EB-2014-0083

Ontario Energy Board

IN THE MATTER OF the *Ontario Energy Board Act*, *1998*, S.O. 1998, c. 15, (Schedule B);

AND IN THE MATTER OF an application by Hydro One Brampton Networks Inc. for an order approving just and reasonable rates and other charges for electricity distribution to be effective January 1, 2015.

ENERGY PROBE RESEARCH FOUNDATION
("ENERGY PROBE")
CROSS-EXAMINATION COMPENDIUM

INDEX OF MATERIALS

Pre-Tax Cost of Capital (1)

	Capital Structure	After-Tax Return	Pre-Tax Return
Long Term Debt	56.00%	6.12%	6.12%
Short Term Debt	4.00%	2.11%	2.11%
ROE	40.00%	9.71%	13.21%
Total		7.40%	8.80%
Tax Rate	26.50%		

Working Capital Allowance Percentage

Controllable Expenses & Cost of Power (1)	495,184,256
One Percentage Point Change in Working Capital Rate	1.00%
Impact on Working Capital Allowance Rate Base	4,951,843
Impact on Ratepayers	435,562

(1) Settlement Agreement RRWF

A. ORIGINAL WORKING CAPITAL FILINGS

FILE NO.	DISTRIBUTOR	As Filed	Approved	IF BILLED MONTHLY		DIFFERENCE FROM APPROVED	SERVICE LAG
EB-2007-0680 (1)	TORONTO HYDRO	12.90%	12.90%	9.64%	(3)	-3.26%	27.1
EB-2009-0096 (2)	HYDRO ONE DIST.	11.90%	11.50%	9.91%	(3)	-1.59%	21.0
EB-2010-0131	HORIZON	14.20%	13.50%	9.00%		-4.50%	30.3
EB-2011-0054	HYDRO OTTAWA	14.20%	14.20%	9.60%		-4.60%	30.2
AVERAGE		13.30%	13.03%	9.54%		-3.49%	27.2

(1) 12.90% RESULTED FROM EB-2010-0142 - NO CHANGE IN LEAD/LAG STUDY, ONLY CHANGE IN MIX OF COSTS

(2) SEE EB-2009-0096 DECISION

(3) ESTIMATED BASED ON A REDUCTION OF SERVICE LAG TO 15.21 DAYS

B. UPDATED WORKING CAPITAL FILINGS

FILE NO.	DISTRIBUTOR	As Filed		IF BILLED MONTHLY		SERVICE LAG
EB-2013-0416	HYDRO ONE DIST.	7.47%	(1)	7.14%	(2)	16.4
EB-2014-0002	HORIZON	12.00%		8.70%		25.0
EB-2014-0116	TORONTO HYDRO	7.91%		6.95%	(2)	18.7
EB-2011-0054	HYDRO OTTAWA - NC			9.60%		
AVERAGE		9.13%		8.10%		

(1) AVERAGE OF PERCENTAGES OVER 2015 THROUGH 2019

(2) ESTIMATED BASED ON A REDUCTION OF SERVICE LAG TO 15.21 DAYS

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Ontario

BY E-MAIL

April 12, 2012

To: All Licensed Electricity Distributors
All Licensed Electricity Transmitters
All Other Interested Parties

Re: Update to Chapter 2 of the Filing Requirements for Transmission and Distribution Applications – Allowance for Working Capital

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This letter provides an update to the options established in the June 22, 2011 cost of service Filing Requirements for the calculation of the allowance for working capital for the 2013 rate year.

Background

Chapter 2 of the Filing Requirements for Transmission and Distribution Applications issued on June 22, 2011 (for the 2012 rate year), provides for two approaches that an applicant may take for the calculation of its allowance for working capital: (1) the 15% allowance approach; or (2) the filing of a lead/lag study.

Section 2.5.1.4 of the Filing Requirements notes the following:

> *Cost of Service Applications for the 2013 Rate Year*
>
> The Board informs distributors that 2012 will be the final year for which the 15% Allowance Approach will be allowed as a default value. The Board is reviewing the possibility of requiring distributors to file lead/lag studies for the purpose of establishing the working capital allowance for the 2013 rate year.

Working Capital Allowance ("WCA") for the 2013 Rate Year

The Board has reviewed the approaches to the calculation of WCA and will not require distributors to file lead/lag studies for 2013 rates, unless they are required to do so as a result of a previous Board decision. However, the Board has reviewed the results of lead/lag studies filed by distributors in cost of service applications and in each of those cases both the applied-for WCA and the final Board-approved WCA have been lower

than 15%. The Board has determined that it is not appropriate for a default value for WCA to be set at a higher level than those resulting from lead/lag studies.
Based on the results of WCA studies filed with the Board in the past few years, the Board has determined that the default value going forward will be 13% of the sum of cost of power and controllable expenses. This default value will be applicable to 2013 rate applications and beyond. Distributors still have the option of completing and filing a lead/lag study as part of a cost of service rate application for determination by the Board.

The Board therefore revises section 2.5.1.4 of the Filing Requirements, specifically the 15% Allowance Approach to establish a 13% Allowance Approach as the new default value. The following revised excerpt of section 2.5.1.4 is effective immediately for 2013 cost of service applications:

> The Applicant may take one of two approaches for the calculation of its allowance for working capital: (1) the 13% allowance approach; or (2) the filing of a lead/lag study.
>
> The only exception to the above requirement is if the applicant has been previously directed by the Board to undertake a lead/lag study on which its current working capital allowance is based. Under such circumstances, the applicant must either continue to use the results of that study, or in the event it wishes to propose a revision to its allowance, the applicant must file an updated study in support of its proposal. In the absence of such circumstances the two approaches are:
>
> *13% Allowance Approach*
>
> The 13% Allowance Approach is calculated to be 13% of the sum of Cost of Power and controllable expenses (i.e., Operations, Maintenance, Billing and Collecting, Community Relations, Administration and General).
>
> The commodity price estimate used to calculate the Cost of Power should be determined in a way that bases the split between RPP and non-RPP customers on actual data. The calculation should also reflect the most recent Uniform Transmission Rates approved by the Board (EB-2011-0268), issued on December 20, 2011 and effective January 1, 2012. In the event that new Uniform Transmission Rates are approved during the course of a proceeding, the Cost of Power should be updated to reflect the new rates. The RPP Price that should be used should be the most current RPP Price issued by the Board and should apply to the entire test period forecast.

Lead/Lag Study

A lead/lag study analysis for two time periods; namely:

- The time between the date customers receive service and the date that the customers' payments are available to the distributor (the lag); and
- The time between the date when the distributor receives goods and services from its suppliers and vendors and the date that it pays for them (the lead).

Leads and lags are measured in days and are generally dollar-weighted. The dollar-weighted net lag (i.e. lag minus lead) days is then divided by 365 (366 in a leap year) and then multiplied by the annual test year cash expenses to determine the amount of working capital required for operations. This amount is included in the distributor's rate base determination.

For questions related to this amendment please contact the Board's market operations hotline at 416-440-7604, or by e-mail at Market.Operations@ontarioenergyboard.ca The Board's toll-free number is 1-888-632-6273.

Sincerely,

Original Signed By

Kirsten Walli
Board Secretary

REPORT ON LEAD LAG STUDY AND WORKING CAPITAL RESULTS USING 2005 EXPENSE LEVELS

Presented to:

Toronto Hydro Electric System Limited

December 4, 2006

Prepared by:

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I. INTRODUCTION

In 2006, the Ontario Energy Board ("OEB") issued a directive to Toronto Hydro Electric System Limited ("THESL" or the "Company") requesting that the Company conduct a study of its lead/lag methodology to support its future working capital submissions before the OEB[1]. In response to the directive, the Company retained Navigant Consulting, Inc. ("NCI") to perform a lead/lag study using the most recent data available and to derive THESL's working capital requirements for the historical 2005 "test" year. The purpose of this report is to provide the results of the lead-lag study and to determine the working capital requirements of the Company's distribution business.

I.A. Working Capital and Lead/Lag Studies

Working capital is the amount of funds required to finance the day-to-day operations of a regulated utility. The determination of working capital generally relies on a lead/lag study.

A lead/lag study analyzes the time elapsed between the date customers receive service and the date that such customers' payments are available to the Company (or "lag") together with the time during which the Company receives goods and services but pays for them at a later date (or "lead"). "Leads" and "Lags" are both measured in days and are generally dollar-weighted. The dollar-weighted net lag (i.e., lag minus lead) days is then divided by 365 and then multiplied by the annual test year cash expenses to determine the amount of working capital required for operations. The resulting amount of working capital is then included as part of the Company's rate base.

[1] EB-2005-0421, Decision With Reasons, Issued April 12, 2006

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Performing a lead/lag study requires two key undertakings: a) developing an understanding of how the regulated business works in terms of collections and payment policies and procedures; and b) development of a representative data set that reflects the implementation of such policies and procedures in terms of the timing of payments received (sent) at any given point in time.

To develop an understanding of THESL's operations, interviews with personnel within the regulated utility's Accounts Payable, Customer Service, Human Resources, Payroll, and Tax Departments were conducted. As in prior instances where NCI has conducted lead/lag studies, some key issues that were addressed during the course of the interviews included:

- The nature of buyers (sellers) within the business;
- The nature of the product or service, i.e., what is being sold (or bought), or, if a service was being provided;
- The time period over which the service was provided;
- Payment Terms, i.e., whether driven by government mandate, industry norms, or by company policy and the degree of flexibility within the terms for payment;
- Actual payment dates and amounts;
- Method of payment for such products (or services), e.g., cash, check, electronic;
- Expectation of changes (if any) to the Company's collections and payment policies or procedures going-forward.[2]

Operational data was obtained from THESL's Accounts Payable, Customer Service, Human Resource, Payroll, and Tax Systems. Once the data had been gathered, sampling and data validation was performed to the extent necessary and appropriate. Data validation generally took the form of comparing an actual invoice or a bill with data from the Company's systems to ensure accuracy. Except where otherwise noted,

[2] Activity over a given twelve month period is used to analyze the timing of payments and receipts unless interviews with Company personnel reveal that there are known changes to existing policies or procedures going forward. Where such changes are known, they have been incorporated into the derivation of the appropriate leads, lags, and net lags.

the lead-lag study focused on activities within THESL for the twelve months ended August 31, 2006.

I.B Organization of the Report

Section II of this report discusses the lags associated with the Company's collections of revenues. Included in Section II is a description of the sources of revenues and how they were treated for the purposes of deriving an overall revenue lag for the Company's distribution operations.

Section III presents a description of the various expenses and their attendant lead times. Included in the discussion on expense leads is the lead-time on OM&A costs, interest on long-term debt, Payments in Lieu of Taxes (such as Capital, Income, and Large Corporation Taxes), and the Goods and Services Tax (or "GST"). The methods used to calculate the expense lead times associated with each of the items as well as the results from the application of the methods are described.

Section IV sets forth a summary of THESL's working capital requirements for its distribution operations using operating expense data for the historical 2005 year.

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II. REVENUE LAGS

A utility providing service to its customers generally derives its revenue from the services provided to its customers. Revenue lags represent the number of days from the date services are rendered by the Company until the date payments are received from the customers and such funds are available to the Company. Based on a review of the Company's accounting records, NCI has determined that the majority of THESL's revenues originate from two sources:

1. Residential Class, various General Service Classes, and Large User Class customers, hereafter referred to as "Bundled service ratepayers";
2. Other (miscellaneous) sources including (but not limited to) retailers, connection charges, transformer rentals and customer related jobs.

When both sources of revenues are considered together, the weighted average revenue lag time is 71.53 days. Table II-1 shows the amount of these revenues in 2005, the revenue lags associated with each revenue source, and the weighted average of all revenue sources.

Table II-1

THESL Revenue Lag

Source of Revenues	Revenue Lag (Days)	2005 Amounts (Mil $s)	Weighting Factor	Weighted Revenue Lag
Revenues from Bundled Service Ratepayers	71.76	2,687	99.17%	71.16
Revenues from Other Sources	44.66	22	0.83%	0.37
Total		2,709	100.00%	71.53

II-A. Revenues from Bundled Service Ratepayers

As shown in Table II-1, revenues from bundled service ratepayers represented 99.17% of total revenues realized by the Company during 2005. The lag time associated with the realization of such revenues was 71.76 days.

The lag associated with the Company's provision of service to its bundled service ratepayers typically consists of four components: a) Service lag; b) Billing lag; c) Collections lag; and, d) the lag associated with the Company's payment processing lag (including bank float). The contribution of each component to the overall revenue lag is shown in Table II-2, below.

Table II-2

Revenue Lag from Bundled Service Ratepayers (Days)

Revenue Lag Component	Days
Service Lag:	27.10
Billing Lag:	16.17
Collections Lag:	27.06
Payment Processing & Bank Float Lag:	1.43
Total	71.76

A discussion of each of the four components follows.

II.A.1 Service Lag

The Service Lag covers the period between the time the Company provides service and the time customers' meters are read. Interviews with the Company's customer service personnel revealed that the Company's customers have their meters read on a monthly or bi-monthly basis. Based on this information and using data from the Company's Customer Information System ("CIS") regarding the number of customers that receive monthly and bi-monthly service respectively, NCI determined that the average service lag was 27.10 days.

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II.A.2 Billing Lag

The billing lag refers to the average number of days from the date the meter is read until the customer is billed. Based on the Company's monthly scheduled meter read and bill dates, NCI determined an average billing lag of 16.17 days for the twelve months ended August 31, 2006.[3]

II.A.3 Collections Lag

The collections lag refers to the average amount of time from the date the Company mails a bill to the date that THESL receives the customer's payment. For the purpose of this lead/lag study, this information was derived from an aging of accounts receivables report that showed the amount outstanding by aging day interval. Using data for the twelve-month period ended August 31, 2006, an average collections lag time of 27.06 days was derived.

II.A.4 Payment Processing and Bank Float

Based on interviews with the Company's Customer Service Department and the Company's Treasury operations, NCI determined that customer payments to the Company were typically in the form of pre-authorized payments, checks (lockbox), payments via the telephone, payments directly to financial institutions for credit to the Company's bank account, electronic payments (internet payments or direct debit payments), or payments via credit card. Using data on actual payments made and processed for the twelve-month period ended August 31, 2006, NCI determined that the weighted average lead-time associated with payment processing and bank float was 1.43 days.

[3] This average billing lag includes the time period associated with the Company's receipt of billing data from the Ontario Independent Electric System Operator ("IESO") in order to bill its customers.

II.C. Revenues from Other Sources

Revenues from other sources represent 0.83% of the Company's total collections during 2005. The timing of receipts of such other revenues from customers depends on the Company's billing, collections, and payment processing and bank float operations. Thus, a lag time of 44.66 days was used in the derivation of the Company's overall revenue lag time as shown on Table II-1.

III. EXPENSE LEADS (LAGS)

As mentioned at the outset, a lead/lag study considers both the lag time associated with the collection of revenues from customers as well as the lead (or lag) time associated with the payment for goods and services provided to the Company by its vendors. For the purpose of this lead/lag study, the following four broad categories of expenses were considered in order to estimate the overall cash working capital requirement of the Company:

1. Cost of power;
2. Operations, Maintenance, and Administrative ("OM&A") expenses[4];
3. Interest on Long Term debt; and
4. Taxes.

Each of these categories and the associated expense lead (or lag) times are discussed below.

III.A Cost of Power

The Company purchases all of its power supply requirements from Ontario's Independent Electric System Operator (the "IESO"). Based on actual billings and the Company's payments to (or receipts from) the IESO during the twelve month period ended August 31, 2006, a weighted expense lead time of 32.61 days was derived for the cost of power.

This weighted expense lead-time includes an average service lead-time of 15.21 days since the IESO provides service to the Company on a monthly basis. The

[4] The categories included within OM&A expenses are generally consistent with those defined within the Ontario Energy Board's Distribution rates Handbook.

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derivation of the expense lead-time associated with the cost of power is shown in Table III-1[5].

Table III-1

Derivation of the Expense Lead Time for Cost of Power

Service Begin	Service End	Service Lead Time	Monthly Payment Amounts	Payment Date	Payment Lead Time	Total Lead Time	Weighting Factor	Weighted Lead Time
9/1/2005	09/30/2005	15.00	200,974,640	10/19/2005	19.00	34.00	10.02%	3.41
10/1/2005	10/31/2005	15.50	184,360,107	11/17/2005	17.00	32.50	9.19%	2.99
11/1/2005	11/30/2005	15.00	161,372,179	12/16/2005	16.00	31.00	8.05%	2.49
12/1/2005	12/31/2005	15.50	202,696,412	1/18/2006	18.00	33.50	10.11%	3.39
1/1/2006	01/31/2006	15.50	162,630,421	2/16/2006	16.00	31.50	8.11%	2.55
2/1/2006	02/28/2006	14.00	156,059,276	3/16/2006	16.00	30.00	7.78%	2.33
3/1/2006	03/31/2006	15.50	86,324,877	4/20/2006	20.00	35.50	4.30%	1.53
4/1/2006	04/30/2006	15.00	138,929,508	5/16/2006	16.00	31.00	6.93%	2.15
5/1/2006	05/31/2006	15.50	169,178,427	6/16/2006	16.00	31.50	8.43%	2.66
6/1/2006	06/30/2006	15.00	165,500,488	7/19/2006	19.00	34.00	8.25%	2.81
7/1/2006	07/31/2006	15.50	184,853,295	8/17/2006	17.00	32.50	9.22%	3.00
8/1/2006	08/31/2006	15.50	192,839,849	9/19/2006	19.00	34.50	9.61%	3.32
			2,005,719,479				100.00%	32.61

[5] By ignoring the IESO creditworthiness requirements when computing the expense lead time associated with the cost of power, the Company has been conservative in estimating the working capital requirement associated with the cost of power. As it stands today, should the Company be downgraded to a BBB rating category, an additional $80 million in letters of credit may need to be posted with the IESO. More importantly, and from a working capital perspective, THESL is subject to margin calls from the IESO. If THESL's "actual exposure" (i.e., the total amount owed to the IESO) crosses a pre-determined threshold, the IESO can and does issue actual margin calls; all margin calls must be paid in cash within 2 business days of the margin call, and must be enough to reduce THESL's actual exposure down to 35% of its "maximum exposure". Margin calls posted are used as offsets against the next IESO invoice. THESL is currently in discussions with the IESO to try and change this with a view to making this less onerous. Should these discussions prove unsuccessful, THESL may have to reflect the IESO practices and recompute the expense lead time (and accompanying working capital requirements) associated with the cost of power.

III.B OM&A Expenses

The next category of expenses considered in the lead/lag study was OM&A expenses. Included within this category were the following types of expenses:

1. Payroll and Benefits;
2. Expenses associated with Consulting and Contract Staff;
3. Lease Expenses;
4. Provincial and Local property taxes; and
5. Miscellaneous Operations and Maintenance expenses.

The expense lead times associated with each type of OM&A expense are discussed below.

III.B.1 Payroll and Benefits

The category "Payroll and Benefits" consists of a number of expense-related items. A summary of the items considered, their individual expense lead times, their corresponding weighting factors, and the overall weighted expense lead time is shown in Table III-2 below.

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Table III-2

Payroll and Benefits

	Amounts Twelve Months ended August 31, 2006	Lead (Lag) Days	Weighting Factor	Weighted Lead
Net Payroll - Actives	$76,577,494	11.50	52.30%	6.01
Withholdings - Actives	33,829,038	20.82	23.10%	4.81
Pensions	18,156,050	45.28	12.40%	5.61
Employer Health Tax	2,139,600	30.21	1.46%	0.44
Workers Safety Improvement Board Payments (WSIB)	955,096	45.24	0.65%	0.30
Group Medical and Dental	11,334,337	0.50	7.74%	0.04
Group Life	2,155,568	35.20	1.47%	0.52
Long Term Disability (LTD)	1,176,620	35.19	0.80%	0.28
Accidental Death and Dismemberment (ADD)	24,544	35.21	0.02%	0.01
Employee Assistance Program (EAP)	72,447	35.22	0.05%	0.02
Total	$146,420,793		100.00%	18.04

Each item in Table III-2 is discussed below.

