Computers (As of May 07)	-\$	839,884	
Change in taxable income	\$	598,736	\$ 413,188
Tax Rate		30.99%	
Income Taxes Payable	\$	185,548	

ONTARIO CAPITAL TAX

Smart Meters	\$	29,296,173
Tools and Equipment	\$	-
Computer Hardware	\$	2,720
Computer Software	\$	2,596,355
Rate Base	\$	31,895,248
Less: Exemption	\$	-
Deemed Taxable Capital	\$	31,895,248
Ontario Capital Tax Rate		0.075%
Net Amount (Taxable Capital x Rate)	\$	23,921

Gross Up

	PILs Payable	Gross Up	Grossed Up PILs
Change in Income Taxes Payable	\$ 185,548	30.99%	\$ 268,872
Change in OCT	\$ 23,921		\$ 23,921
PIL's	\$ 209,470		\$ 292,793



Total Fixed Assets	\$	-	\$	12,095,173	\$	26,667,649	\$	33,773,491	\$	38,649,003
Total Accumulated Amortization	\$	-	\$	422,398	\$	1,818,687	\$	4,010,896	\$	6,753,755
Closing Net Fixed Assets	\$	-	\$	11,672,775	\$	24,848,962	\$	29,762,595	\$	31,895,248

Previous Spend	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371	\$ 1,382,371
2010 Spend																			
New Monthly Spend	\$ 2,155,615	\$ 27,250	\$ 2,101,115	\$ 27,250	\$ -	\$ 9,083	\$ 9,083	\$ 9,083	\$ 9,083	\$ 2,082,948	\$ 9,083	\$ 9,083	\$ 9,083	\$ 9,083	\$ 9,083	\$ 9,083	\$ 9,083	\$ 9,083	\$ 9,083
Monthly closing Balance	\$ 3,537,986	\$ 1,409,621	\$ 3,483,486	\$ 1,409,621	\$ 1,382,371	\$ 1,391,454	\$ 1,400,538	\$ 1,409,621	\$ 1,418,704	\$ 3,501,653	\$ 3,510,736	\$ 3,519,819	\$ 3,528,903	\$ 3,537,986	\$ 3,537,986	\$ 3,537,986	\$ 3,537,986	\$ 3,537,986	\$ 3,537,986
Monthly Dep Prev year Monthly Dep this year	\$ 449,595	\$ 449,595	\$ 458,183	\$ 620,378	\$ 713,445	\$ 449,595	\$ 472,710	\$ 495,977	\$ 519,395	\$ 542,964	\$ 653,096	\$ 694,250	\$ 735,556	\$ 777,013	\$ 818,622	\$ 859,625	\$ 900,628	\$ 941,631	\$ 982,634
	\$ 276,474	\$ 7,680	\$ 92,158	\$ 92,158	\$ 92,158	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040
	\$ 215,681	\$ 70,937	\$ 92,158	\$ 92,158	\$ 92,158	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040	\$ 23,040
	\$ 941,631	\$ 458,183	\$ 620,378	\$ 713,445	\$ 805,603	\$ 472,710	\$ 495,977	\$ 519,395	\$ 542,964	\$ 653,096	\$ 694,250	\$ 735,556	\$ 777,013	\$ 818,622	\$ 859,625	\$ 900,628	\$ 941,631	\$ 982,634	\$ 1,023,637
	\$ 932,776	\$ 932,776	\$ 951,438	\$ 2,863,108	\$ 696,176	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776
	\$ 1,596,355	\$ 951,438	\$ 2,863,108	\$ 696,176	\$ 576,768	\$ 918,744	\$ 904,661	\$ 890,226	\$ 875,740	\$ 2,848,557	\$ 2,816,486	\$ 2,848,263	\$ 2,751,889	\$ 2,719,364	\$ 2,678,361	\$ 2,637,358	\$ 2,596,355	\$ 2,555,352	\$ 2,514,349
	\$ 2,694,556	\$ 942,107	\$ 1,907,273	\$ 1,779,642	\$ 636,472	\$ 925,764	\$ 914,561	\$ 911,501	\$ 904,258	\$ 1,890,666	\$ 1,874,631	\$ 1,858,520	\$ 1,842,333	\$ 1,826,070	\$ 1,805,569	\$ 1,785,067	\$ 1,764,565	\$ 1,744,063	\$ 1,723,561
	\$ 932,776	\$ 932,776	\$ 951,438	\$ 2,863,108	\$ 696,176	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776	\$ 932,776
	\$ 1,596,355	\$ 951,438	\$ 2,863,108	\$ 696,176	\$ 576,768	\$ 918,744	\$ 904,661	\$ 890,226	\$ 875,740	\$ 2,848,557	\$ 2,816,486	\$ 2,848,263	\$ 2,751,889	\$ 2,719,364	\$ 2,678,361	\$ 2,637,358	\$ 2,596,355	\$ 2,555,352	\$ 2,514,349
	\$ 2,694,556	\$ 942,107	\$ 1,907,273	\$ 1,779,642	\$ 636,472	\$ 925,764	\$ 914,561	\$ 911,501	\$ 904,258	\$ 1,890,666	\$ 1,874,631	\$ 1,858,520	\$ 1,842,333	\$ 1,826,070	\$ 1,805,569	\$ 1,785,067	\$ 1,764,565	\$ 1,744,063	\$ 1,723,561