III.B.1.1 Payroll and Payroll Related Withholdings

Based on interviews with the Company's payroll department, NCI determined that:

» All active THESL employees are paid bi-weekly on the same cycle. Payroll administration is outsourced and ADP is the payroll administrator. ADP has access to net payroll funds a day in advance of payday.

» Payroll related taxes and withholdings, on the other hand, are remitted to the respective authorities by THESL.

» All payments are via electronic funds transfer.

Based on this information and taking into account actual pay dates and amounts as well as withholding remittance dates and amounts, an expense lead time of 11.5 days was estimated for active employee payroll and 20.82 days for withholdings associated with active payroll.

III.B.1.2 Pensions

In accordance with the requirements of its pension fund administrator (The Ontario Municipal Employee Retirement System or "OMERS"), the Company is required to make contributions to OMERS on the last day of the month following the month of service. Using actual payment dates and amounts remitted and using a 15.21 day service lead time (the mid-point of the month for which a contribution is due), an overall expense lead time of 45.28 days was derived.

III.B.1.3 Employer Health Tax ("EHT")

Pursuant to the Income Tax Act, the Company is required to make monthly installment payments associated with the EHT around the middle of the month following the month of service. Taking into account actual remittances made by the Company, the remittance dates, as well as the service periods covered by those remittances, the weighted expense lead-time was calculated to be 30.21 days.

III.B.1.4 WSIB Payments

The Workplace Safety Insurance Board ("WSIB") oversees Ontario's workplace safety education and training system, provides disability benefits, monitors the quality of health care, and assists in early and safe return to work. The WSIB premium covers workers on a Corporation's payroll, either working full or part time under a contract of service or as an apprentice. Based upon WSIB coverage periods, and actual payment amounts and dates during the twelve-month period ended August 31, 2006, an expense lead-time of 45.24 days was derived.

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III.B.1.5 Group Medical and Dental

During 2005-06, the Company's Health and Dental program was administered by Manulife which charges an administrative fee for services rendered and is reimbursed for claims. The Company paid the administrator daily for both the administration and claims related costs incurred by Manulife. Taking into account actual payments made by the Company, an expense lead-time of 0.5 days was estimated.

III.B.1.6 Group Life, Accidental Death and Dismemberment ("ADD"), Long Term Disability ("LTD"), and Employee Assistance Programs ("EAP")

During 2005-06, the Company's programs were administered by MEARIE, RBC Insurance, SunLife, and Warren Sheppell, which charges premiums or administrative fee for services rendered. Life Insurance premiums and administrative fees for the Company's LTD, ADD, and EAP programs are paid monthly by check typically around the 15th of the month following the month of service. Taking into account actual payments made by the Company during 2005, expense lead time estimates for: a) Group Life is 35.20 days, b) LTD is 35.19 days, c) ADD is 35.21 days, and d) EAP is 35.22 days.

III.B.2 <u>Consulting and Contract Staff</u>

The second type of expense which falls under OM&A expenses are those associated with Consulting and Contract Staff. Using data on invoices from vendors of services provided to the Company, NCI determined that the average expense lead-time associated with payments for consulting and contract staff was 54.78 days. The invoices included a broad spectrum of services ranging from communications and training, contract employee services, building maintenance, and architectural and other consulting related services.

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III.B.3 Leases

The third type of expense included under the OM&A umbrella are payments made by the Company for operating leases. The Company leases office space as well as space for its communication antennas. Based on actual payments made for the leases for the twelve months ended August 31, 2006, a weighted expense lead-time of negative 14.71 days was determined.

III.B.4 Property Taxes

The Company makes two forms of property tax payments: a) Payments to the City of Toronto, b) PILS property taxes to the Province of Ontario. Property Taxes were paid to the City of Toronto in six installments during the current year for the current year. The first three payments were estimated and trued up in the second set of three payments. Payments were made by wire transfer. Based on actual payments made during 2005, a weighted expense lead-time of negative 28.09 days was determined.

PILS property taxes were paid to the Province of Ontario in two installments. The first was an estimate and the second consisted of a true up as well as the second payment amount. PILS Property Taxes were paid in the current year for the current year and were paid by wire transfer. Based on actual payments made during 2005, a weighted expense lead-time of 12.67 days was determined.

III.B.5 Miscellaneous Operations and Maintenance Expenses

Using invoices for routine goods and services provided to the Company, NCI determined a weighted average expense lead-time of 40.08 days for miscellaneous operations and maintenance related expenses. NCI's analysis took into account transactions that occurred during 2005 and, where services were provided to the Company, used the actual service periods shown on vendor invoices.

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III.C. Interest on Long Term Debt

The Company has two outstanding long-term debt instruments; both of which were payable to THESL's holding company (Toronto Hydro Corporation or "THC"):

- $980 million at 5 percent. Interest was payable quarterly by THESL to THC on the last day of March, June, September, and December. Payments were made by wire transfer.
- $180 million at 6.16 percent. Interest was due semi-annually on May 7th and November 7th. Payments were made by wire transfer.

Taking this information into account, an expense lead-time of 43.23 days was estimated.

III.D. Taxes

Both income and non-income taxes, as well as pass-through taxes, must be considered in a lead/lag study when deriving working capital requirements. The categories of taxes that were considered in this study were: 1) Payments in Lieu (PIL) of Taxes including the Ontario Capital Tax and the Corporate Income and Large Corporation Tax, 2) the Debt Retirement Charge, and 3) the Goods and Services Tax ("GST").

III.D.1 Payments in Lieu of Taxes (PILs)

The Company paid its current year PILS obligations (Capital, Corporate Income, and Large Corporation Tax) to the province of Ontario in monthly installments and made a true up payment in or around February of the following year. Thus, the Company was pre-paying a portion of its annual tax obligation and post-paying the balance. Taking this information into account and using actual payment dates and amounts, an expense lead-time of 37.95 days (dollar-weighted by amount paid by month) was derived.

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III.D.2 Debt Retirement Charge ("DRC")

DRC collections by the Company were used to retire the former Ontario Hydro stranded debt. Annual DRC amounts were paid in monthly installments to the Ontario Electric Finance Corporation (OEFC). Such payments are generally made on the 18th of every month for the month prior and are calculated based on prior month billings. Payments were made by wire transfer. Based on actual DRC payments made in 2005, a weighted expense lead-time of 33.2 days was determined.

III.D.3 Goods and Services Tax

The GST is imposed by the Federal Government and is levied at a flat rate of 6 percent. The following categories of GST were considered in this study:

1. Retail Revenues
2. Cost of Power
3. Consulting and Contract Staff
4. Lease Payments
5. Miscellaneous Operations and Maintenance Expenses

III.D.3.1 GST - Retail Revenues

The Company is obligated to collect GST from its customers and remit such collections to the Federal Government. Remittances were generally due on the last day of the month following the month in which a customer is billed for GST. Based on this information, a GST lead-time of negative 18.49 days was determined. The lead-time is shown as negative as such GST amounts which the Company was required to remit represent a source of working capital to the Company.

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III.D.3.2 GST – Cost of Power

The Company is owed GST on amounts that it pays on power supplies from the IESO. Similar to retail revenues, a reimbursement generally occurs at the end of the month following the date of payment (or receipt) of funds from the IESO. Using actual dates of payments/receipts, an average expense lead-time of 43.58 days was determined and used in the derivation of the Company's cash working capital requirement.

III.D.3.3 GST – Consulting and Contract Staff

Reimbursements were made on the last day of the month following the dates on which the Company made payments on account of its retaining consulting and contract staff. Taking this information into account and using actual payment dates, an expense lead-time of 44.64 days was derived and used in the determination of the Company's cash working capital requirements.

III.D.3.4 GST – Lease Payments

Reimbursements were made on the last day of the month following the dates on which the Company made lease payments. Taking this information into account and using actual payment dates, an expense lead-time of 46.68 days was derived and used in the determination of the Company's cash working capital requirements.

III.D.3.5 GST – Miscellaneous Operations and Maintenance Expenses

As with other categories of GST, using actual payment dates on miscellaneous operations and maintenance expenses, an expense lead-time of 47.16 days was determined.

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IV. THESL'S WORKING CAPITAL REQUIREMENTS

This section presents the derivation of the Company's working capital requirements using the revenue lags and expense leads discussed in Sections II and III, respectively. Table IV-1 shows the overall derivation of the Company's cash working capital requirement.[6] Footnotes 1, 2, and 3 to Table IV-1 are provided in support of the information shown in Table IV-1. As shown in Table IV-1, the net cash working capital requirement using 2005 expense levels is $298 million or approximately 12.45 percent of OM&A expenses and the cost of power. As would be expected, the cost of power is the most significant contributor to the Company's net cash working capital requirement followed by OM&A expenses. What drives the magnitude of the requirements is the significance of the net lag (i.e., revenue lag minus the expense lead time) for both these items.

[6] The dollars provided in Column E of Table IV-1, were provided by (and will be addressed by) the Company. NCI has not reviewed, nor have we expressed an opinion as to the accuracy of the figures.

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Table IV-1

Calculation of THESL Working Capital Requirement

(All data in Millions $s except where otherwise noted)[7]

	Expense Item Description	Revenue Lag (Days)	Expense lead (Days)	Net Lag (Lead) Days	Working Capital Factor	Expenses at Present Rates	Working Capital Requirement
		(A)	(B)	(C)	(D)	(E)	(F)
1	Cost of Power	71.53	32.61	38.92	10.63%	2,224	236
2	OM&A Expenses	71.53	19.86	51.67	14.12%	167	24
3	Interest on Long term debt	71.53	43.23	28.30	7.73%	81	6
4	Payments in Lieu of Taxes	71.53	37.95	33.58	9.18%	61	6
5	Debt Retirement Charge	71.53	33.20	38.33	10.47%	159	17
6	Sub-Total					2,692	289
7	GST[8]					19	9
8	TOTAL (including GST)					2,711	298
9	**Working Capital as a % of OM&A including Cost of Power**						**12.45%**

[7] Strictly speaking, the Debt Retirement Charge and GST are not "expenses", but rather are "flow through expenditures".

[8] See Footnote 1 for calculation.

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Footnotes 1, 2, and 3 to Table IV-1

FOOTNOTE 1: GST CALCULATION					
	GST CATEGORY	2005 Expenses (Mil $s)	6% GST	Net Lead (lag) Days	GST Benefit (Cost)
		(A)	(B)	(C)	(D)
1	Revenue	2,709	163	(18.49)	(8)
2	Cost of power	2,224	(133)	43.58	16
3	OM&A Expenses	167	(10)	46.93	1
4	TOTAL		22		9

FOOTNOTE 2: OM&A CALCULATION					
OM&A CATEGORY		Amounts for the 12 months ended 8/31/06 ($000s)	Weighting Factor	Expense Lag Time	Weighted Expense Lead Time
		(A)	(B)	(C)	(D)
1	Payroll and benefit costs	146,421	79.93%	18.04	14.42
2	Consulting and contract staff	2,586	1.41%	54.78	0.77
3	Lease Payments	357	0.20%	(14.71)	(0.03)
4	Property taxes - Province	539	0.29%	12.67	0.04
5	Property taxes - City	7,052	3.85%	(28.09)	(1.08)
6	Miscellaneous O&M	26,234	14.32%	40.08	5.74
7	TOTAL	183,188	100.00%		19.86

FOOTNOTE 3: CALCULATION OF GST LEAD TIME ON OM&A					
GST CATEGORY		Amounts for the 12 months ended 8/31/06 ($000s)	Weighting Factor	GST Expense Lead Time	Weighted Expense Lead Time
		(A)	(B)	(C)	(D)
1	Consulting and contract staff	2,586	8.9%	44.64	3.96
2	Lease Payments	357	1.2%	46.68	0.57
3	Miscellaneous O&M	26,234	89.9%	47.16	42.40
	TOTAL	**29,177**	**100.0%**		**46.93**

A Determination of the Working Capital Requirements of Hydro One Networks' Distribution Business

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July 6, 2009

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Navigant Consulting has prepared this report at the request of Hydro One Networks Inc. (the "Company"). In preparing this report Navigant Consulting has relied upon the Company's budgets for 2010 and 2011. Navigant Consulting has not independently confirmed the accuracy of the budget information supplied by the Company.

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Section I: Introduction and Overview

Summary

In the EB-2005-0378 and EB-2006-0501 Decisions With Reasons, the Ontario Energy Board (the "Board") accepted Hydro One's (the "Company") 2006 distribution and 2007-08 transmission related requests for working cash allowances consistent with the amount recommended in lead-lag study reports prepared by Navigant Consulting, Inc. ("NCI"). In preparation for a 2010-11 distribution rate filing before the Board, the Company retained NCI to prepare an update to its prior studies. This report provides the results of the update and the working capital requirements of the Company's distribution business.

Listed below are key findings and conclusions from this study:

1. In terms of lead lag days, the results from this study are generally consistent with results from the Company's 2006 and 2007-08 distribution and transmission studies respectively. Where there are differences, they have been identified, explained, and their impact on working capital requirements quantified.
2. The approach and method are generally consistent, in terms of lead and lag items, with other studies relating to the determination of working capital both in Ontario and other Canadian jurisdictions.
3. Results from the lead-lag study applied to the Company's test year distribution expenses identify that working capital amounts of $305 million in 2010 and $309 million in 2011 respectively will be required by the Company. These amounts represent approximately 11.7 percent and 11.9 percent of the Company's Operations, Maintenance, and Administration ("OM&A") expenses including cost of power. These results compare well with the 11.6 percent identified as the working capital requirement for the Company in its 2006 distribution study and accepted by the OEB.
4. If the OEB's guideline of 15% of OM&A including cost of power were to have been used verbatim by the Company, the result would have been a working capital requirement of approximately $390 million for both 2010 and 2011 compared with amounts identified in this study that are in the order of $80-85 million per year less.

Working Capital

Working capital is the amount of funds required to finance the day-to-day operations of a regulated utility and are included as part of a rate base for ratemaking purposes. A lead-lag study is the most accurate basis for determination of working capital and was used by NCI for this purpose.

A lead-lag study analyzes the time between the date customers receive service and the date that customers' payments are available to the Company (or "lag") together with the time between which the Company receives goods and services from its vendors and pays for them at a later date (or "lead")[1]. "Leads" and "Lags" are both measured in days and are generally dollar-weighted. The dollar-weighted

[1] A positive lag (or lead) indicates that payments are received (or paid for) after the provision of a good or service.

net lag (i.e., lag minus lead) days is then divided by 365 (or 366 if a leap year is selected) and then multiplied by the annual test year cash expenses to determine the amount of working capital required for operations. The resulting amount of working capital is then included as part of the Company's rate base for the purpose of deriving revenue requirements.

Key Concepts

Two key concepts need to be defined up-front as they surface throughout the lead-lag study described in this report:

Mid-Point Method: When a service is provided to (or by) the Company over a period of time, the service is deemed to have been provided (or received) evenly over the midpoint of period, unless specific information regarding the provision (or receipt) of that service is available indicating otherwise. If both the service end date ("Y") and the service start date ("X") are known, the mid-point of a service period can be calculated using the formula:

$$\text{Mid-Point} = \frac{([Y-X]+1)}{2}$$

When specific start and end dates are unknown but it is known that a service is evenly distributed over the mid-point of a period, an alternative formula that is typically used is shown below. The formula uses the number of days in a year (A) and the number of periods in a year (B):

$$\text{Mid-Point} - \frac{A/B}{2}$$

Statutory Approach: In conjunction with the use of the mid-point method, it is important to note that not all areas of this study may utilize dates on which actual payments were made by the Company. In some instances, particularly the Goods and Services Tax ("or GST"), the due date for payments are established by statute or by regulation with significant penalties in place for missing the due date. In these instances, the due date established by statute has been used in lieu of when payments were actually made.

Method

Performing a lead-lag study requires two key undertakings:

1. Developing an understanding of how the regulated business works, i.e., in terms of products and services sold to customers or purchased from vendors and the collections and payment policies and procedures that govern such transactions; and
2. Modeling such operations using data from a relevant period of time and a representative data set. It is important to ascertain and factor into the study whether (or not) there are known changes to existing business policies and procedures going forward. Where such changes are known and material, they should be factored into the study.

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To develop an understanding of Hydro One's operations, interviews with personnel within the regulated utility's Accounts Payable, Customer Service, Wholesale Market Operations, Human Resources, Payroll, Treasury, and Tax Departments were conducted. Some key questions that were addressed during the course of the interviews included:

a. What is being sold (or bought)? If a service is being provided (purchased), over what time period was the service provided (or purchased)?
b. Who are the buyers (sellers)?
c. What are the terms for payment? Are the terms for payment driven by industry norms or by company policy? Is there flexibility in the terms for payment?
d. Are any changes expected to the terms for payment either driven by industry or internally by the Company? What is the basis for such changes (if any)?
e. How is payment made (e.g., cash, check, electronic funds transfer)?

Except where otherwise noted, a calendar year 2008 data set was used in the analysis. Development of the data set entailed gathering raw data from the utility's General Accounting, Accounts Payable, Customer Service, Payroll, and Tax Systems. Once the raw data had been gathered from the multiple in-house systems, sampling and data validation was performed to the extent necessary and appropriate. Standard statistical sampling techniques were used, and validation generally took the form of comparing actual invoices or bills with data from the utility's systems to ensure accuracy.

Organization of the Report

Section II of this report discusses the lags associated with the Company's collections of revenues. Included in Section II is a description of the sources of such revenues and how they were treated for the purposes of deriving an overall revenue lag as it affects the Company's distribution operations.

Section III presents a description of the various expenses and their attendant lead times. Included in the discussion on expense leads are the lead times on Cost of Power, OM&A costs, removal costs, environmental remediation costs, interest on long-term debt, Capital and Income Taxes, and the GST. The methods used to calculate the expense lead times associated with each of the items as well as the results from the application of the methods are described.

Section IV presents the cash working capital requirements of Hydro One's distribution business including the working capital requirement associated with the GST.

Finally, Section V presents a summary comparison of the results from the 2009 study with results from prior Hydro One studies. Differences between the two have been noted, explained, and their impacts on working capital quantified. Also included within Section V is an update to the high-level benchmarking of Hydro One's lead-lag studies with other studies that have been conducted in Canada. The question addressed in the benchmarking effort is have other studies within Canada considered the various elements of revenues and expenses considered by the Company The intent of presenting the discussion in Section V is:

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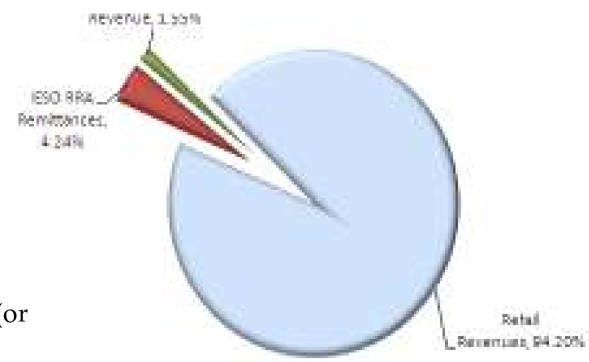
- To demonstrate that the approach used in this study is reasonable when compared with the Company's 2006 distribution study and captures the current operations of the Company;
- To show that the approach used in this study is consistent with similar studies in Canada; and,
- To emphasize that the overall result is a balance between the expectations of investors and rate-payers in terms of working capital.

Section II: Revenue Lags

An investor owned utility providing service to its customers generally derives its revenue from bills paid for service by customers. A ***revenue lag*** represents the number of days from the date service is rendered by the Company until the date payments are received from the customers and such funds are available to the Company.

Figure 1. Sources of Revenue



Hydro One Distribution receives funds from three sources:

a. Retail customers;
b. The Independent Electric System Operator (or "IESO"), and
c. Other sources including municipalities, electricity retailers, and for miscellaneous services such as jobbing and contracting work performed by the Company.

Based on the Company's records for calendar year 2008, approximately 94.2 percent of the Company's revenues are realized from its retail customers, with about 4.2 percent being provided by the IESO as part of a Rural or Remote Rate Program ("RRRP"). The remainder originates from a variety of sources including customer related jobbing and revenue from other electricity retailers. This is shown in Figure 1.

The revenue lag associated with the provisioning of service to retail customers typically consists of four components:

a. Service Lag;
b. Billing Lag;
c. Collections Lag; and
d. Payment Processing Lag (including Bank Float).

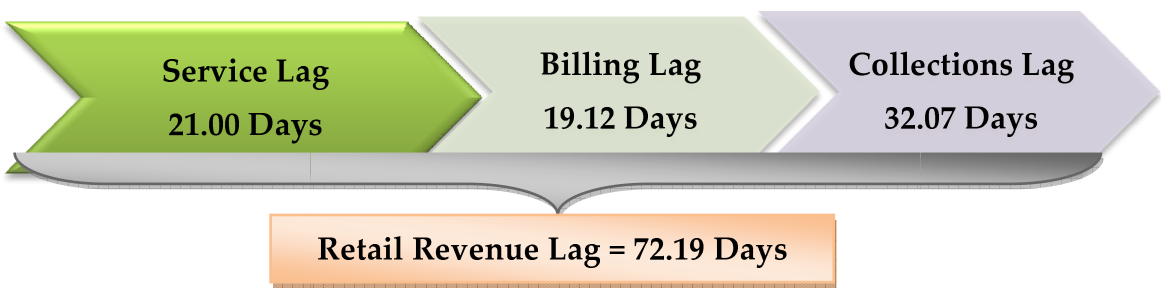
When considered together, this study indicates that these four components of the retail revenue lag total 72.19 lag days. The retail revenue lag time of 72.19 days is applicable to approximately 94.2 percent of the Company's retail revenues (retail revenues and revenue from other electricity distributors within the Province). The IESO's RRRP remittances, which account for about 4.2% of total revenues, have a lag time of 32.67 days consistent with the expense lead time associated with the cost of power. Finally, other revenues, which account for about 1.6% of total revenues, have a lag time of 38.35 days. When all sources of the Company's retail revenues are weighted, the result is an overall revenue lag time of 69.99 days. The information is provided in Table 1.

Table 1. Calculation of Total Revenue Lag

Description	Un-weighted Lag Days	Weighting Factor % of Revenues	Weighted Lag Days
(A)	(B)	(C)	(D)
Retail Revenues	72.19	94.20%	68.01
IESO RRRP Remittances (discussion provided under "Cost of Power")	32.67	4.24%	1.39
Other Revenue	38.35	1.55%	0.60
TOTAL - Revenue Lag		100.00%	69.99

Each of the components of the Company's retail revenue lag shown in Figure 2 is discussed separately below. The revenue lag associated with the IESO's RRRP Program is discussed in the section entitled "Cost of Power".

Figure 2[2]. Components of Retail Revenue Lag



Retail Revenue Lag - Service

The Service Lag covers the period between the time the Company provides service and the time customers' meters are read. The Company's customers, who can be categorized into those that are demand billed, acquired (from other distribution companies), seasonal, and all others, may have their meters read on a monthly, bi-monthly, quarterly, or annual basis. Based on this information and using data on number of customer accounts from the Company's Customer Service System ("CSS") for 2008, a weighted average service lag time of 21.00 days was determined.

Retail Revenue Lag - Billing

Billing lag refers to the average number of days from the date a customer's meter is read until the customer's bill is mailed. The amount of time that it takes the Company to bill a customer depends on the:

[2] Note that service, billing, and collections only are shown in Figure 2. Payment Processing and Bank Float has been excluded from Figure 2 since there is no lag associated with such activities. A brief discussion is provided later in this section.

1. Time taken to read a customer's meter and for the resulting download of the meter read data to the Company's billing system. As with most utilities that use the Customer Service System ("CSS") to bill customers, this could take up to 4 business days; and
2. Time taken to receive IESO price information to include on interval metered Hydro One customer bills. Per the IESO's business rules, preliminary statements for a particular trade day are made available to market participants 10 business days after a trade day (or 11 business days).

Taking these two steps into account and using data from calendar year 2008 an overall billing lag of approximately 19.12 calendar days was determined.

Retail Revenue Lag - Collections

The collections lag refers to the average amount of time from the date the Company mails a bill to the date that the Company receives the customer's payment. This information is tracked by the Company using reports that indicate aging of accounts receivables segregated into four intervals: Current (or 0-21 days), 22-59 days, 60-119 days, and finally, greater than or equal to 120 days. Using balances by month within each of these aging intervals for calendar year 2008 and the mid-point approach defined at the outset of this report, a weighted average collections lag time of 32.07 days was determined.

Retail Revenue Lag - Payment Processing and Bank Float

Based on interviews with the Company's Customer Service Department and the Company's Treasury operations, NCI determined that customer payments to the Company are typically in the form of checks, electronic payments, internet payments, direct debit payments, or payments via credit card. Under any of these customer payment options, the Company deposits all payments into its account on the same day. Therefore, there is no payment processing time associated with the Company's receipt of customer payments. Finally, once the deposits are made to the Company's bank account, all deposits are immediately available. Thus, there is no bank float associated with the Company's deposits. Therefore, no additional lag time for payment processing or bank float was considered in this study.

Other Revenue Lag

The lag time associated with other revenues was estimated using a weighted average of energy (see discussion on collections lag above) and non-energy related accounts receivables of the Company. When balances by aging intervals for both categories of accounts receivables were weighted together, a revenue lag time of 38.35 days was determined.[3]

[3] Using data from calendar year 2008, the weighted average lag time relating to energy only accounts receivables was determined to be 32.07 days [discussion under Retail Revenue Lag – Collections]. From records supplied by the Company, the weighted average lag time associated with non-energy related accounts receivable was determined to be 44.63 days. When both the energy and non-energy related accounts receivable are considered together, the result is 38.35 days.

Section III: Expense Leads

As mentioned at the outset, a determination of working capital requires both a measurement of the lag in the collection of revenues for services provided by Hydro One's distribution business, and the lead times associated with payments for services provided to the Company. Therefore, in conjunction with the calculation of the revenue lag, expense lead times were calculated for the following items:

- Cost of Power;
- OM&A Expenses;
- Removal Costs;
- Environmental Remediation;
- Interest on Long Term Debt;
- Income and Capital Taxes; and
- GST.

Cost of Power

The Company purchases the vast majority of its power supply requirements from the IESO. Based on the IESO's billings to the Company and the Company's payments (or receipts) during 2008, a weighted expense lead time of 32.67 days was derived for the cost of power. This estimate of expense lead time includes both a service lead time component, generally a half month using the mid-point approach described at the outset, as well as a payment lead time. The payment lead time was calculated using the IESO invoicing and payment schedules for 2008, i.e., payments due on or by the 12th business day following the end of a delivery month. The calculation is shown in Table 2 below.

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Table 2. Expense Lead Time Associated With Purchased Power

Delivery Month	Payment Amounts	Date of Payment (Receipt) Amounts	Service Lead Time	Payment Lead Time	Total Lead Time	Weighting Factor	Weighted Expense Lead Time (Days)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
January	195,453,099	2/18/2008	15.50	18.00	33.50	10.22%	3.42
February	178,177,740	3/18/2008	14.50	18.00	32.50	9.31%	3.03
March	178,757,340	4/16/2008	15.50	16.00	31.50	9.34%	2.94
April	150,759,843	5/16/2008	15.00	16.00	31.00	7.88%	2.44
May	141,311,673	6/17/2008	15.50	17.00	32.50	7.39%	2.40
June	138,052,862	7/17/2008	15.00	17.00	32.00	7.22%	2.31
July	154,229,697	8/19/2008	15.50	19.00	34.50	8.06%	2.78
August	154,959,499	9/17/2008	15.50	17.00	32.50	8.10%	2.63
September	146,073,249	10/17/2008	15.00	17.00	32.00	7.64%	2.44
October	145,204,851	11/19/2008	15.50	19.00	34.50	7.59%	2.62
November	165,065,859	12/16/2008	15.00	16.00	31.00	8.63%	2.67
December	165,065,859	1/19/2009	15.50	19.00	34.50	8.63%	2.98
TOTAL	1,913,111,570					**100.00%**	**32.67**

OM&A Expenses

For the purpose of the distribution lead-lag study, OM&A expenses were considered to consist of payments made by Hydro One to its vendors in the following categories:

a. Payroll and Benefits expenses;
b. Payments made to Consulting and Contract Staff;
c. Payments made to Inergi;
d. Lease Payments made on the Trinity Office Building;
e. Property Taxes;
f. Corporate Procurement Card payments; and
g. Other (Miscellaneous) Operations and Maintenance related payments.

Expense lead times were calculated individually for each of the items (a) – (g) listed above and then dollar-weighted to derive a composite expense lead time of 22.92 days for OM&A expenses.

Payroll and Benefits Expenses

The following items were considered under the umbrella of Payroll and Benefits.

a. Four types of payroll including basic, trades, management, and board of directors payroll;
b. Three types of payroll withholdings including the Canada Pension Plan, Employment Insurance, and Income Tax withholdings;
c. Contributions made by the Company to the Hydro One Pension Plan;
d. Group Health, Dental, and Life Insurance related administrative fees and claims;

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e. Payments made by the Company on account of the Employer Health Tax (or "EHT"); and
f. Payments made by the Company to the Worker Safety Improvement Board (WSIB).

When all payroll, withholdings, and benefits were dollar-weighted using actual payment data for calendar year 2008, the weighted average expense lead time associated with payroll and benefits was determined to be 22.79 days (see Table 3 below).

Table 3. Expense Lead Time Associated With Payroll and Benefits

Line	Category	Total Company Payment Amounts (000s)	Expense Lead Time	Weighting Factor	Weighted Expense Lead Time (Days)
	(A)	(B)	(C)	(D)	(E)
1	Pensions	98,820	45.28	12.82%	5.80
2	Group Health and Dental - ASO	5,857	43.38	0.76%	0.33
3	Group Life Insurance Premiums	4,499	55.50	0.58%	0.32
4	Group Health and Dental - Claims	44,945	6.84	5.83%	0.40
5	Employer Health Tax:	12,240	30.87	1.59%	0.49
6	WSIB Payments:	4,217	44.42	0.55%	0.24
7	Basic Payroll	251,285	18.73	32.60%	6.10
8	Management Payroll	46,282	(0.68)	6.00%	(0.04)
9	Trades Payroll	102,347	11.78	13.28%	1.56
10	Board of Directors (BOD) Payroll	359	60.76	0.05%	0.03
11	Withholding – All Except BOD	199,849	29.05	25.93%	7.53
12	Withholding - BOD Payroll	135	64.19	0.02%	0.01
13	Total	$770,833			22.79

Payments Made to Consulting and Contract Staff

Hydro One Networks engages consulting and contract staff to provide assistance in the areas of engineering, environmental services, receivables management, accounting, and general consulting. A dollar-weighted expense lead time of 60.36 days was determined based on a review of a sample of invoices rendered and payments made by the Company for the twelve months ending March 31, 2008. As with other categories of expense, this dollar-weighted expense lead time took into account the relevant service period over which services were provided to the Company.

Payments to Inergi

Inergi (a division of CapGemini) provides a spectrum of services to Hydro One including (and not limited to) customer service operations, finance, human resources, accounts payable, information technology, IESO settlements, and supply management services. Per its contract, Hydro One is generally

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required to make payments in the current month for the current month. Based on a review of a sample of payments made by the Company for the twelve months ending March 31, 2008, and using a ½ month of service lead time (since payments are made monthly), a dollar-weighted expense lead time of 2.59 days was determined.

Trinity Lease Payments

The Company leases its office space in the Bell Trinity Square Building from an outside party. The Company generally makes its lease payments at the end of the month prior for the current month. Taking this information into account and using a sample of actual invoices and payments for the period ended May 31, 2008, a dollar-weighted expense **lag** time of 18.71 days was determined. Note that since lease payments are generally required to be made before the fact, the result is an expense lag rather than an expense lead. Again, since lease payments are made monthly, the calculated dollar-weighted expense lag time includes ½ month of service lead time.

Property Taxes

The Company makes property tax payments to a number of municipalities and taxing authorities in the Province of Ontario. These payments are made in the current year for the current year and are typically made in two installments; an estimate and a final. Using actual payment dates and amounts associated with the Company's distribution business for calendar year 2008, a dollar-weighted expense lead time of 10.28 days was determined. Since property tax payments are for the current year, a ½ year was used as indicative of the service lead time associated with property taxes.

Procurement Card Payments

Procurement (or charge) cards are used by the Company's employees for a variety of Company-related reasons including, and not limited to, purchases of materials in the field, incidental expenses, and to settle charges for travel and accommodation. Based on a sample of actual invoices for the twelve months ending March 31, 2008 from the Company's charge card provider and payments made by the Company, a dollar-weighted expense lead time of 33.52 days was determined. Since the Company receives a monthly bill for service, the dollar-weighted expense lead time includes an additional ½ month of service lead time.

Other (Miscellaneous) Operations and Maintenance Expenses

This category of expense includes a sample of items from the Company's accounts payable system that were invoiced and paid in 2008.[4] The sample was selected in a manner that reflected a reasonable mix of vendors – both small and large – and products and services. Based on a sample of approximately 568 invoices which included product purchases, equipment rentals, and provision of general services to the Company, a dollar-weighted expense lead time of 34.84 days was derived. A mid-point approach using

[4] Note that this category of expense **excludes** payments to the IESO, payroll and benefits, payments to Inergi, payments to consulting and contract staff, payments relating to the Company's lease of the Trinity Office Building, all categories of taxes, payments relating to the Company's procurement card, and payments related to interest on long term debt.

data for the twelve months ending March 31, 2008 was used in the determination of the expense lead time associated with the delivery of both products and services to the Company.

Removal Costs

The Company incurs costs when removing or replacing equipment from existing sites or rights of way. While these costs are required to be reported as a depreciation and amortization expense for accounting purposes, there is a cash flow impact associated with the Company's expenditures on such removals. The Company estimates that 40% of total removal costs relate to the Company's labor; the balance relates to materials and services required to implement removals, i.e., other (miscellaneous) operations and maintenance expenses. Taking this information into account, a weighted expense lead time of 30.02 days was determined.[5]

Environmental Remediation

The Company incurs an expense when it is required to perform environmental remediation of its existing sites. As with removals, such remediation costs are recorded on the Company's books as a depreciation and amortization expense. However, since the process of remediation involves the procurement of general materials and services, there is a cash flow impact associated with it. Thus, an expense lead time identical to that used for other (miscellaneous) operations and maintenance expenses was assigned to environmental remediation, i.e., 34.84 days.

Interest on Long Term Debt

The Company makes interest payments on its long term debt outstanding out of current year revenues. Such payments are generally made twice a year. Taking into account the various bonds and other long term debt instruments outstanding as of December 31, 2008, the dollar-weighted expense lead time associated with the Company's interest payments on its long term debt was calculated to be 52.87 days. The analysis used a calendar year approach to calculate the weighted-expense lead time associated with interest payments relative to the mid-point of the year.

Income and Capital Tax

The Company makes income, and capital tax payments in monthly installments to the Federal Government. Using actual payment data from calendar year 2008, a dollar-weighted expense lead time of 13.58 days was determined for Capital Tax. The corresponding value for Income Tax was 17.17 days. Both estimates include the appropriate service lead times in the calculation, since payments are made for the year in monthly installments.

When capital and income taxes are dollar weighted together using actual payments amounts in 2008, the resulting value for the three was 16.51 days.

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[5] The derivation of the expense lead time associated with removals used the following approach:
*(40% * Payroll and Expense Benefit Lead Time) + (60% * Other (Miscellaneous) Operations and Maintenance Expense Lead Time)*

Goods and Services Tax (GST)

The expense lead times associated with the following items that attract GST were considered in the NCI update to the distribution lead-lag study:

a. Retail Revenues;
b. Payments to the IESO for Power Supply;
c. Payments for the Corporate Credit Card;
d. Payments for the lease of the Trinity Office Building;
e. Payments to Inergi;
f. Payments for Other (Miscellaneous) Operations and Maintenance Expenses;
g. Payments made to Consulting and Contract Staff; and
h. Payments for Environmental Remediation, Removals, and Capital.

A summary of the expense lead times associated with each of the above items is provided in Table 4. Note that the statutory approach described at the outset was used to determine the expense lead times associated with the Company's remittances and disbursements of GST, i.e., both remittances and collections are generally on the last day of the month following the date of the applicable invoice.

Table 4. Expense Lead Times Associated With GST

Line	GST Category	Expense Lead (Lag) Time Days
	(A)	(B)
1	GST - Retail Revenues	(18.23)
2	GST - Cost of Power	46.50
3	GST - Corporate Credit Card	15.75
4	GST - Payments for Lease of the Trinity Building	39.19
5	GST - Inergi Contract	46.00
6	GST - Other Operations and Maintenance	43.95
7	GST - Consulting and Contract Staff	42.09
8	GST - Environmental Remediation	43.95
9	GST – Removals	43.95
10	GST – Capital	43.95

The expense lead times associated with the GST payments on the Corporate Procurement Card, the Trinity Building Lease, Inergi, Consulting and Contract Staff, and Other (Miscellaneous) Operations and Maintenance Expenses were then aggregated on a weighted basis into a single expense lead time using estimated GST payments made in 2008. The aggregation resulted in a weighted lead time of 36.59 days and is used in the calculation of GST costs or benefits as discussed in the next section.

With respect to the GST, it should be noted that the Ontario government has announced its intention to harmonize the Ontario Retail Sales Tax with the federal GST into a harmonized single sales tax effective July 1, 2010. No detailed information on the implementation of the proposed harmonized single sales tax has yet been released by either taxing authority. Accordingly, no changes to the current schedule of both remittances and receipts of the GST have been considered in this study.

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Section IV: Hydro One Distribution – Working Capital Requirements

Having calculated the revenue lag, expense lead, and the net lag times, the next step in the process was to calculate the Company's working capital requirement. Using the results described under the discussion of revenue lags and expense leads, and applying them to the Company's proposed distribution expenses for the test years 2010 and 2011, the Company's working capital requirements are $305 million in 2010 and $309 million in 2011. These amounts represent 11.7 percent, and 11.9 percent of the distribution business' OM&A expenses respectively. A summary of the Company's distribution business working capital requirements is provided in Table 5. Included within the working capital amounts shown in Table 5 are GST amounts of $8.6 million, and $8.2 million for the period 2010-2011. The derivation of these amounts is shown in Table 6.