For PILs Calculation

UCC - Smart Meters

CCA Class 47 (8%)	31-Dec-06	31-Dec-07	31-Dec-08	31-Dec-09	31-Dec-10
Opening UCC	\$ -	\$ -	\$ 11,334,518	\$ 23,470,614	\$ 28,305,650
Capital Additions	\$ -	\$ 11,806,790	\$ 13,586,310	\$ 6,992,380	\$ 2,719,897
UCC Before Half Year Rule	\$ -	\$ 11,806,790	\$ 24,920,828	\$ 30,462,995	\$ 31,025,547
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 5,903,395	\$ 6,793,155	\$ 3,496,190	\$ 1,359,949
Reduced UCC	\$ -	\$ 5,903,395	\$ 18,127,673	\$ 26,966,804	\$ 29,665,599
CCA Rate Class 47	8%	8%	8%	8%	8%
CCA	\$ -	\$ 472,272	\$ 1,450,214	\$ 2,157,344	\$ 2,373,248
Closing UCC	\$ -	\$ 11,334,518	\$ 23,470,614	\$ 28,305,650	\$ 28,652,299

UCC - Tools and Equipment

CCA Class 8 (20%)	31-Dec-06	31-Dec-07	31-Dec-08	31-Dec-09	31-Dec-10
Opening UCC	\$ -	\$ -	\$ -	\$ -	\$ -
Capital Additions	\$ -	\$ -	\$ -	\$ -	\$ -
UCC Before Half Year Rule	\$ -	\$ -	\$ -	\$ -	\$ -
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ -	\$ -	\$ -	\$ -
Reduced UCC	\$ -	\$ -	\$ -	\$ -	\$ -
CCA Rate Class 8	20%	20%	20%	20%	20%
CCA	\$ -	\$ -	\$ -	\$ -	\$ -
Closing UCC	\$ -	\$ -	\$ -	\$ -	\$ -

UCC - Computer Equipment

CCA Class 45 (45%) As of May 07 CCA Class 50 (55%)	31-Dec-06	31-Dec-07	31-Dec-08	31-Dec-09	31-Dec-10
Opening UCC	\$ -	\$ -	\$ 223,497	\$ 815,544	\$ 449,255
Capital Additions Hardware	\$ -	\$ 503	\$ 5,138	\$ -	\$ -
Capital Additions Software	\$ -	\$ 287,880	\$ 981,029	\$ 113,462	\$ 2,155,615
UCC Before Half Year Rule	\$ -	\$ 288,383	\$ 1,209,663	\$ 929,006	\$ 2,604,870
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 144,191	\$ 493,083	\$ 56,731	\$ 1,077,807
Reduced UCC	\$ -	\$ 144,191	\$ 716,580	\$ 872,275	\$ 1,527,062
CCA Rate Class 45	45%	45%	55%	55%	55%
CCA	\$ -	\$ 64,886	\$ 394,119	\$ 479,751	\$ 839,884
Closing UCC	\$ -	\$ 223,497	\$ 815,544	\$ 449,255	\$ 1,764,986