Table 5. Working Capital Requirements Associated With Distribution Operations

Line No.	Description	Revenue Lag Days	Expense Lead Days	Net Lag (Lead) Days	2010 Budget $000s	2011 Budget $000s
	(A)	(B)	(C)	(D)	(E)	(F)
1	EXPENSES					
2	Cost of Power	69.99	32.67	37.32	**2,008,400**	**1,994,600**
3	OM&A Expenses	69.99	22.92	47.07	**591,000**	**606,200**
4	Removal costs	69.99	30.02	39.97	**33,000**	**35,700**
5	Environmental Remediation	69.99	34.84	35.15	**12,800**	**16,900**
6	Interest on Long term debt	69.99	52.87	17.12	**154,900**	**164,600**
7	Income and Capital Taxes	69.99	16.51	53.48	**16,500**	**39,600**
8	Total				**2,816,600**	**2,857,600**
9	GST (see Table 6)				**25,489**	**32,248**
10	Total amounts paid/accrued				**2,842,089**	**2,889,848**
11	WORKING CAPITAL REQUIRED					
12	Cost of Power				205,331	203,920
13	OM&A Expenses				76,212	78,172
14	Removal costs				3,614	3,909
15	Environmental Remediation				1,233	1,627
16	Interest on Long term debt				7,265	7,720
17	Income and Capital Taxes				2,418	5,803
18	Total				**296,073**	**301,152**
19	GST (see Table 6)				8,644	8,170
20	Net working cash required				**304,717**	**309,323**
21	Working Capital as a % of OM&A including Cost of Power				**11.7%**	**11.9%**

Table 6. GST Related Working Capital Requirements – Distribution Operations

All Data in $000s unless otherwise noted

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Line	Description	TEST YEAR 2010		TEST YEAR 2011	
		BUDGET	GST PROJECTION Assuming 5% GST Rate	BUDGET	GST PROJECTION Assuming 5% GST Rate
		(A)	(B)	(C)	(D)
1	GST CATEGORY				
2	Revenues	3,189,300	159,465	3,288,700	164,435
3	Cost of Power	2,008,400	(100,420)	1,994,600	(99,730)
4	OM&A Expenses	224,580	(11,229)	230,356	(11,518)
5	Removal costs	33,000	(1,650)	35,700	(1,785)
6	Environmental Remediation	12,800	(640)	16,900	(845)
7	Capital	400,740	(20,037)	366,180	(18,309)
			$25,489		$32,248
		GST (Lead) Lag Days	GST (Benefit) Cost	GST (Lead) Lag Days	GST (Benefit) Cost
		(E)	(F) = Col (E)/365 X Col (B)	(G)	(H)= Col (G)/365 X Col (D)
8	GST (BENEFIT) COST				
9	Revenue	(18.23)	(7,963)	(18.23)	(8,211)
10	Cost of Power	46.50	12,793	46.50	12,705
11	OM&A Expenses	36.59	1,126	36.59	1,155
12	Removal costs	43.95	199	43.95	215
13	Environmental Remediation	43.95	77	43.95	102
14	Capital	43.95	2,412	43.95	2,204
15	GST (BENEFIT) COST		$8,644		$8,170

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Section V: Findings and Conclusions

The purpose of this section is to demonstrate that:

- The results from this study are generally consistent with results from the Company's 2006 and 2007-08 distribution and transmission studies respectively and that the current operations of the Company are fully captured;
- The approach used in this study is consistent with similar studies in Canada; and
- The overall result is a balance between the expectations of investors and rate-payers, i.e., a working capital requirement lower than the OEB's guideline (15% of OM&A including cost of power) in conjunction with compensation to investors for funding activities outside of the areas specified by the OEB's guidelines.

Comparison with Hydro One's Prior Transmission and Distribution Studies

In terms of the overall working capital requirements of the Company, results from this study (11.7% and 11.9% of OM&A expenses including cost of power) are generally consistent with what was identified in the 2006 distribution study (11.6% of OM&A expenses including cost of power).

In terms of specific lead-lag days and, for the most part, results from the current lead-lag study are generally consistent with either the 2006 distribution study performed in 2005 or the 2007-08 transmission study performed in 2006 with a few exceptions. The discussion below highlights each of the exceptions and provides an estimate of its impact on the Company's otherwise applicable working capital requirement.

Collections lag: Using data on accounts receivables received from the Company, this study notes that the lag time associated with collections from retail customers has increased from an estimated 30.22 days in the 2006 distribution study to about 32.07 days in the current study. The driver of this change is an increase in amounts within the 60 days and greater aging interval compared with the prior study. The impact of this change is that it **increases** the Company's working capital requirements by approximately $14.2 million and $14.5 million in 2010 and 2011 respectively.

Other Revenue Lag: The lag time associated with collections of other revenues has decreased from 70.30 days in the 2006 distribution study to 38.35 days in the current study. The major driver of this decrease is that the lag time associated with non-energy related collections has decreased significantly since the 2006 distribution study. The impact of this change is that it **decreases** the Company's working capital requirements by about $3.8 million and $3.9 million in 2010 and 2011 respectively.

Operations, Maintenance, and Administrative ("OM&A") Expenses: The expense lead time associated with OM&A expenses has increased from 16.45 days in the 2006 study to 22.92 days in the current study. Factors driving this increase include payments made to consulting and contract staff, payments to Inergi, and finally, property tax payments. The net effect of this increase is that it **decreases** the otherwise

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applicable working capital requirements of the Company by $10.5 million and $10.7 million in 2010 and 2011 respectively.

Interest on Long Term Debt: While the expense lead time associated with interest on long term debt has decreased significantly compared with the 2006 distribution study (52.87 days compared with 74.66 days), results from the current study are generally consistent with the expense lead time identified in the Company's 2006 transmission study (52.87 days compared with 53.30 days). The driver of the difference is a change in the mix of bonds outstanding and their attendant interest payment dates – bonds outstanding currently and their respective interest payment due dates are more in line with the state of affairs at the Company when the 2007-08 transmission study was developed. The impact of this change is that it **increases** the Company's working capital requirements by about $9.3 million and $9.8 million in 2010 and 2011 respectively.

Capital and Corporate Income Tax: The expense lead time associated with capital and corporate income taxes has increased from 15.61 days in the 2006 distribution study to 16.51 days in the current study. This increase, driven by true-up payments made in the year following the current year, results in a decrease of otherwise applicable working capital requirements by $40,000 and $97,000 for 2010 and 2011 respectively.

Table 7 below compares the results of the current study (in terms of days) with Hydro One's distribution study accepted by the Board in 2006 and the transmission study accepted in 2007 in each of the areas discussed above.

Table 7. Current Study vs. Hydro One's Accepted 2006 Distribution Study and Accepted 2007 Transmission Study

Note that the Impacts shown in the Table below are derived using 2010 and 2011 Budgets and **not** the amounts used in the 2006 Distribution Rate Application

	Number of Days			Impact ($M)	
	From Distribution Study Dated July 2005	From Transmission Study Dated July 2006	From Current Distribution Study	2010	2011
	(A)	(B)	(C)	(D)	(E)
Collections Lag	30.22		32.07	+14.2	+14.5
Other Revenue Lag	70.30		38.35	-3.8	-3.9
OM&A	16.45	19.21	22.92	-10.5	-10.7
Interest on Long Term Debt	74.66	53.30	52.87	+9.3	+9.8
Capital Tax and Corporate Income LCT	15.61	15.68	16.51	-0.04	-0.07

Comparison with Other Canadian Studies – Update from 2006 Transmission Study

As identified in the Company's 2006 transmission working capital study accepted by the Board, Hydro One's current distribution lead-lag study is generally consistent with studies that have been performed for other utilities both in the Province of Ontario and within other Canadian jurisdictions. Table 8 presents a high-level summary of the various elements of a lead-lag study and whether or not they have been considered in other Canadian jurisdictions involving Great Lakes Power (or "GLP"), Enbridge, Union Gas, FortisBC, ATCO, Direct Energy, Altalink, FortisAlberta, Terrasen Gas, Newfoundland Power, Ontario Power Generation, Pacific Northern, and EPCOR.. To the extent that certain elements of Hydro One's distribution study do not apply to others (e.g., in the instance of natural gas companies), they have been so noted within Table 8.

From a review of the information in Table 8, it is clear that the items considered in the current Hydro One distribution lead-lag study are consistent with items that have been considered in other lead-lag studies within Canada. To the extent that there are differences, they can be explained as not being relevant to an electric distribution company's operations or to the operations of an electric company for that matter.

In concluding therefore:

1. The results from this study are generally consistent with results from the Company's 2006 and 2007-08 distribution and transmission studies respectively and that the current operations of the Company are fully captured;
2. When compared with other studies relating to the determination of working capital in Ontario and other Canadian jurisdictions, there is similarity; and
3. Finally, and most important, the overall result points to an overall savings to the rate-payer. If the OEB's guideline of 15% of OM&A including cost of power were to have been applied verbatim, the result would have been a working capital requirement of approximately $390 million for both 2010 and 2011 compared with the $305 million and $309 million in working capital requirements identified in this study.

Table 8. Comparison of Hydro One 2009 Distribution Study With Other Canadian Studies

Name of Utility	Jurisdiction	Type of Service	Customer /Retail Revenues	IESO/ISO Revenues	Other Revenues	Payroll and Withholdings	Employee Benefits	Cost of Power	Cost of Other Fuels	Other OM&A	Income and Related Taxes	GST	Interest Expense
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)
GLP	Ontario	Electric Transmission	N/A	Yes	Yes	Yes	Yes	N/A	N/A	Yes		Yes	
Hydro One Distribution - 2009	***Ontario***	***Electric Distribution***	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***	***N/A***	***Yes***	***Yes***	***Yes***	***Yes***
Enbridge	Ontario	Gas	Yes	N/A		Yes	Yes	N/A	Yes	Yes		Yes	
Union	Ontario	Gas	Yes	N/A		Yes	Yes	N/A	Yes	Yes		Yes	
Manitoba Hydro	Manitoba	Electric (Integrated)				Yes	Yes		Yes	Yes		Yes	
BCTC	BC	Electric TX				Yes	Yes		Yes	Yes		Yes	
FortisBC	BC	Electric	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATCO	Alberta	Gas	Yes	N/A	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes
Direct Energy	Alberta	Electric	N/A	N/A		Yes	Yes	Yes	N/A	Yes		Yes	
AltaLink	Alberta	Electric TX	Yes	Yes	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes
Fortis Alberta	Alberta	Electric TX	Direct Connect Customers and Marketers	Yes	Yes	Yes	Yes	N/A	N/A	Yes	Yes	Yes	Yes
Pacific Northern	BC	Gas	Yes	N/A	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	
EPCOR	Alberta	Electric TX	N/A	Yes		Yes	Yes	N/A	N/A	Yes		Yes	Yes
Terrasen Gas	BC	Gas	Yes	N/A	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	
Newfoundland Power	Newfoundland	Electric	Yes	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	
Ontario Power Generation	Ontario	Electric	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	

WORKING CAPITAL

1.0 INTRODUCTION

Working capital is the amount of funds required to finance the day-to-day operations of a regulated utility and is included as part of rate base for ratemaking purposes. The determination of working capital relies on a lead-lag study.

In 2005, Hydro One commissioned Navigant to carry out a lead-lag study. In the OEB's RP-2005-0020/EB-2005-0378 Decision with Reasons, the OEB accepted the results of the Navigant lead-lag study. In 2009, Hydro One commissioned Navigant to conduct an updated lead-lag study which is included in Exhibit D1, Tab 1, Schedule 4, Attachment A (entitled "A Determination of the Working Capital Requirements of Hydro One Networks' Distribution Business – dated June 19, 2009).

2.0 SUMMARY

Hydro One Distribution's net cash working capital requirement for the 2010 test year is \$304.7 million or 11.7% of OM&A (\$591.0M) and Cost of Power expenses (\$2,008.4M). Net cash working capital requirement for the 2011 test year is \$309.3 million or 11.9% of OM&A (\$606.2M) and Cost of Power expenses (\$1,994.6M). The net cash working capital requirement was calculated using the Navigant methodology accepted in RP-2005-0020/EB-2005-0378 and updated in 2009 as part of this application. Table 1 summarizes the net cash working capital requirements determined by using the lead/lag days from the Navigant study filed in Exhibit D1, Tab 1, Schedule 4, Attachment 1 to reflect the 2010 and 2011 test year revenues, expenses and GST amounts (Table 2).

The methodology used to determine the net working cash required is based on the Navigant study that was accepted by the OEB, and it takes the following into consideration:

- the three most important elements of revenue lags i.e., service, billing and collections; the most important elements of expense lead such as payroll and benefits, operations, maintenance, administration expenses, cost of power, taxes and interest.

Filed: July 13, 2009
EB-2009-0096
Exhibit D1
Tab 1
Schedule 4
Page 3 of 4

Table 1

Distribution Net Cash Working Capital Requirement
(All Data in $M Except Lead/Lag Days)

	Revenue Lag (Days)	Expense Lag (Days)	Net Lag (Lead Days)	2010 Test Year	2011 Test Year
	(A)	(B)	(C)	(D)	(E)
Expenses					
Cost of Power	69.99	32.67	37.32	$2,008.4	$1,994.6
OM&A	69.99	22.92	47.07	$591.0	$606.2
Removal Costs	69.99	30.02	39.97	$33.0	$35.7
Environmental Costs	69.99	34.84	35.15	$12.8	$16.9
Interest on Long-Term Debt	69.99	52.87	17.12	$154.9	$164.6
Income & Capital Tax	69.99	16.51	53.48	$16.5	$39.6
Total				**$2,816.6**	**$2,857.6**
GST (see Table 2)				$25.5	$32.2
Total Amounts Paid/Accrued				**$2,842.1**	**$2,889.8**
Working Capital Required (Calculations based on above values, for each expense category, calculated using the following formula: For 2010 and 2011 (Col (D)*Col (C)/365))					
Cost of Power				$205.3	$203.9
OM&A				$76.2	$78.2
Removal Costs				$3.6	$3.9
Environmental Costs				$1.2	$1.6
Interest on Long-Term Debt				$7.3	$7.7
Income & Capital Tax				$2.4	$5.8
Total				**$296.1**	**$301.2**
GST (see Table 2)				$8.6	$8.2
Net Working Cash Required				**$304.7**	**$309.3**

Table 2
Distribution Summary of GST Cash Working Capital Requirement
(All Data in $M Except Lead-Lag Days)

GST Category	**2010 Test Year**		**2011 Test Year**	
		5% GST Projection		**5% GST Projection**
	(A)	(B)	(C)	(D)
Revenue	3,189.3	159.5	3,288.7	164.4
Cost of Power	2,008.4	(100.4)	1,994.6	(99.7)
OM&A Expenses	224.6	(11.2)	230.4	(11.5)
Removal Costs	33.0	(1.7)	35.7	(1.8)
Environmental Costs	12.8	(0.6)	16.9	(0.8)
Capital	400.7	(20.0)	366.2	(18.3)
TOTAL		**$25.5**		**$32.2**
GST (Benefit) Cost	**2010 Test Year**		**2011 Test Year**	
	Expense Leads (Days)	**GST Amounts**	**Expense Leads (Days)**	**GST Amounts**
	(C)	**(D)**	**(C)**	**(D)**
The values shown in the Col (D) labeled “GST Amounts” are calculated using the expense leads shown in Col (C) divided by 365 and multiplied by the 5% GST projected amount in Col (B)				
Revenue	(18.23)	(8.0)	(18.23)	(8.2)
Cost of Power	46.50	12.8	46.50	12.7
OM&A Expenses	36.59	1.1	36.59	1.2
Removal Costs	43.95	0.2	43.95	0.2
Environmental Costs	43.95	0.1	43.95	0.1
Capital	43.95	2.4	43.95	2.2
TOTAL		**$8.6**		**$8.2**

Ontario Energy Board

Commission de l'énergie de l'Ontario

EB-2009-0096

IN THE MATTER OF AN APPLICATION BY

HYDRO ONE NETWORKS INC.

2010 and 2011 DISTRIBUTION RATES

DECISION WITH REASONS

April 9, 2010

4.3 ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION

The Allowance for Funds Used During Construction (“AFUDC”, also referred to Construction Work in Progress or CWIP) is $22.3 million in 2010 and $27.1 million in 2011. The AFUDC rate is 6.4% in 2010 and 7.7% in 2011.

No party was opposed to Hydro One’s overall approach to establishing the AFUDC rates. Energy Probe however submitted that consistent with the approach used to update the cost of capital components, Hydro One should update its test year AFUDC rates based on September 2009 information. The AFUDC rates based on September 2009 forecasts are considerably lower than the rates included in the application. The updated AFUDC rate for 2010 would be 5.23% and for 2011 would be 5.73%.

Hydro One maintained that the original amounts were appropriate and noted that it did not intend to or support revising the AFUDC rates.

BOARD FINDINGS

The Board finds that it would not be appropriate to update the AFUDC rate for more current information. All test year forecasts are underpinned by assumptions for economic factors which may vary as time passes as the test year approaches or as the test year begins. The Board has traditionally resisted selective updates because in order to be consistent the entire application would need to be updated. When the Board updates the return on equity and the deemed debt rates, it does so for purposes of the overall cost of capital in accordance with the deemed capital structure, and for only that purpose. No adjustment will be made to the AFUDC.

4.4 WORKING CAPITAL ALLOWANCE

The working capital allowance for 2010 is $300.7 million (or 11.7% of 2010 OM&A and cost of power expenses) and $305.4 million in 2011 (or 11.9% of 2011 OM&A and cost of power expenses).

The determination of working capital relies on a lead-lag study and is based on the forecast of OM&A expenses, cost of power, capital and income taxes, the net lead-lag days and materials and inventory. Hydro One proposed to continue the methodology originally approved by the Board in 2005 and reviewed in subsequent proceedings. In

2009, Hydro One retained Navigant Consulting Inc. to conduct a lead-lag study. The results of that update were used to estimate the test year working capital requirements.

No party objected to the results of the lead-lag study or the methodology used to determine the working capital requirements. VECC and Energy Probe however raised concerns with certain assumptions used to determine the cost of power and the impact on the revenue lag of the planned migration of 140,000 customers from bi-monthly billing to monthly billing.

To determine the cost of power Hydro One has used a weighted average commodity price of $61.70 per MWh, based on prices in the Board’s April 2009 Regulated Price Plan (RPP) Report. Hydro One also calculated the cost of power based on prices in the Board’s October RPP Report which is a weighted average price of $61.12 per MWh. This change would reduce the cost of power by $15 million and the cash working capital by $1.5 million per year. Hydro One has relied on the historical RPP/non-RPP customer split of 69%/31% to estimate the weighted average commodity price. However, Hydro One recalculated the commodity price based on a forecast split of 65%/35% and the Board’s October 2009 RPP Report, and this would further reduce the weighted average commodity price to $60.99 per MWh.

Energy Probe and VECC argued that the allowance should be based on the cost of power in the Board’s October 2009 RPP Report. They argued the Board’s standard practice was to require the working capital allowance to be updated for the most recent RPP Report (typically October or April depending on the timing of the Decision) and that there is no reason why Hydro One should be treated differently. Energy Probe further argued that Hydro One should use the forecast split between RPP and non-RPP customers to calculate the weighted average price and noted that this further reduces the working capital requirement by approximately $400,000 in 2010 and $1.9 million in 2011.

Starting in 2010 Hydro One will begin the migration of 140,000 customers from bi-monthly billing to monthly billing. This migration is expected to be completed by mid 2011 and will reduce the revenue lag by 1.96 days from 69.99 days for those customers. Hydro One estimated this change will reduce the working capital requirement by approximately $13 million per year when the full year impact of the migration occurs in 2012.

Energy Probe and VECC argued that a portion of the full year reduction in working capital should be reflected in the test year estimates given that the migration begins in 2010. VECC submitted that based on the timing of the migration approximately 85%-90% of the full year impact will be realized by 2011 and therefore the 2011 working capital should be reduced by $11 million. Energy Probe submitted that the working capital should be reduced by $4.3 million in 2010 and by $11.9 million in 2011.

Hydro One submitted that the working capital inputs are appropriate and argued that the impact of the updates is relatively small and is offset by other impacts. With respect to the movement of customers, Hydro One submitted that it will be considered after 2011.