Interrogatory

QUESTION #66

Reference: Exhibit I2, Tab 1, Schedule 1, Page 10, Table 5

a) How has Hydro Ottawa Limited allocated the revenue requirement for 2011 (\$1.891 (net) up to end 2009 between the Residential and the GS< 50 kW customer classes? Provide details such as:

- Return allocated based on the capital costs of the meters installed for each class;
- OM&A allocated based on the number of meters installed for each class;
- PILs allocated based on the revenue requirement allocated to each class before PILs.
- Stranded meter costs
- Carrying costs

b) Provide a calculation of the allocated revenue requirement per customer for residential and GS<50 kw classes. Reconcile this with the answer to VECC Question 3 part c)

Response

a) The \$1.891 million in Exhibit I2-1-1 Table 5 is the balance recorded in Accounts 1555 and 1556 combined, excluding stranded meter costs. It is the difference between the amounts collected from customers through the Smart Meter rate adders that were set based on forecasted costs, and the revenue requirement of the actual Smart Meter costs that were not in rate base. If the forecasted costs used to determine the rate adders are identical to the actual costs, the balance would be zero.



1 As discussed in Exhibit I1-1-2, Section 2.1, Hydro Ottawa is not proposing to clear
2 the balances in its Smart Meter variances at this time, therefore this amount has not
3 been allocated to customer classes. Hydro Ottawa has forecasted that by the end of
4 2010, the balance not including stranded meters will be minimal.

5
6 In 2008, the Smart Meter costs to April 30, 2007 of \$15,724k were included in Hydro
7 Ottawa's rate base, and therefore were no longer part of the calculation of Smart
8 Meter rate adders in 2008 and subsequent years. Exhibit I2-1-1 Table 5 shows the
9 removal of this amount from the revenue requirement calculation used to calculate
10 the entries to Accounts 1555 and 1556. The costs associated with this amount
11 included in the 2008 rate base were allocated to customer classes in the same
12 manner that any meter costs are allocated to customer classes. Hydro Ottawa is
13 proposing the same approach in 2011. Smart Meter capital costs to December 31,
14 2010 have been included in the 2011 rate base and the resultant costs for return,
15 depreciation and PILs are allocated to customer classes in the same manner as any
16 metering cost. Any interest accrued on the Smart Meter variance accounts remains
17 in the Smart Meter variance accounts until they are cleared.

18
19 Table 5 does not include stranded meter costs. The response to VECC # 28 provides
20 a continuity schedule for the stranded meter costs. Hydro Ottawa has included these
21 costs in rate base, and is proposing to amortize the remaining balance to December
22 31, 2013. The allocation to customer classes for costs associated with stranded
23 meter costs would be the same as for any metering asset included.

- 24
25 b) VECC #3 is not related to Smart Meters. Hydro Ottawa assumes this was intended to
26 refer to VECC #65c). Regardless, as discussed in a) above, Hydro Ottawa has not
27 allocated this revenue requirement to customer classes. The revenue requirement
28 shown in Table 5 was calculated for the purposes of recording amounts in the Smart
29 Meter variances, and Hydro Ottawa is not proposing to clear the balances in these
30 variance accounts at this time.



Interrogatory

QUESTION #67

Reference: Exhibit I2, Tab 1, Schedule 1, Page 11, Table 6

- a) Provide a version of Table 6 that shows the projected amounts for the years 2011-2013. Comment on the net (closing) balances.
- b) Is the proposed amortization to the end of 2013 consistent with the Board-Approved 6 year amortization period? Please explain.
- c) What is the contributed capital amount shown in 2008? Please explain.
- d) What salvage values were/are included in the proceeds column (or elsewhere in Table 6)? Please explain

Response

- a) Table 1 below projects the balance of stranded meter costs to the end of 2013.