BOARD FINDINGS

The Board has consistently incorporated the most current available Board approved commodity price for purposes of determining the working capital allowance in cost of service decisions. The Board concludes that a similar approach is appropriate here and therefore directs Hydro One to use the cost of power in the October 2009 RPP report and to use its forecast split between RPP and non-RPP customers (65%/35%). The Board will also make an adjustment to recognize the impact of the shift from bi-monthly to monthly billing. As this will largely be completed within 2011, the Board will reduce the allowance for that year by $11 million, as estimated by VECC, but no reduction will be made for 2010.

APPENDIX 2-3

Horizon Utilities Lead/Lag Study

NAVIGANT
CONSULTING

A Determination of the Working Capital Requirements of Horizon Utilities' Regulated Electric Distribution Business

Prepared for:

horizon UTILITIES Looking beyond...

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August 9, 2010

Navigant Consulting has prepared this report at the request of Horizon Utilities Inc. (the "Company"). In preparing this report Navigant Consulting has relied upon the Company's revenue and expense data for 2009, 2010, and 2011. Navigant Consulting has not independently confirmed the accuracy of such data supplied by the Company.

Table of Contents

List of Tables and Figures

Section I: Introduction and Overview

Summary

In 2008, the Ontario Energy Board ("OEB") in Horizon Utilities ("Horizon" or the "Company") 2008 Electricity Distribution Rates ("EDR") Cost of Service Application Decision issued a directive requesting that the Company conduct a study of its lead/lag methodology to support its future working capital submissions before the OEB. In response to the directive, the Company retained Navigant Consulting, Inc. ("NCI") to perform a lead/lag study using the most recent data available and to derive the Company's working capital requirements for a the 2009 historical year, the 2010 bridge year, and for the 2011 test year. The purpose of this report is to provide the results of the lead-lag study and to present the working capital requirements of the Company's distribution business.

Results from the lead-lag study applied to the Company's historical, bridge, and test year expenses identify that working capital amounts of $55.1M, $61.4M, and $62.6M will be required by the Company in 2009, 2010, and 2011, respectively. These amounts represent approximately 13.6%, 13.8%, and, 14.2% of the Company's Operations, Maintenance, and Administration ("OM&A") expenses including cost of power for the years 2009, 2010, and 2011.

Working Capital

Working capital is the amount of funds required to finance the day-to-day operations of a regulated utility and are included as part of a rate base for ratemaking purposes. A lead-lag study is the most accurate basis for determination of working capital and was used by NCI for this purpose.

A lead-lag study analyzes two time periods:

1. The time between the date customers receive service and the date that customers' payments are available to the Company (or "lag") and,
2. The time between the date when the Company receives goods and services from its vendors and the date that the Company pays for them (or "lead")[1].

"Leads" and "Lags" are both measured in days and are generally dollar-weighted. The dollar-weighted net lag (i.e., lag minus lead) days is then divided by 365 (or 366 if a leap year is selected) and then multiplied by the annual test year cash expenses to determine the amount of working capital required for operations. The resulting amount of working capital is then included as part of the Company's rate base for the purpose of determining revenue requirements.

Key Concepts

Several key concepts need to be defined up-front as they surface throughout the lead-lag study described in this report.

[1] A positive lag (or lead) indicates that payments are received (or paid for) after the provision of a good or service.

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Mid-Point Method: When a service is provided to (or by) the Company over a period of time, the service is deemed to have been provided (or received) evenly over the midpoint of period, unless specific information regarding the provision (or receipt) of that service is available indicating otherwise. If both the service end date ("Y") and the service start date ("X") are known, the mid-point of a service period can be calculated using the formula:

$$\text{Mid-Point} = \frac{([Y - X] + 1)}{2}$$

When specific start and end dates are unknown but it is known that a service is evenly distributed over the mid-point of a period, an alternative formula that is typically used is shown below. The formula uses the number of days in a year (A) and the number of periods in a year (B):

$$\text{Mid-Point} = \frac{A/B}{2}$$

Statutory Approach: In conjunction with the use of the mid-point method, it is important to note that not all areas of this study may utilize dates on which actual payments were made by the Company. In some instances, particularly the Goods and Services Tax ("or GST") and its successor, the Harmonized Sales Tax ("HST"), the due date for payments are established by statute or by regulation with significant penalties in place for missing the due date. In these instances, the due date established by statute has been used in lieu of when payments were actually made.

Expense Lead Components: As used in this study, Expense Leads are defined to consist of two components: a) a Service Lead component, i.e., services are assumed to be provided to the Company evenly around the mid-point of the service period, and b) a Payment Lead component, i.e., the time period from the end of the service period to the time payment was made and the funds left the Company's possession.

Dollar Weighting: Both Lags and leads should be dollar-weighted to more accurately reflect the flow of dollars. To use an example, let's suppose that a particular transaction has a Cash Outflow Lead time of 100 days and its dollar value was $100. Let's suppose further that another transaction has a Cash Outflow Lead time of 30 days with a dollar value of $1 Million. A simple un-weighted average of the two transactions would give us a Cash Outflow Lead time of 65 days (100+30 divided by 2). On the other hand, dollar weighting the two transactions gives us a Cash Outflow Lead time that would be closer to 30 days, an answer which is more representative of how the dollars actually flowed in this example.

Method

Performing a lead-lag study requires two key undertakings:

1. Developing an understanding of how the regulated business works, i.e., in terms of products and services sold to customers or purchased from vendors and the collections and payment policies and procedures that govern such transactions; and

2. Modeling such operations using data from a relevant period of time and a representative data set. It is important to ascertain and factor into the study whether (or not) there are known changes to existing business policies and procedures going forward. Where such changes are known and material, they should be factored into the study.

To develop an understanding of the Company's operations, interviews with personnel within the regulated utility's Treasury and Risk Operations, Human Resources, and Payroll were conducted. Some key questions that were addressed during the course of the interviews included:

a. What is being sold (or bought)? If a service is being provided (purchased), over what time period was the service provided (or purchased)?
b. Who are the buyers (sellers)?
c. What are the terms for payment? Are the terms for payment driven by industry norms or by company policy? Is there flexibility in the terms for payment?
d. Are any changes expected to the terms for payment either driven by industry or internally by the Company? What is the basis for such changes (if any)?
e. How is payment made (e.g., cash, check, electronic funds transfer)?

Except where otherwise noted, a calendar year 2009 data set was used in the analysis. Development of the data set entailed gathering raw data from the utility's General Ledger, Accounts Payable, Payroll, and Tax Systems. Once the raw data had been gathered from the multiple in-house systems, sampling and data validation was performed to the extent necessary and appropriate. Standard statistical sampling techniques were used, and validation generally took the form of comparing actual invoices with data from the utility's systems to ensure accuracy.

Organization of the Report

Section II of this report discusses the lags associated with the Company's collections of revenues. Included in Section II is a description of the sources of such revenues and how they were treated for the purposes of deriving an overall revenue lag.

Section III presents a description of the various expenses and their attendant lead times. Included in the discussion on expense leads are the lead times on Cost of Power, OM&A costs, Interest on long-term debt, Payments in Lieu of Taxes, Debt Reduction Charges, and the GST. The methods used to calculate the expense lead times associated with each of the items as well as the results from the application of the methods are described.

Finally, Section IV presents the cash working capital requirements of Horizon Utilities' distribution business including the working capital requirement associated with the GST.

Section II: Revenue Lags

A Revenue Lag is the time difference between when service is provided to a customer and when customer payments for such services are available to the Company. A Revenue Lag consists of four sequential components: a) Service Lag; b) Billing Lag; c) Collections Lag; and d) Payment Processing Lag. The Lag times of each of these four components when added together results in the Revenue Lag for the purpose of calculating the working capital requirements of the Company.

Based on an analysis of its components described in greater detail below, the Revenue Lag consists of Service Lag of 30.27 days, a Billing Lag of 17.35 days, a Collections Lag of 24.00 days, and a Payment Processing Lag of 1.21 days. When the components are added together, the overall Revenue Lag for the Company is 72.84 days as shown in Table 1 below.

Table 1. Calculation of Total Revenue Lag

Component of Overall Revenue Lag	Lag Time
Service Lag	30.27 days
Billing Lag	17.35 days
Collections Lag	24.00 days
Payment Processing Lag	1.21 days
Total	**72.84 days**

Service Lag

A Service Lag measures the time from the Company's provision of electricity to a customer to the time the customer's service period ends and the meter is read. Interviews with Company's Customer Services staff indicated that the Company's smaller (residential and small commercial) customers are on a bi-monthly service schedule. Larger customers are on a monthly schedule. Considering this information and using a mid-point methodology, a Service Lag of 30.27 days was determined for the Company's regulated distribution operations.

Billing Lag

A Billing Lag is the time period between the end of a customer's service period and meter read to the time that customer's bill is generated and dispatched. While customer consumption data was readily available subsequent to a meter read, interviews with the Company's Customer Service Department indicated that the key determinant of the Company's ability to dispatch a bill to its customer was the receipt of pricing data from the Ontario Independent System Operator ("IESO") which could take up to 11 or 12 business days. Taking this information into account, an overall Billing Lag of 17.35 calendar days was determined.

Collections Lag

Collections Lag measures the time from when a customer's bill is dispatched to the customer to the time a payment is received by the Company from that customer and recorded in the Company Billing System as having been received. This period of time is measured by using receivables aging data contained in receivables reports used by the Company for normal business purposes. Using such data provided by the Company for calendar year 2009, a dollar-weighted average Collections Lag of 24.00 days was determined for the Company's operations.

Payment Processing Lag

A Payment Processing Lag is the time period between the recording of a payment as having been received by the Company from a customer and the payment being deposited into the Company's bank account. Interviews with the Company indicated that if a customer paid using electronic means (e.g., direct debit), that payment is in the Company's bank account on the same day. If the customer paid by cheque, the payment is in the Company's bank account by the next day. The exceptions to both would be if the payment were to be received on a Friday, Saturday, or a public holiday in which case additional time would be involved. When the exceptions are taken into account, an overall Payment Processing Lag of 1.21 days is the result; such was used in the determination of the Company's overall Revenue Lag time.

Section III: Expense Leads

An Expense Lead is the time period between when a good or service is provided to the Company and when the Company generally pays for that service. The following expense related items were considered in this study:

- Power Supply;
- Payroll, Withholdings, and Employee Benefits;
- Operations, Maintenance, and Administrative ("OM&A") Expenses;
- Payments in Lieu of Taxes;
- Debt Reduction Charge; and,
- Interest Expense.

The Company's benefits and costs in terms of the working capital requirement associated with the Goods and Services Tax ("GST") and its successor, the Harmonized Sales Tax (or "HST") are discussed separately.

Power Supply

The company purchases its power supply requirements on a monthly basis from the IESO and pays for such supplies on a schedule defined within the IESO's billing and settlement procedures. Using information on actual payments made by the Company in 2009, a dollar-weighted expense lead time of 32.77 days was determined for the Company's power supply procurements. This expense lead time consisted of and average service lead time of 15.21 days or the mid-point of a month and an average payment lead time of 17.56 days. The calculation is shown in Table 2 below.

Table 2 Calculation of Power Supply Expense Lead Time

Month	Service Start Date	Service End Date	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Payment Amount	Weighting Factor	Weighted Lead Time
January	12/1/2008	12/31/2008	01/15/2009	15.50	15.00	30.50	33,858,505.71	9.06%	2.76
February	1/1/2009	1/31/2009	02/18/2009	15.50	18.00	33.50	31,914,476.30	8.54%	2.86
March	2/1/2009	2/28/2009	03/17/2009	14.00	17.00	31.00	32,404,335.14	8.67%	2.69
April	3/1/2009	3/31/2009	04/20/2009	15.50	20.00	35.50	31,535,590.90	8.44%	3.00
May	4/1/2009	4/30/2009	05/19/2009	15.00	19.00	34.00	27,160,588.56	7.27%	2.47
June	5/1/2009	5/31/2009	06/16/2009	15.50	16.00	31.50	26,150,550.31	7.00%	2.20
July	6/1/2009	6/30/2009	07/17/2009	15.00	17.00	32.00	29,627,831.13	7.93%	2.54
August	7/1/2009	7/31/2009	08/19/2009	15.50	19.00	34.50	31,148,262.05	8.33%	2.88
September	8/1/2009	8/31/2009	09/17/2009	15.50	17.00	32.50	37,842,048.04	10.12%	3.29
October	9/1/2009	9/30/2009	10/19/2009	15.00	19.00	34.00	29,463,281.52	7.88%	2.68
November	10/1/2009	10/31/2009	11/18/2009	15.50	18.00	33.50	30,704,520.41	8.21%	2.75
December	11/1/2009	11/30/2009	12/16/2009	15.00	16.00	31.00	31,953,816.95	8.55%	2.65
Total							373,763,807.02	100.00%	**32.77 days**

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Payroll, Withholdings, and Employee Benefits

The following items were considered under the umbrella of payroll, withholdings, and employee benefits:

- Regular Payroll
- Board of Directors Payroll
- Contribution to the Ontario Municipal Employee Retirement System ("OMERS")
- Group Life and Long Term Disability Insurance Coverage
- Group Health, Medical, Dental, and Vision Coverage, and,
- Company contributions on account of Employee Health Care Spending Accounts

When considered together and on a dollar-weighted basis, these items have an expense lead time of 10.49 days.

A summary of the calculation of the dollar-weighted expense lead time is provided in Table 3 below.

Table 3: Payroll, Withholdings, and Employee Benefits Expense Lead Time

Item	Lead Time Days	2009 Amounts	Weighting Factor	Weighted Lead Time Days
Payroll and Withholdings	6.00	20,391,727	78.71%	4.72
Board of Directors Payroll	38.86	130,434	0.50%	0.20
Pensions - OMERS	39.03	3,767,880	14.54%	5.68
Group Life and Long Term Disability	(1.80)	131,118	0.51%	(0.01)
Group Health Medical, Dental, and Vision	(2.12)	1,471,885	5.68%	(0.12)
Group Health Care Spending Account	39.65	14,620	0.06%	0.02
Total		25,907,665	100.00%	**10.49 days**

Payroll and Withholdings

Interviews with Company staff responsible for administering payroll and benefits indicated that all employees excluding the Company's Board of Directors are paid weekly. While pay-day is the Friday following a Monday pay period end, payroll and withholding related funds including the Employer Health Tax, the Canada Pension Plan, and Employment Insurance are transferred electronically to the Company's payroll administrator (ADP) on the Wednesday preceding the Friday pay-day. Taking this information into account and using the Company's payroll and withholding data for 2009, a dollar-weighted average lead time of 6.0 days was determined for Payroll and Withholdings. This included a service lead time of 4 days (the mid-point of a week) and a 2-day payment lead time since the funds are electronically transferred to ADP on the Wednesday following a Monday pay-period end.

Board of Directors Payroll

The Company's Board of Directors are paid quarterly using a process similar to that of the Company's employees except that they are paid on the fourth Friday of every third month. The funds to make these payments are transferred by the Company to its payroll administrator on the Wednesday preceding the Friday. Taking this information into account and using the Company's Payroll and Withholding data for 2009, a dollar weighted average lead time of 38.86 days was determined. This lead time includes a service lead time component of 45.63 days and a payment lag time of about (6.77) days.

Contributions to the Ontario Municipal Employee Retirement System ("OMERS")

The Company makes its contributions to the OMERS around the last week of the month following a calendar month for which contributions need to be made. Using data on actual payment dates and payment amounts during 2009, a dollar-weighted expense lead time of 39.03 days was determined. This lead time includes an average service lead component of about 15.21 days and a payment lead component of about 23.82 days.

Group Life and Long Term Disability Insurance

As is typical with payments for insurance in general, the Company generally pays its vendor of Group Life and Long Term Disability Insurance either in advance or in the current month for the current month. Using data on actual payment dates and payment amounts during 2009, a dollar-weighted expense lag time of (1.80) days was determined. This lead time includes an average service lead component of about 15.21 days and a payment lag time of about (17.01) days.

Group Health, Medical, Dental, and Vision

As with Group Life and Long Term Disability Insurance, the Company pays for Group Health coverage either in advance or in the current month for the current month. Using data on actual payment dates and payment amounts during 2009, a dollar-weighted expense lag time of (2.12) days was determined. This lead time includes an average service lead component of about 15.21 days and a payment lag time of about (17.33) days.

Group Health Care Spending Account

The Company makes contributions to Employee Health Care Spending accounts on a schedule similar to its remittances of funds on account of OMERS, i.e., around the last week of the month following a service delivery month. Using data on actual payment dates and payment amounts during 2009, a dollar-weighted expense lead time of 39.65 days was determined. This lead time includes an average service lead component of about 15.21 days and a payment lead time of about 24.44 days.

OM&A Expenses

The following items were considered under the umbrella of OM&A expenses in this study.

- Consulting and Contract Staff;
- Freight Postage and Delivery;
- Tree Trimming;
- Telecommunications;
- Software Licenses and Maintenance;
- Payments to the Workers Safety Improvement Board ("WSIB");
- Property Tax Payments;
- Corporate Procurement Card Payments; and,
- Miscellaneous OM&A expenses.

These items were selected to be included within the umbrella of OM&A expenses because they represent activities typical to that undertaken by a regulated distribution company. Further, the items when considered together represent a major share of the Company's non power supply, payroll, and benefits related expenses. Finally, consideration of these items assists in making the Company's study consistent with that of other studies that have been accepted by the Ontario Energy Board.

When considered together and on a dollar-weighted basis, this basket of items has an expense lead time of 17.80 days in 2009, 18.13 days in 2010, and 18.55 days in 2011 respectively. A summary of the calculation of the dollar-weighted expense lead time is provided in Table 4 below.

Table 4. Expense Lead Time Associated With OM&A Expenses

Description	Lead Time Days	2009 Amount $M	2009 Weighting Factor	2010 Amount $M	2010 Weighting Factor	2011 Amount $M	2011 Weighting Factor	2009 Weighted Lead Time Days	2010 Weighted Lead Time Days	2011 Weighted Lead Time Days
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
Consulting & Contract Staff	32.67	2.33	13.42%	2.09	11.96%	3.46	15.66%	4.38	3.91	5.11
Freight, Postage and Delivery	31.46	0.07	0.39%	0.17	0.95%	0.12	0.56%	0.12	0.30	0.18
Tree Trimming	31.52	0.98	5.63%	1.32	7.54%	1.16	5.25%	1.77	2.38	1.66
Tele-Communications	31.77	0.17	1.01%	0.20	1.12%	0.24	1.10%	0.32	0.36	0.35
Software	28.10	0.59	3.43%	0.78	4.47%	1.13	5.11%	0.96	1.25	1.44
WSIB	39.58	0.25	1.43%	0.25	1.42%	0.25	1.13%	0.57	0.56	0.45
Property Taxes	(12.30)	0.71	4.11%	0.71	4.09%	0.71	3.23%	(0.51)	(0.50)	(0.40)
Credit Card	27.71	0.21	1.22%	0.22	1.24%	0.22	1.00%	0.34	0.34	0.28
Miscellaneous OM&A	14.18	12.04	69.37%	11.73	67.21%	14.80	66.97%	9.84	9.53	9.50
Total		**17.35**		**17.46**		**22.09**		**17.80**	**18.13**	**18.55**

Payments Made to Consulting and Contract Staff

During 2009, the Company hired a number of consulting and contract firms to provide it with services ranging from financial, legal, engineering, customer service and billing, and network operations. Using data on actual payment dates and payment amounts during 2009, a dollar weighted expense lead time of 32.67 days was determined. This lead time includes a half-month or 15.21 days of service lead time.

Freight Postage and Delivery

During 2009, the Company hired courier firms, the most common of which are UPS Canada and Federal Express, to provide support to the Company's delivery services operations. Using data on actual payment dates and payment amounts during 2009, a dollar weighted expense lead time of 31.46 days was determined for the provision of such services. This lead time includes a half-month or 15.21 days of service lead time.