Table 1 – Stranded Meters (\$000)

	Gross Asset	Accumulated Amortization	Net Asset	Proceeds	Contributed Capital	Recovery	Balance
Meters removed in 2006	\$12,031	(7,161)	4,870	(93)	-	-	\$4,777
Meters removed in 2007	9,567	(4,531)	5,036	(54)	-	(623)	9,136
Meters removed in 2008	19,021	(11,689)	7,332	(72)	(1,419)	(2,026)	12,951
Meters removed in 2009	4,549	(2,695)	1,854	(8)	-	(3,039)	11,758
Meters to be removed in 2010	623	(387)	236	-	-	(3,039)	8,955
2011						(2,985)	5,970
2012						(2,985)	2,985
2013						(2,985)	0
TOTAL	\$45,791	(26,463)	19,328	(228)	(1,419)	(17,681)	



1 Smart Meter deployment is expected to be complete by the end of 2010, therefore no
2 new stranded meters will be created in 2011 to 2013.

3
4 b) In the 2008 electricity distribution rate application ("2008 EDR"), the Board approved
5 a six year amortization period for Hydro Ottawa's stranded meters; from May 1, 2008
6 to April 30, 2014. Hydro Ottawa is requesting that its 2011 rates be effective on
7 January 1, 2011; and there is a further expectation that all subsequent rate
8 adjustments will also occur on January 1 of each year. For this reason, to align to
9 the new rate year, Hydro Ottawa has proposed that the stranded meters be
10 amortized to December 31, 2013. This would result in a total of five years and eight
11 months instead of the original six years.

12
13 Hydro Ottawa notes that the total balance of stranded assets to be recovered has
14 decreased, as discussed in Exhibit I2-1-1 Page 12, lines 9 to 19. As a result of this
15 decrease, despite the four month shorter amortization period, the annual amount to
16 be recovered is lower than approved in the 2008 EDR. Given the added complexities
17 of having a portion of the revenue requirement related to stranded meters misaligned
18 with the remainder of the revenue requirement, and the minimal impact to rates,
19 Hydro Ottawa's approach is reasonable.

20
21 c) When Hydro Ottawa installs meters related to new construction (e.g. a new
22 subdivision), the developer pays contributed capital for the project based on an
23 economic evaluation test. This test determines the difference between the costs of
24 the project and the expected future revenues. A portion of the costs of these projects
25 is related to metering. Therefore, Hydro Ottawa has estimated the portion of the
26 contributed capital related to conventional meters that have been removed from
27 service as a result of the Smart Meter program. Hydro Ottawa reduced the stranded
28 meter costs to be recovered by this amount.

29
30 d) Hydro Ottawa was able to sell some of its conventional meters that were removed
31 from service. The sale price or salvage value was minimal. But any proceeds from



- 1 the sale or salvage were recorded to reduce the stranded meter costs to be
- 2 recovered. The total proceeds were \$228,000.



1 **Interrogatory**

2
3 **QUESTION #68**

4
5 Reference: Exhibit I2, Tab, Schedule 1, Page 10, Table 5 and Page13,Table 7

6
7 a) Based on the responses to questions regarding calculation of 2011 costs, revenue
8 requirement by rate class, provide a version of Table 5 that shows the changes
9 resulting from these responses, and

10
11 b) Compare these amounts to the original Tables 5 and 7 as filed.

12
13 c) Update as necessary, the SM -related Bill Impacts.

14
15 **Response**

16
17 a) Table 5 was provided to show the calculation of the balances in the Smart Meter
18 variance accounts (Accounts 1555 and 1555). There is no requirement in the
19 Accounting Procedures Handbook to record Accounts 1555 and 1556 by class of
20 customer. Furthermore, Hydro Ottawa is not seeking to clear the balances in
21 Accounts 1555 and 1556 at this time. Therefore there have been no changes to
22 Table 5 resulting from the responses to previous questions, except for the inclusion
23 of the budgeted balance for 2010.

24
25 b) There are no changes to compare.

26
27 c) Hydro Ottawa did not provide any Smart Meter related bill impacts for 2011. The
28 Smart Meter program will be substantially complete by the end of 2010 and therefore
29 Hydro Ottawa has proposed that any costs for metering be part of the overall 2011
30 revenue requirement.