Tree Trimming

The Company hired outside firms during 2009 to provide it with tree-trimming and vegetation management services. The Company indicated that such outside firms are generally hired on the basis of a monthly contract and work (including billing for services) generally occurs after the month during which services were provided to the Company. Using data on actual payment dates and payment amounts during 2009 therefore, a dollar weighted expense lag time of 31.52 days was determined for the provision of such services. This lead time includes a half-month or 15.21 days of service lead time.

Telecommunications

The Company purchases a variety of telecommunications related services including telephone, wireless, cellular, and paging from its vendors. Using data on payment dates and payment amounts during 2009, a dollar-weighted average expense lead time of 31.77 days associated with the purchase of telecommunications related services was determined. This expense lead time includes 15.21 days of service lead time.

Software License and Maintenance

The Company has contracts with outside firms for the provision of software and maintenance related services. Some of these contracts cover multiple years and may be pre-paid. Using data from 2009, a dollar-weighted average expense lead time of 28.10 days associated with payments for software licenses and maintenance was determined. Taking into account that some of these contracts may cover multiple years, an average service lead time of 89.00 days was included in the determination of the expense lead time associated with the Company's purchase of software license and computer maintenance related services.

Workers Safety Improvement Board ("WSIB")

The Company makes its contributions to the WSIB around the last week of the month following a calendar month for which contributions need to be made. Using data on actual payment dates and payment amounts during 2009, a dollar-weighted expense lead time of 39.58 days was determined. This lead time includes an average service lead component of about 15.21 days and a payment lead component of about 24.37 days.

Property Taxes

The Company pays property taxes to the Cities of St. Catharine and Hamilton. Payments are made in the current year for the current year and are generally made in four installments to each city. Using data on actual payment dates and payment amounts during 2009, a dollar-weighted expense lag time of (12.30) days was determined. This lag time includes an average service lead component of about 182.50 days (or the mid-point of a year) and an average payment lag time of about (194.80) days.

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Corporate Procurement Card

The Company pays its corporate credit card bill following the calendar month of card usage on a schedule specified by its credit card vendor. Using data on actual payment dates and payment amounts during 2009, a dollar-weighted expense lead time of 27.71 days was determined. This lead time includes an average service lead component of about 15.21 days and a payment lead component of about 12.50 days.

Other (Miscellaneous) Operations and Maintenance Expenses

Finally, payments for additional computer related maintenance services, vehicle maintenance, and other general services were considered under the category of Miscellaneous OM&A. Using data on actual payment dates and amounts within calendar year 2009, a dollar-weighted expense lead time of 14.18 days was determined. This expense lead time includes an average 17.00 days of service lead time.

Interest on Long Term Debt

The Company makes interest payments on its outstanding long term debt semi-annually. Payments are due on January 30 and July 30 of any given year. Taking this information into account, a dollar-weighted expense lag time of (62.74) days associated with interest expense was determined. This lag time includes a service lead time of 182.50 days (i.e., the mid-point of a year).

Debt Reduction Charge

The Company makes a debt reduction charge monthly to the Ontario Electricity Finance Corporation (OEFC). This payment is generally made around the 15th of the month following the current month. Using actual payment dates and amounts from calendar year 2009, a dollar-weighted expense lead time of 28.27 days associated with the debt reduction charge was determined. This expense lead time includes an average of 15.21 days of service lead time.

Payments in Lieu of Taxes ("PILS")

The Company makes payments in lieu of taxes to the Federal Government in monthly installments on or around the last business day of every month. Taking this information into account and using actual payments made in 2009, a dollar weighted expense lead time of 34.44 days was determined. This expense lead time includes an average 182.5 days of service lead time, i.e., the mid-point of a year.

Goods and Services Tax (GST)and Harmonized Sales Tax (HST)

The expense lead times associated with the following items that attract GST and HST were considered in the NCI study:

a. Customer Revenues including Cost of Power;
b. Cost of Power;
c. Consulting and Contract Services;
d. Freight Postage and Delivery;
e. Tree Trimming;
f. Telecommunications;

g. Software;
h. Corporate Credit Card; and
i. Miscellaneous OM&A.

A summary of the expense lead times associated with each of the above items is provided in Table 5. Note that the statutory approach described earlier in this report was used to determine the expense lead times associated with the Company's remittances and collections of GST and HST, i.e., both remittances and collections are generally on the last day of the month following the date of the applicable invoice.

Table 5. Expense Lead Times Associated With GST/HST payments (receipts)

GST Related Item	GST/HST Lead (Lag) Days	Working Capital Factor
Revenues [incl COP]	(17.41)	-4.77%
Cost of Power	43.25	11.85%
Consulting & Contract Services	44.24	12.12%
Freight Postage and Delivery	45.10	12.36%
Tree Trimming	43.41	11.89%
Telecommunications	44.32	12.14%
Software	44.85	12.29%
Corporate Credit Card	18.83	5.16%
Miscellaneous OM&A	45.87	12.57%

The Ontario government has harmonized the Ontario Provincial Sales Tax with the federal GST into a harmonized single sales tax effective July 1, 2010. Based on current information, there appears to be no change to the current schedule of both remittances and receipts of the HST compared with what existed under the GST regime. Thus, no changes to the schedule of either remittances or receipts of the HST relative to the schedule that governed the GST have been considered in this study.

Section IV: Horizon Utilities – Working Capital Requirements

Having calculated the revenue lag, expense lead, and the net lag times, the next step in the process was to calculate the Company's working capital requirement. Using the results described under the discussion of revenue lags and expense leads, and applying them to the Company's expenses for 2009-2011, the Company's working capital requirements are $55.1M in 2009, $61.4M in 2010, and $62.6M in 2011. These amounts represent 13.6%, 13.8%, and 14.2% of the Company's OM&A expense including cost of power for 2009, 2010, and 2011 respectively.

A summary of the Company's working capital requirements is provided in Tables 6-8 for each year 2009-2011. Included within the working capital amounts shown in Table 5 are GST/HST net benefits of $1.1M, $2.4M, and $3.3M for 2009, 2010, and 2011 respectively. The derivation of these amounts is shown in Table 9. Finally, the calculation of the weighted average expense lead time associated with OM&A expenses, Col (C) Line 2 of Tables 6-8, is presented on Table 10.

Table 6. Working Capital Requirements Associated With Distribution Operations - 2009

Line	Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses $M	Working Capital Requirement $M
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Cost of Power	72.84	32.77	40.07	10.98%	365.3	40.1
2	OM&A Expenses	72.84	13.58	59.26	16.24%	38.8	6.3
3	PILS	72.84	34.44	38.40	10.52%	6.4	0.7
4	Interest Expense	72.84	(62.74)	135.57	37.14%	8.1	3.0
5	Debt Reduction Charge Amount	72.84	28.27	44.57	12.21%	31.9	3.9
6	Total					450.5	$54.0
7	GST						1.1
8	Total - Including GST						$55.1
9	As a Percent of OM&A incl. Cost of Power						13.6%

Table 7. Working Capital Requirements Associated With Distribution Operations - 2010

Line	Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses $M	Working Capital Requirement $M
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Cost of Power	72.84	32.77	40.07	10.98%	405.1	44.5
2	OM&A Expenses	72.84	13.50	59.34	16.26%	40.1	6.5
3	PILS	72.84	34.44	38.40	10.52%	5.7	0.6
4	Interest Expense	72.84	(62.74)	135.57	37.14%	9.0	3.3
5	Debt Reduction Charge Amount	72.84	28.27	44.57	12.21%	33.2	4.1
6	Total					493.1	$59.0
7	GST/HST						2.4
8	Total - Including GST/HST						$61.4
9	As a Percent of OM&A incl. Cost of Power						13.8%

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Table 8. Working Capital Requirements Associated With Distribution Operations - 2011

Line	Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses $M	Working Capital Requirement $M
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Cost of Power	72.84	32.77	40.07	10.98%	394.0	43.3
2	OM&A Expenses	72.84	13.74	59.10	16.19%	47.5	7.7
3	PILS	72.84	34.44	38.40	10.52%	6.1	0.6
4	Interest Expense	72.84	(62.74)	135.57	37.14%	10.1	3.7
5	Debt Reduction Charge Amount	72.84	28.27	44.57	12.21%	32.4	4.0
6	Total					490.1	$59.3
7	GST/HST						3.3
8	Total - Including GST/HST						$62.6
9	As a Percent of OM&A incl. Cost of Power						14.2%

Shown in Table 9 Cols (G)-(I) below are the derivation of the GST/HST Benefits and Costs included within line 7 of Tables 6-8.

Table 9. GST/HST Related Working Capital Requirements

	GST/ HST Lead (Lag) Days	Working Capital Factor	Amount 2009 $M	Amount 2010 $M	Amount 2011 $M	Working Capital 2009 $M	Working Capital 2010 $M	Working Capital 2011 $M
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
GST/HST Rate			5.00%	9.00%	13.00%			
Revenues [incl. COP]	(17.41)	-4.77%	485.8	495.2	502.7	(1.2)	(2.1)	(3.1)
Cost of Power	43.25	11.85%	365.3	405.1	394.0	2.2	4.3	6.1
C&C Services	44.24	12.12%	2.3	2.1	3.5	0.0	0.0	0.1
Freight Postage and Delivery	45.10	12.36%	0.1	0.2	0.1	0.0	0.0	0.0
Tree Trimming	43.41	11.89%	1.0	1.3	1.2	0.0	0.0	0.0
Telecommunications	44.32	12.14%	0.2	0.2	0.2	0.0	0.0	0.0
Software	44.85	12.29%	0.6	0.8	1.1	0.0	0.0	0.0
Corporate Credit Card	18.83	5.16%	0.2	0.2	0.2	0.0	0.0	0.0
Miscellaneous OM&A	45.87	12.57%	12.0	11.7	14.8	0.1	0.1	0.2
Total						$1.1	$2.4	$3.3

Finally, Table 10 below shows the calculation of the weighted expense lead time associated with OM&A expenses for each year 2009-2011. The result shown on Cols (K)-(M) of Table 10 is included within Col (C), Line 2 of Tables 6-8 respectively.

Table 10 - Calculation of OM&A Expense Lead Time

Item	Expenses 2009 $M	Expenses 2010 $M	Expenses 2011 $M	Expense Lead Days 2009	Expense Lead Days 2010	Expense Lead Days 2011	Factor 2009	Factor 2010	Factor 2011	OM&A Lead Time Days 2009	OM&A Lead Time Days 2010	OM&A Lead Time Days 2011
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Payroll and Benefits	22.41	23.57	26.41	10.49	10.49	10.49	57.76%	58.82%	55.55%	6.06	6.17	5.83
Other OM&A	16.39	16.50	21.13	17.80	18.13	18.55	42.24%	41.18%	44.45%	7.52	7.33	7.91
Total	$38.80	$40.07	$47.54							13.58	13.50	13.74

EB-2010-0131

HORIZON UTILITIES CORPORATION ("HORIZON UTILITIES")
RESPONSES TO
ENERGY PROBE INTERROGATORIES

DELIVERED: January 24th, 2011

Question 7

Reference: Exhibit 2, Tab 4, Schedule 1, Appendix 2-3

a) Please provide all the data, calculations and assumptions used by rate class to arrive at a service lag of 30.27 days.

b) Does Horizon have any plans to move residential and small commercial customers to monthly billing? If yes, please elaborate on the timing of any such move.

c) Did the service lags used include 30.42 days for customers billed on a bimonthly basis (i.e. 365 / 6 / 2) and a service lag of 15.21 days for customers billed on a monthly basis (i.e. 365 / 12/ 2)? If not, please show the calculation of the monthly and bimonthly service lags.

d) Please indicate which rate classes are billed on a bimonthly basis and which rate classes are billed on a monthly basis.

e) Please provide an example of the pricing data from the IESO that results in the delay in processing the bill to a customer by up to 11 or 12 business days.

f) With respect to the collection lag, is this accounts receivable analysis done on a rate class by rate class basis? If so, please provide the collection lag for each rate class based on the specific accounts receivable analysis for the rate class. If it is not done on a rate class specific basis, please explain why not.

g) Please provide the dates and amounts of property tax payments made that result in the average payment lag time of (194.8) days as shown on page 10.

h) Please show the derivation of the GST/HST lag of (17.41) days shown in Table 5 and reconcile it with the total revenue lag shown in Table 1.

i) Please recalculate the percentages of 13.6%, 13.8% and 14.2% shown in Tables 6 through 8, respectively under the assumption that all rate classes are billed on a monthly basis.

j) With reference to the interest costs shown in Exhibit 5, Tab, Schedule 2, Table 5-1, please explain $10.1 million interest expense shown in Table 8 for 2011.

Response:

a) The data, calculations and assumptions used in the derivation of the 30.27 days are shown in the Table below. The Table includes data on the number of monthly and bi-monthly customers. The assumptions regarding the mid-points of the service period for both monthly and bi-monthly customers are shown. Items that are calculated in the Table below are a) the weighting factors and b) the resulting service lag in days.

	Number of Customers/Accounts			Weighting Factors		Mid Points		Service Lag Days
Rate Classification	Monthly	Bi Monthly	Total	Monthly	Bi Monthly	Monthly	Bi Monthly	
Residential		212,580	212,580	0.00%	90.49%	15.21	30.42	27.52
General Service < 50		17,979	17,979	0.00%	7.65%	15.21	30.42	2.33
General Service > 50	2,216		2,216	0.94%	0.00%	15.21	30.42	0.14
Large Users	12		12	0.01%	0.00%	15.21	30.42	0.00
Unmetered and Scattered		1,879	1,879	0.00%	0.80%	15.21	30.42	0.24
Sentinel		250	250	0.00%	0.11%	15.21	30.42	0.03
Streetlights	4		4	0.00%	0.00%	15.21	30.42	0.00
Total	2,232	232,688	234,920					30.27 days

b) No, Horizon Utilities does not currently have any plans to move residential and small commercial customers to monthly billing.

c) Yes.

d) As used in Horizon's lead/lag study, the information requested is provided in the Table below.

Class	Frequency of Billing
Residential	Bi-Monthly
General Service < 50 kW	Bi-Monthly
General Service > 50 kW	Monthly
Large Users	Monthly
Unmetered and Scattered	Bi-Monthly
Sentinel	Bi-Monthly
Streetlights	Monthly

e) Horizon's meters measure volumes of kilowatthours consumed by customers. These volumes need to be applied to prices (cents/KWh) in order to generate a bill.

f) No. The analysis has not been performed on a rate class by rate class basis (see response to d) for a list of rate classes). Horizon Utilities prepares its aged accounts receivable and credit analysis using two categories of customers; a) residential, and b) commercial, which closely aligns to its credit policies. **g)** As explained on page 2 of Exhibit 2, Tab 4, Schedule 1, Appendix 2-3, the expense lead time consists of two components: a service component, and a payment component. Adding the two together and dollar weighting them produces a weighted average expense lead time for a particular of expense. In the instance of property taxes (page 10 of Exhibit 2, Tab 4, Schedule 1, Appendix 2-3), the weighted average expense lead time was determined to be (12.30) days and the service lead time was 182.50 days. The average payment lag time of (194.8) days is the "delta" between the service lead time and the weighted average expense lead time.

h) The derivation of the (17.41) days of the GST/HST lag is shown on Cols (A) through (F) of the Table below. The discussion following the Table explains how the values in the Table were calculated and, in doing so, reconciles with the total revenue lag calculation shown on Table 1 of Exhibit 2, Tab 4, Schedule 1, Appendix 2-3.

Line	Start Date	Average End Date assuming Mid Point of Service Period	Customer Invoice Date	GST Remittance Date	GST Collection Date	GST Lead Revenues
	(A)	(B)	(C)	(D)	(E)	(F)
1	1/1/2009	1/31/2009	2/17/2009	3/31/2009	3/14/2009	(16.16)
2	2/1/2009	3/3/2009	3/20/2009	4/30/2009	4/14/2009	(15.16)
3	3/1/2009	3/31/2009	4/17/2009	5/31/2009	5/12/2009	(18.16)
4	4/1/2009	5/1/2009	5/18/2009	6/30/2009	6/12/2009	(17.16)
5	5/1/2009	5/31/2009	6/17/2009	7/31/2009	7/12/2009	(18.16)
6	6/1/2009	7/1/2009	7/18/2009	8/31/2009	8/12/2009	(18.16)
7	7/1/2009	7/31/2009	8/17/2009	9/30/2009	9/11/2009	(18.16)
8	8/1/2009	8/31/2009	9/17/2009	10/31/2009	10/12/2009	(18.16)
9	9/1/2009	10/1/2009	10/18/2009	11/30/2009	11/12/2009	(17.16)
10	10/1/2009	10/31/2009	11/17/2009	12/31/2009	12/12/2009	(18.16)
11	11/1/2009	12/1/2009	12/18/2009	1/31/2010	1/12/2010	(18.16)
12	12/1/2009	12/31/2009	1/17/2010	2/28/2010	2/11/2010	(16.16)
13	Average					**(17.41)**

i. The dates shown on Col (A) are assumed starting dates for a 12 month period in 2009.

ii. The values shown on Col (B) are calculated as the Service Start Date in Col (A) plus an average service lag of 30.27 days as indicated on Table 1 of Exhibit 2, Tab 4, Schedule 1, Appendix 2-3.

iii. The values shown on Col (C) are calculated as the values shown on Col (B) plus a billing lag of 17.35 days that is shown on Table 1 of Exhibit 2, Tab 4, Schedule 1, Appendix 2-3.

iv. For each period, in this example, month, the GST remittance date shown on Col (D) is the last day of the month following the Customer Invoice Date shown on Col (C).

v. The values shown on Col (E) are calculated as the values shown on Col (C) plus 24.00 days of collections lag plus 1.21 days of payment processing lag. Both the collections lag and payment processing lag values are shown on Exhibit 2, Tab 4, Schedule 1, Appendix 2-3.

i) Horizon believes that performing such a calculation in isolation is misleading, inappropriate, and its results would be irrelevant in the present context for two reasons. First, one would have to factor in the on-going operating costs of implementing such a change in the estimation of Horizon's working capital requirements.. Also, in generic terms, such costs may include (and might not be limited to) incremental capital investments in metering and information technology, incremental payroll and benefit expenses, incremental OM&A expenses, increased taxes, and depending on how the shift is accomplished, incremental interest expenses. Second, as explained in response to part b) of this interrogatory, Horizon has no plans to move customers from bi-monthly to monthly billing. With these as caveats and assuming that all customers are billed on a monthly basis, Horizon's working capital requirements would reduce to a theoretical 8.8%, 8.8%, and 9.0% respectively for the period 2009-2011.

j) The interest expense of $10.1MM is based on the interest payments in the year of $8.1MM with respect to the $116MM Promissory Note and interest payments of $2.0MM with respect to the $40MM Promissory Note.

Ontario Energy Board

Commission de l'énergie de l'Ontario

Ontario

EB-2010-0131

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, (Schedule B);

AND IN THE MATTER OF an application by Horizon Utilities Corporation for an order approving just and reasonable rates and other charges for electricity distribution to be effective January 1, 2011.

BEFORE: Marika Hare
Presiding Member

Cathy Spoel
Member

Karen Taylor
Member

DECISION AND ORDER

BACKGROUND

Horizon Utilities Corporation ("Horizon") filed an application (the "Application") with the Ontario Energy Board (the "Board") on August 27, 2010 under section 78 of the *Ontario Energy Board Act*, *1998*, S.O. 1998, c. 15, (Schedule B), seeking approval for changes to the rates that Horizon charges for electricity distribution, to be effective January 1, 2011. The Board assigned the Application File Number EB-2010-0131.

Enterprise Data Warehouse/Operational Data Store and investment in new equipment in fleet capital additions. With respect to the issue of fleet capital, the Board also notes that the premiums paid by Horizon to purchase electric hybrid vehicles should not be the responsibility of the ratepayer.

Parties have provided various rationales or approaches (averaging of 2 or 3 years of actual capital expenditures, an envelope reduction, etc.) to arrive at an appropriate level of capital expenditures for the test year. Each approach produces a different capital budget. However, the range of results is relatively narrow. On one point, however, there is agreement – that the proposed capital budget is excessive and not adequately supported by Horizon's evidence. The Board agrees.

The Board finds that the capital expenditures for setting 2011 rates should be $39 million (exclusive of smart meters), which is approximately equal to a $5 million reduction in the applied-for capital expenditures budget of about $44 million. The approved capital expenditures budget is within the range suggested by parties and Board staff and is a 3.5% increase to Horizon's previous peak-year capital spending of $37.7 million, reached in 2009.

Lead-Lag study

As directed by the Board in its decision on Horizon's previous Cost of Service application for 2008 rates (EB-2007-0697), Horizon filed a lead-lag study to update its working capital requirements. The study was conducted by Navigant Consulting Inc. ("Navigant"). The results of the lead-lag study are the basis for Horizon's proposal that the Working Capital Allowance ("WCA") be calculated as 14% of the sum of the Cost of Power plus controllable expenses; this is lower than the 15% factor that is commonly used in the electricity distribution sector.

An update to the study was filed as part of Horizon's updated evidence on March 14, 2011. The update did not result in material changes to the results of the lead-lag study.

Mr. Subbakrishna of Navigant Consulting testified on behalf of Horizon with respect to the lead-lag study. During cross-examination it was affirmed that, while revenue weights are used for most components of the analysis, customer weighting was used to estimate the service lag.

In its submission, Board staff submitted that customer weighting overestimates the average service lag, and that revenue weighting for the service lag, as for other revenue and expense leads and lags, is appropriate. Board staff noted the response to Undertaking J1.2, reducing the service lag from 30.5 days to 26.7 days would result in a WCA factor of about 13%, and reduce rate base by about $5.5M.[16]

Energy Probe agreed that the WCA was overstated by more than $4.5 million compared to the updated Navigant Report for the reasons noted by Board staff. Energy Probe also submitted that the WCA should be updated and corrected through updating of Tables 8 and 9 of the Lead-Lag study conducted by Navigant Consulting, rather than just through application of the 14% factor or whatever factor determined by the Board.[17] Energy Probe also submitted that the revenue weights should use the 2011 test year forecasts rather than 2009 actual data,[18] that management fee expenses of $784,515 should be excluded from OM&A for the purposes of calculating the WCA[19] and that the Cost of Power was incorrect and proposed corrections for this. Overall, Energy Probe estimated that its proposed adjustments would result in a WCA factor of 13.6%.

Energy Probe also submitted that the WCA should be updated to reflect any adjustments resulting from the Board's decision (i.e. with respect to controllable operating expenses and/or load forecast). [20]

CCC[21], SEC[22] and VECC[23] supported Energy Probe's submission on this issue. AMPCO did not make a submission on this matter.

In reply, Horizon concurred with Energy Probe's submissions for the updated Cost of Power and with the exclusion of management fee expenses of $784,515 from OM&A and hence from controllable expenses for purposes of calculating the WCA. However, Horizon rejected the submissions of Board staff and stated that its 14% WCA factor per the updated Navigant Report is correct. It stated that the alternative would be to apply the generic 15% factor commonly used by electricity distributors. Horizon also opposed

[16] Board staff submission [EB-2010-0131], May 4, 2011, pp. 17-18
[17] *Ibid*., pp. 12-13
[18] *Ibid.*, pp. 14-16
[19] *Ibid.*, pg. 19
[20] *Ibid.*, pp. 16-18
[21] CCC submission [EB-2010-0131], May 9, 2011, pg. 7
[22] SEC submission [EB-2010-0131], May 6, 2011, pp. 35-36
[23] VECC submission [EB-2010-0131], May 6, 2011, pg. 4

Energy Probe's proposed 13.6% factor for the WCA, submitting that it was too late in the process to suggest changes in the methodology for revenue weighting of service and revenue lags.[24]

Board Findings

The Board has considered the many adjustments and corrections suggested by Energy Probe, and supported by other parties, in order to calculate the WCA. The Board is in agreement that these factors would reduce the WCA by approximately $2.6 million, as suggested by Energy Probe.

The Board is also concerned with the adequacy of the WCA calculation given the testimony of the Navigant consultant, who stated that the lead/lag study did not take into consideration a number of elements that would have reduced the billing lag – most notably the introduction of smart meters and AMI, which represent a significant investment in assets in order to improve billing information. Noting that Horizon has nearly completed its deployment of smart meters and will be implementing time-of-use ("TOU") pricing this year, the Board finds it is incongruent to disregard the operational impacts arising from smart meters and TOU pricing that should reduce cash working capital requirements during 2011and the subsequent IRM period.

The Board does accept Horizon's argument that a lead/lag study is undertaken based on the individual characteristics of the distributor, and therefore comparisons to other distributors may not be appropriate. Nevertheless, the Board must take notice of the results of other study results such as those conducted for and filed by Hydro One Networks Inc. and Toronto Hydro Electric Systems Ltd. to ascertain reasonableness.

For the reasons set out above, the Board directs that a 13.5% working capital allowance will be used. This result is also more consistent with the results of the working capital allowance studies undertaken by Hydro One (result being 11.9%) and Toronto Hydro-Electric Systems Limited (result being 12.9%).

[24] Horizon reply submission [EB-2010-0131], May 20, 2011, pp. 41-44

LEAD LAG STUDY

1.0 INTRODUCTION

Hydro Ottawa Limited ("Hydro Ottawa") filed an application with the Ontario Energy Board (the "Board") on September 19, 2007 seeking approval for changes to the rates charged for electricity distribution effective May 1, 2008. In the application, Hydro Ottawa used "the 15% allowance approach" as described in the Board's Filing Requirements for Transmission and Distribution Applications ("Filing Requirements") to calculate the Working Capital Allowance ("WCA") for the Test Year 2008. The 15% rate was then changed to 12.5%[1] as part of a settlement agreement based on the results of a lead-lag study conducted by Toronto Hydro-Electric System Limited for its 2008 Test Year. For this application, Hydro Ottawa has conducted its own lead/lag study to derive the working capital requirements. This study is based on 2009 and 2010 historical data, and adjusted for any anticipated material changes for the 2012 Test Year.

Working capital is the amount of funds required to finance the day-to-day operations of a regulated utility. Determining the company's working capital requirements using a lead/lag study is one of two approaches included in the Filing Requirements.

Lag is the time between one event, process, or period and another. In this lead/lag study, lag is the number of days between the date that a service is rendered and the date that payment is received, and generally refers to revenue; however, prepaid revenue would be a negative lag (or a revenue lead). Lead refers to the number of days between the date Hydro Ottawa receives goods and services and the date that it pays for them, and generally refers to an expense; however, a prepaid expense would be a negative lead (or an expense lag). Both the overall revenue lag and expense lead, in number of days, are developed by weighting the lag or lead from individual sources based on relative dollar magnitude. A net lag is then calculated using the lag minus the

[1] EB-2007-0713, Decision, Issued March 17, 2008

lead. The working capital requirement is then determined by using the net lag divided by 365 and multiplied by the annual budgeted costs[1]. The working capital requirement is then expressed as a percent of the total Operations, Maintenance and Administration ("OM&A") plus the cost of power to determine the WCA for both 2009 and 2010. An adjustment was then made to reflect the only material change known for 2012, the move to a harmonized sales tax ("HST"). These revised results for 2009 and 2010 were averaged to determine the final WCA proposed for 2012. Refer to Exhibit B4-1-1 for the determination of the final working capital requirement to include in rate base by multiplying the proposed WCA by the total of the 2012 forecast OM&A and cost of power.

2.0 REVENUE LAG

Revenue lag refers to the number of days between the date that Hydro Ottawa provides a service to its customer and the date that payment is received and funds are available to the company. Hydro Ottawa's revenue can be divided into three categories.

- Revenues from Residential and General Service Customers. This group of customers includes residential, general service < 50 kW, general service 50 – 1,499 kW, general service 1,500 – 4,999 kW, large users, streetlighting and unmetered scattered load.
- Revenues from Services to Retailers. This refers to electricity retailers licensed under the *Ontario Energy Board Act*.
- Revenues from Other Sources. This includes pole and duct rentals, property rentals and work for other services.

When the three sources of revenues are considered together, the weighted average revenue lag time for 2009 is 75.3 days and for 2010 is 75.2 days. Table 1 shows a

[1] Budgeted costs include Cost of Power, OM&A, Interest Expense, Payments in Lieu of Taxes ("PILs"), Debt Retirement Charge and HST on Capital Expenses

summary of the 2009 and 2010 revenue lags. Details for each component are provided in the sections that follow.

Table 1 - Revenue Lag[1]

Source of Revenues	2009				2010			
	Revenue Lag (Days)	Amount $	Weighting Factor	Weighted Revenue Lag	Revenue Lag (Days)	Amount $	Weighting Factor	Weighted Revenue Lag
Revenues from Residential and Business Customers	74.97	732,196,506	98.42%	73.78	74.97	770,833,454	98.05%	73.51
Revenues from Services to Retailers	32.90	347,827	0.05%	0.02	30.15	321,152	0.04%	0.01
Revenues from Other Sources	96.16	11,420,912	1.54%	1.48	90.51	15,016,106	1.91%	1.73
TOTAL[2]		743,965,246	100.00%	75.3		786,170,711	100.00%	75.2

2.1 Revenues from Residential and Business Customers

As shown in Table 1, revenues from residential and general service customers represent 98.42% of Hydro Ottawa's 2009 total revenues, and represent 98.05% of Hydro Ottawa's 2010 total revenues. The revenue lag is the same each year at 74.97 days.

The revenue lag associated with this category consists of 4 components. They are summarized in Table 2 and discussed in further detail in the sections that follow.

[1] Note that these revenues are from the same source as revenues reflected on the audited financials but would not be the same numbers as no adjustments have been made for end of period accruals or for accounting entries for items such as retail settlement variance accounts. The revenues from residential and general service customers do not include miscellaneous charges that are not available by customer class from Hydro Ottawa's financial system but these would not be material for the purposes of allocation.
[2] Totals do not equal due to rounding.

Table 2 - Revenue Lag from Residential and General Service Customers

Revenue Lag Component	Days	
	2009	2010
Service Lag	30.24	30.24
Billing Lag	18.11	18.24
Collections Lag	25.47	25.36
Payment Processing and Bank Float Lag	1.15	1.13
TOTAL	74.97	74.97

2.1.1 Service Lag

Service lag is the number of days between when service is provided to a customer and when the customer's meter is read. Residential and general service < 50kW customers' meters are read on a bi-monthly basis, and other classes of customers' meters are read monthly. Based on this information and using the number of customers in each class, a weighted average service lag of 30.24 is determined for 2009 and 2010. Table 3 and Table 4 show the details.

Table 3 - 2009 Service Lag – Residential and General Service Customers

Customer Type	Average # of Customers	Frequency of Meter Read	Mid Point of Service Period	Customer Weight	Service Lag
Residential	267,225	Bi-monthly	30.42	90.88%	27.65
General Service < 50 kW	23,312	Bi-monthly	30.42	7.93%	2.41
GS 50 – 1,499 kW	3,279	Monthly	15.21	1.12%	0.17
GS 1,500 – 4,999 kW	67	Monthly	15.21	0.02%	-
Large Users	11	Monthly	15.21	0.00%	-
Street Lighting	8	Monthly	15.21	0.00%	-
Unmetered Scattered Load	143	Monthly	15.21	0.05%	0.01
TOTAL	294,045			100.00%	30.24

Table 4 - 2010 Service Lag – Residential and General Service Customers

Customer Type	Average # of Customers	Frequency of Meter Read	Mid Point of Service Period	Customer Weight	Service Lag
Residential	271,603	Bi-monthly	30.42	90.98%	27.68
General Service < 50 kW	23,434	Bi-monthly	30.42	7.85%	2.39
GS 50 – 1,499 kW	3,279	Monthly	15.21	1.10%	0.16
GS 1,500 – 4,999 kW	66	Monthly	15.21	0.02%	-
Large Users	12	Monthly	15.21	0.00%	-
Street Lighting	8	Monthly	15.21	0.00%	-
Unmetered Scattered Load	129	Monthly	15.21	0.04%	0.01
TOTAL	298,531			100.00%	30.24

2.1.2 Billing Lag

Billing lag is the number of days between when a customer's meter is read and the date the customer is billed. This data is available from Hydro Ottawa's customer information system ("CIS") for each customer class. A query was generated from the CIS database to measure the average number of days between meter reads and billing date for all customers by class in 2009 and 2010.

With Hydro Ottawa's CIS, bills are produced once the spot market price is available (10 business days after the service period end date,) even for those that are on the fixed regulated price plan. The system needs to calculate the difference between what would have been billed at the spot market price and billed at the fixed rate for the purposes of filing claims with the Independent Electricity System Operation ("IESO") each month. The system also needs to calculate the difference between what would have been billed at the spot market price and what is billed based on a retail contract for the purposes of settlement. All of this must happen before the bill is finalized.

The weighted average billing lag for 2009 is 18.11 days, and for 2010 is 18.24 days. Table 5 and Table 6 show the details.

Table 5 - 2009 Billing Lag

Customer Type	Average # of Customers	Sales	Weight	Number of days between Meter Read & Billing (Regular Read)	Weighted Lag
Residential	267,225	$252,919,083	34.54%	20.33	7.02
General Service < 50 kW	23,312	77,002,452	10.52%	20.08	2.11
GS 50 – 1,499 kW	3,279	272,554,577	37.22%	17.21	6.41
GS 1,500 – 4,999 kW	67	72,377,217	9.88%	15.00	1.48
Large Users	11	53,233,888	7.27%	13.83	1.01
Street Lighting	8	3,613,935	0.49%	16.83	0.08
Unmetered Scattered Load	143	495,355	0.07%	0.00	0.00
TOTAL	294,045	$732,196,507	100.00%	14.76	18.11

Table 6 - 2010 Billing Lag

Customer Type	Average # of Customers	Sales	Weight	Number of days between Meter Read & Billing (Regular Read)	Weighted Lag
Residential	271,603	$267,560,504	34.71%	20.08	6.97
General Service < 50 kW	23,434	82,536,260	10.71%	20.33	2.18
GS 50 – 1,499 kW	3,279	283,209,918	36.74%	17.69	6.50
GS 1,500 – 4,999 kW	66	73,990,275	9.60%	15.42	1.48
Large Users	12	59,628,830	7.74%	13.17	1.02
Street Lighting	8	3,935,758	0.51%	17.50	0.09
Unmetered Scattered Load	129	(28,092)	0.00%	0.00	0.00
TOTAL	298,531	$770,833,453	100.00%	14.88	18.24

2.1.3 Collections Lag

Collections lag is the number of days between when a customer is billed and when that payment is received from the customer. The collection lag for residential and general service customers was derived from an aged accounts receivable report by calculating the Days Sales Outstanding. The average collection lag for 2009 is 25.47 days and for 2010 is 25.36 days. Table 7 and Table 8 show the details.

1 **Table 7 - 2009 Collection Lag – Residential and General Service Customers ($000)**

Month	1-17 Days	18-30 Days	31-60 Days	61-90 Days	91-120 Days	Over 121 Days	Total	# of Days in Month	Sales[1]	Days Sales Outstanding
Jan	44,143	4,980	5,024	1,502	830	984	57,465	31	67,524	26.38
Feb	44,637	3,628	5,480	977	659	1,112	56,493	28	63,933	24.74
Mar	26,991	9,793	4,024	1,983	469	1,089	44,350	31	73,921	18.60
Apr	38,880	2,221	4,519	1,273	728	966	48,587	30	51,230	28.45
May	34,920	5,264	4,306	2,050	677	1,032	48,248	31	52,983	28.23
Jun	24,224	6,141	4,488	1,589	1,089	1,015	38,547	30	56,823	20.35
Jul	33,422	3,299	3,786	1,785	902	1,254	44,449	31	51,386	26.82
Aug	34,636	3,173	3,777	1,549	973	1,345	45,453	31	54,308	25.95
Sep	42,740	5,377	3,243	1,444	652	1,275	54,731	30	67,025	24.50
Oct	42,037	2,387	4,161	1,341	605	1,124	51,655	31	54,345	29.47
Nov	37,811	4,304	4,059	1,464	557	1,026	49,220	30	55,950	26.39
Dec	36,023	3,154	3,802	1,560	612	918	46,068	31	55,516	25.72
TOTAL	440,464	53,720	50,668	18,517	8,753	13,143	585,266	365	704,944	25.47

2

3 **Table 8 - 2010 Collection Lag – Residential and General Service Customers ($000)**

Month	1-17 Days	18-30 Days	31-60 Days	61-90 Days	91-120 Days	Over 121 Days	Total	# of Days in Month	Sales[1]	Days Sales Outstanding
Jan	48,796	5,729	4,009	1,449	567	876	61,426	31	65,733	28.97
Feb	47,108	5,065	4,727	935	526	856	59,217	28	61,591	26.92
Mar	41,541	5,999	3,848	1,414	368	739	53,910	31	73,330	22.79
Apr	39,369	1,937	4,687	1,365	555	656	48,570	30	53,084	27.45
May	35,652	5,353	4,812	1,666	522	659	48,664	31	60,462	24.95
Jun	37,570	2,515	3,483	1,394	621	691	46,276	30	59,355	23.39
Jul	38,735	3,617	3,405	1,359	524	804	48,444	31	58,386	25.72
Aug	50,042	3,346	3,453	1,170	568	728	59,306	31	76,143	24.14
Sep	40,436	4,428	3,779	1,090	394	743	50,871	30	67,115	22.74
Oct	41,941	3,908	4,306	1,504	397	721	52,776	31	56,454	28.98
Nov	38,328	4,018	3,943	1,280	422	628	48,619	30	63,245	23.06
Dec	46,872	3,313	4,312	1,337	473	575	56,882	31	69,871	25.24
TOTAL	506,390	49,229	48,764	15,963	5,937	8,676	634,959	365	764,770	25.36

4

5

[1] This is from a report of all sales from the CIS in the year and does not include any accruals.

2.1.4 Payment Processing and Bank Float

Payments from customers are in the following forms: Remittance Processor Machine (Drop Box), Telepay & Internet, Auto Pay Bank Debit, Pre-Authorized Chequing, Bank Teller, and Cash. Based on the information provided from Hydro Ottawa's payment processing, it was determined that on a weighted average basis, it took 1.15 days in 2009 and 1.13 days in 2010 to clear a customer account.

2.2 Revenues from Services to Retailers

As a licensed electricity distributor, Hydro Ottawa provides services described under the Retail Settlement Code to electricity retailers. As shown previously in Table 1, revenues from services to retailers represent only 0.04% of Hydro Ottawa's annual revenues in 2009 and 0.04% in 2010. The revenue lag is 32.90 and 30.15 days for 2009 and 2010 respectively, the weighted revenue lag from this category is only 0.02 days in 2009 and 0.01 days in 2010. Table 9 shows the details for the service lag, billing lag, collections lag and payment processing and bank float lag.

Table 9 - Revenue Lag from Services to Retailers

Revenue Lag Component	Days	
	2009	2010
Service Lag	15.21	15.21
Billing Lag	0.74	0.58
Collections Lag	16.95	14.36
Payment Processing and Bank Float Lag[1]	-	-
TOTAL	32.90	30.15

[1] Hydro Ottawa recognizes payments from retailers when received by the bank. As a result, the 'Payment Processing and Bank Float Lag' is captured in the Collections Lag.

2.3 Revenues from Other Sources

Revenues from other sources include pole and duct rentals, property rentals and miscellaneous work for other activities. As shown in Table 1, revenues from these sources represent 1.54% of Hydro Ottawa's 2009 revenue, and 1.91% of the 2010 revenue. Therefore, while the revenue lag is 96.16 and 90.51 days for 2009 and 2010 respectively, the weighted revenue lag for 2009 and 2010 under this category is only 1.48 days for 2009 and 1.73 days for 2010. A number of services are billed in advance for the year, which results in a negative billing lag. Table 10 shows the details for the service lag, billing lag, collections lag and payment processing and bank float lag.

Table 10 - Revenue Lag from Other Sources

Revenue Lag Component	Days	
	2009	2010
Service Lag	31.47	23.01
Billing Lag	(24.92)	(14.09)
Collections Lag	88.46	80.46
Payment Processing and Bank Float Lag	1.15	1.13
TOTAL	96.16	90.51

3.0 EXPENSE LEAD (LAG)

Expense lead refers to the number of days between the date that Hydro Ottawa receives goods and services and the date that the company pays for them. Hydro Ottawa's expenses can be divided into five categories:

- Cost of Power,
- Operating, Maintenance, and Administration,
- Interest on Long Term Debts,
- Payments in Lieu of Taxes, and
- Debt Retirement Charges.

Each of the categories above is discussed in detail below.

3.1 Cost of Power

Cost of power includes invoices from the IESO, Hydro One, and embedded generators. Based on the data collected from the invoices recorded in Hydro Ottawa's accounts payable system, it is determined that the weighted average expense lead for 2009 is 33.96 days and for 2010 is 33.67 days. Table 11 shows the details.

Table 11 - Cost of Power Expense Lead[1] ($000)

Vendor	2009				2010			
	Amount	Expense Lead	Weight Factor	Weighted Lead	Amount	Expense Lead	Weight Factor	Weighted Lead
IESO	$547,555	33.15	93.79%	31.09	$593,733	32.88	93.99%	30.91
Hydro One	32,239	49.28	5.52%	2.72	33,461	49.00	5.30%	2.60
Generators	4,029	22.10	0.69%	0.15	4,498	23.58	0.71%	0.17
TOTAL[2]	$583,824		100.00%	33.96	$631,692		100.00%	33.67

3.2 OM&A Expenses

OM&A expenses included within this study consist of the following categories:

- Payroll and Benefit Costs,
- Consulting and Contracts,
- Property Taxes, and
- Miscellaneous OM&A Expenses.

Each type of expense listed above is discussed in detail below and summarized in Table 12 that follows.

[1] Costs in this table are based on invoices in the year without accruals and adjustments normally part of financial statements.
[2] Totals do not equal due to rounding.

3.2.1 Payroll and Benefit Costs[1]

All employees of Hydro Ottawa are paid bi-weekly. Payments are deposited into employees' bank accounts on Thursday for the payroll period ending on Friday of the previous week. Payroll withholdings, as well as the employer's portion of Canadian Pension Plan and Employment Insurance are remitted to Canada Revenue Agency within 3 business days after the payday. Employer Health Tax is remitted on the 15th of each month for the payroll of the previous month. Workers Safety and Insurance Board remittance is made on the last business day of each month for the payroll of the previous month. The group pension plan of Hydro Ottawa is administered by Ontario Municipal Employees Retirement System ("OMERS"). Remittance to OMERS is made on the last business day of each month for the payroll of the previous month. The group insurance plan is administered by Great West Life, and the remittance is made in advance on the last business day of each month for the following month. Hydro Ottawa has an Employee Assistance Program. Payment for this program is made in advance on the last business day of each month for the following month. Based on the above payment patterns, the weighted average expense lead calculated for 2009 is 15.15 days and for 2010 is 15.10 days. Tables 12 and 13 below show the details.

Table 12 – 2009 Payroll and Benefit Expense Lead

Lead (Days)	Payroll and withholdings	Benefits	WSIB	Total
Expense	$46,399,619	$2,989,492	$377,228	$49,766,339
Service Lead	6.28	14.04	14.04	34.36
Payment Lead	10.66	(30.42)	30.42	10.66
Total Lead	16.94	(16.38)	44.46	45.02
Weighting Factor	93.23%	6.01%	0.76%	100.00%
Weighted Lead	15.80	(0.98)	0.34	**15.15**

[1] The payroll and benefit costs here are based on T4 statements, which are cash based. This is different from the total compensation expenses in financial statements, which is accrual based.

Table 13 – 2010 Payroll and Benefit Expense Lead

Lead (Days)	Payroll and withholdings	Benefits	WSIB	Total
Expense	$46,496,277	$3,115,417	$394,118	$50,005,813
Service Lead	6.32	(30.42)	14.04	(10.06)
Payment Lead	10.64	(16.38)	30.42	24.68
Total Lead	16.96	(16.38)	44.46	45.04
Weighting Factor	92.98%	6.23%	0.79%	100.00%
Weighted Lead	15.77	(1.02)	0.35	**15.10**

3.2.2 Consulting and Contracts

Expenses included in this category are on-going contractual expenses Hydro Ottawa has with outside vendors. It includes consulting and contract staff, outside services, rental and lease payments, professional services (legal, audit and consulting), information technology (“IT”) maintenance contracts, telephone lines and airtime, and membership and professional dues, including regulatory assessments. The 2009 and 2010 accounts payable data was retrieved from Hydro Ottawa’s financial system JD Edwards (“JDE”). Each vendor has a payment term in JDE, and the vendor is paid based on that term. Based on this information and the analysis on actual accounts payable data, a weighted payment term is derived for each payment. Generally, vendors are paid between 15 to 30 days after the goods and services are invoiced. As a result of prepaid expenses (e.g. OEB cost assessments, IT maintenance contracts, and insurance), the average expense lead for 2009 is 7.96 days and for 2010 is 7.22 days.

3.2.3 Property Taxes

Property taxes are prepaid twice a year. Based on the actual payments made in 2009 and 2010, the average expense lead for 2009 is a credit of 61.39 days and for 2010 is a credit of 74.83 days.

3.2.4 Miscellaneous OM&A Expenses

All expense not included above are discussed in this category. The method to derive the expense lead for Miscellaneous OM&A expenses is the same as that used for Consulting and Contract Expenses. The weighted average expense lead for 2009 is 23.80 days and for 2010 is 25.13 days.

Based on the above, the overall OM&A expense lead for 2009 is 11.28 days and for 2010 is 11.18 days. Table 14 shows the details.

Table 14 - OM&A Expense Lead ($000)

Vendor	2009				2010			
	Expense Lead (Days)	Amount	Weighting Factor	Weighted Lead (Days)	Expense Lead (Days)	Amount	Weighting Factor	Weighted Lead (Days)
Payroll & Benefits	15.15	$49,766	61.84%	9.37	15.10	$50,006	59.66%	9.01
Consulting and Contracts	7.96	26,895	33.42%	2.66	7.22	28,371	33.85%	2.44
Property Taxes	(61.39)	1,775	2.21%	(1.35)	(74.83)	1,598	1.91%	(1.43)
Misc. OM&A	23.80	2,036	2.53%	0.60	25.13	3,850	4.59%	1.15
Total[1]		**$80,472**	**100.00%**	**11.28**		**$ 83,825**	**100.00%**	**11.18**

3.3 Interest on Long Term Debt

Hydro Ottawa has promissory notes issued to Hydro Ottawa Holding Inc. Table 15 shows the details of the debt. Interest on this long term debt is calculated and paid on a monthly basis. An intercompany journal entry is posted the week following the month the interest is due. The posting goes into the intercompany account and is settled as part of month-end processes by a physical cash transfer. Based on this information, it is determined that the expense lead on interest on long term debts is 45.63 days (service lag 15.21 days, payment lag 30.42 days).

[1] Totals do not equal due to rounding.

Table 15

Date of Debt Issuance	Principal ($)	Interest Rate
1-Jul-05	200,000,000	5.140%
1-Jul-05	32,185,000	5.900%
20-Dec-06	50,000,000	5.318%
21-Dec-09	15,000,000	5.850%
30-Apr-10	15,000,000	5.970%

3.4 Payment in Lieu of Taxes (PILs)

Monthly installments on the current year's PILs are made to the Ontario Electricity Financial Corporation ("OEFC"). A true-up payment is typically made in the following year. The 2009 expense lead on PILs is 13.59 days and the 2010 expense lead on PILs is a credit of 3.31 days. The main reason for the difference between the 2009 and 2010 expense lead is that payments are being made earlier in the month in 2010.

3.5 Debt Retirement Charges ("DRC")

DRC is collected by Hydro Ottawa from its customers to pay down the debt of the former Ontario Hydro. The money is then remitted to the OEFC on a monthly basis. Based on the actual amounts and payment dates of the DRC payments, it is determined that the 2009 expense lead is 33.82 days and the 2010 expense lead is 32.69 days.

3.6 Goods and Services Tax ("GST")

The GST return for Hydro Ottawa is generally remitted on the last day of each month for the previous month. The 2009 and 2010 GST rate is 5%. HST was introduced in 2010, this will be discussed later. The following categories are subject to GST:

- Revenues,
- Cost of Power, and
- OM&A Expenses.

3.6.1 Revenues

Hydro Ottawa is obliged to collect GST from its customers, and then remit the GST amount collected to Canada Revenue Agency on the last day of each month. As discussed in Section 2.0, Hydro Ottawa has three types of revenues. Table 16 and Table 17 show the GST expense lead from each type of revenues. This represents the average difference between the collection date and the GST remittance date.

Table 16 - 2009 GST Expense Lead – Revenues

Revenue	2009 Revenue	5% GST	Lead (Lag) Days	Weight Factor	Weighted Lead (Lag) Days
Revenue from residential and general service customers	$732,196,506	$36,609,825	16.53	98.42%	16.27
Revenues from Retailers	347,827	17,391	24.38	0.05%	0.01
Revenues from Other Sources	11,420,912	571,046	(32.23)	1.54%	(0.49)
TOTAL[1]	$743,965,246	$37,198,262		100.00%	15.78

Table 17 - 2010 GST Expense Lead – Revenues

Revenue	2010 Revenue	5% GST	Lead (Lag) Days	Weight Factor	Weighted Lead (Lag) Days
Revenue from residential and general service customers	$770,833,454	$38,541,673	16.59	98.05%	16.26
Revenues from Retailers	321,152	16,058	16.96	0.04%	0.01
Revenues from Other Sources	15,016,106	750,805	(22.14)	1.91%	(0.42)
TOTAL[2]	$786,170,711	$39,308,536		100.00%	15.85

3.6.2 Cost of Power

Hydro Ottawa pays GST on power purchased from IESO, Hydro One and embedded generators. Hydro Ottawa can then claim and get this GST returned. The GST expense lead is calculated by using the GST return date of Hydro Ottawa, which is the last day of each month, minus the payment date of the power bills. Since the GST is paid upfront

[1] Totals do not equal due to rounding.
[2] Totals do not equal due to rounding.

and then returned, it results in a negative GST lead days. Tables 18 and 19 below show that the GST expense lead on Cost of Power is a negative lead of 41.74 days for 2009, and is a negative lead of 41.91 days for 2010.

Table 18 – 2009 GST Expense Lead – Cost of Power

Vendor	2009				
	Expense	GST Amount	GST Lead (Lag)	Weight Factor	Weighted Lead
IESO	$547,555,259	$27,377,777	(42.92)	93.79%	(40.25)
Hydro One	32,239,309	1,611,273	(23.75)	5.52%	(1.31)
Generators	4,028,998	201,450	(25.58)	0.69%	(0.18)
TOTAL	$583,823,566	$29,190,500		100.00%	(41.74)

Table 19 – 2010 GST Expense Lead – Cost of Power

Vendor	2010				
	Expense	GST Amount	Expense Lead	Weight Factor	Weighted Lead
IESO	$593,732,971	$54,440,066	(43.17)	94.04%	(40.60)
Hydro One	33,461,357	3,052,095	(23.17)	5.27%	(1.22)
Generators	4,498,036	395,646	(13.93)	0.68%	(0.10)
TOTAL[1]	$631,692,364	$57,887,806		100.00%	(41.91)

3.6.3 OM&A Expenses

GST is generally charged on general and administration expenses, as well as miscellaneous OM&A expenses. The weighted average GST expense lead on OM&A expenses for 2009 is negative 21.40 days, and for 2010 is negative 21.05 days.

Combining the three categories of GST expenses, Hydro Ottawa's 2009 and 2010 GST cost is approximately $1.8 million and $2.0 million respectively. Table 20 and Table 21 show the details.

[1] Totals do not equal due to rounding.

Table 20 - 2009 GST Expense Lead

GST Category	2009 Expenses	5% GST	Net Lead (Lag) Days	GST Cost (Benefit)
	A	B = A*5%	C	D = B*C/365
Revenue	($745,535,000)	($37,276,750)	15.78	($1,611,771)
Cost of Power	587,958,000	29,397,900	(41.74)	3,361,757
OM&A	28,931,185	1,446,559	(21.40)	84,810
TOTAL	($128,645,815)	($6,432,291)	(47.36)	$1,834,796

Table 21 - 2010 GST Expense Lead

GST Category	2010 Expenses	5% GST	Net Lead (Lag) Days	GST Cost (Benefit)
	A	B = A*5%	C	D = B*C/365
Revenue	($785,652,000)	($39,282,600)	15.85	($1,705,524)
Cost of Power	621,842,000	31,092,100	(41.91)	3,570,256
OM&A	32,221,042	1,611,052	(21.05)	92,931
TOTAL[1]	($131,588,958)	($6,579,448)	(47.12)	$1,957,663

4.0 WORKING CAPITAL REQUIREMENTS

Based on the revenue lag and expense lead information above, the 2009 working capital requirement is approximately $87 million, or approximately 13.6% of Hydro Ottawa's total OM&A expenses plus cost of power. The 2010 working capital requirement is approximately $93 million, or 13.7% of the total OM&A expenses plus cost of power. The average working capital requirement between 2009 and 2010 is approximately 13.7% of Hydro Ottawa's total OM&A expenses plus cost of power. Table 22 and Table 23 show the details.

[1] Totals do not equal due to rounding.

Table 22 – 2009 Working Capital Requirement

Expense Item Description	Revenue Lag (Days)	Expense Lead (Days)	Net Lag (Lead) Days	Working Capital Factor	Expenses from Financial Statements	Working Capital Requirement
	A	B	C = A-B	D = F/E	E	F = E*C/365
Cost of Power	75.23	33.96	41.27	11.31%	587,958,000	66,553,416
OM&A Expenses	75.23	11.28	63.95	17.52%	53,828,665	9,437,984
Interest on Long Term Debts	75.23	45.63	29.61	8.11%	14,642,000	1,189,447
PILs	75.23	13.59	61.64	16.89%	13,920,000	2,352,513
Debt Retirement Charges	75.23	33.82	41.41	11.35%	52,464,792	5,958,922
Sub-Total[1]					722,813,456	85,492,282
GST					6,432,291	1,834,796
TOTAL (Including GST)[2]					729,245,747	87,327,078
Working Capital as a % of OM&A plus Cost of Power						**13.6%**

Table 23 – 2010 Working Capital Requirement

Expense Item Description	Revenue Lag (Days)	Expense Lead (Days)	Net Lag (Lead) Days	Working Capital Factor	Expenses from Financial Statements	Working Capital Requirement
	A	B	C = A-B	D = F/E	E	F = E*C/365
Cost of Power	75.25	33.67	41.57	11.39%	621,842,000	70,829,601
OM&A Expenses	75.25	11.18	64.07	17.55%	54,948,488	9,644,966
Interest on Long Term Debts	75.25	45.63	29.62	8.12%	15,542,000	1,261,309
PILs	75.25	(3.31)	78.56	21.52%	13,773,000	2,964,271
Debt Retirement Charges	75.25	32.69	42.55	11.66%	52,701,411	6,143,941
SUBTOTAL					758,806,899	90,844,088
GST					6,579,448	1,957,663
TOTAL (Including GST)					765,386,347	92,801,751
Working Capital as a % of OM&A plus Cost of Power						**13.7%**

[1] Totals do not equal due to rounding.
[2] Totals do not equal due to rounding.

5.0 MATERIAL CHANGES FOR 2012

5.1 Harmonized Sales Tax

HST was implemented in 2010. In order to compare 2009 and 2010 on the same basis, HST was not included in 2010 numbers and a Provincial Sales Tax ("PST") adjustment was made where appropriate[1]. In Table 24 and 25 below, the WCA for 2009 and 2010 is recalculated based on a 13% HST.

Table 24 – 2009 Working Capital Requirement Adjusted for HST

Expense Item Description	Revenue Lag (Days)	Expense Lead (Days)	Net Lag (Lead) Days	Working Capital Factor	Expenses from Financial Statements	Working Capital Requirement
	A	B	C = A-B	D = F/E	E	F = E*C/365
Cost of Power	75.23	33.96	41.27	11.31%	587,958,000	$66,553,416
OM&A Expenses	75.23	11.28	63.95	17.52%	53,828,665	9,437,984
Interest on Long Term Debts	75.23	45.63	29.61	8.11%	14,642,000	1,189,447
PILs	75.23	13.59	61.64	16.89%	13,920,000	2,352,513
Debt Retirement Charges	75.23	33.82	41.41	11.35%	52,464,792	5,958,922
Sub-Total[2]					722,813,456	85,492,282
HST					16,723,956	4,770,470
Capital Expense[3]				(21.40)[4]	45,932,777	350,088
TOTAL (Including HST)[5]					785,470,189	90,612,840
Working Capital as a % of OM&A plus Cost of Power						**14.1%**

[1] The PST adjustment was calculated from July to December 2010 on a transactional level.
[2] Totals do not equal due to rounding.
[3] Capital expense HST impact.
[4] OM&A GST net lead (lag) days.
[5] Totals do not equal due to rounding.

Table 25 – 2010 Working Capital Requirement Adjusted for HST

Expense Item Description	Revenue Lag (Days)	Expense Lead (Days)	Net Lag (Lead) Days	Working Capital Factor	Expenses from Financial Statements	Working Capital Requirement
	A	B	C = A-B	D = F/E	E	F = E*C/365
Cost of Power	75.25	33.67	41.57	11.39%	$621,842,000	$70,829,601
OM&A Expenses	75.25	11.18	64.07	17.55%	54,948,488	9,644,966
Interest on Long Term Debts	75.25	45.63	29.62	8.12%	15,542,000	1,261,309
PILs	75.25	(3.31)	78.56	21.52%	13,773,000	2,964,271
Debt Retirement Charges	75.25	32.69	42.55	11.66%	52,701,411	6,143,941
Sub-Total					758,806,899	90,844,088
HST					17,106,564	5,089,924
Capital Expense				(21.05)[1]	50,050,932	375,325
TOTAL (Including HST)					$825,964,395	$96,309,337
Working Capital as a % of OM&A plus Cost of Power						**14.2%**

6.0 OTHER CONSIDERATIONS

6.1 Time of Use ("TOU") Rates

No impacts have been considered for the implementation of TOU rates.

6.2 Monthly Billing

Hydro Ottawa will be changing to monthly billing. This would provide a common billing frequency for all customers. The shorter timeframe between bills would reduce the size of bills to help customers better manage payments. This would also provide a more direct line of sight between consumption and billing to help customers understand and manage their usage. No adjustment has been made to the WCA in this regard as the impact of changing to monthly billing will not be seen until 2013.

[1] OM&A GST net lead (lag) days.

7.0 CONCLUSIONS

For the purposes of this rate application, Hydro Ottawa is proposing to use an average of the WCA from 2009 and 2010, adjusted for the HST. Table 26 shows the details.

Table 26 – Working Capital Allowance for Test Year

	2009	2010	Average
Working Capital as a percent of Cost of Power and OM&A	14.1%	14.2%	14.2%

In Exhibit B4-1-1, this WCA of 14.2% is applied to the forecast OM&A and cost of power for 2012 to determine the working capital requirement included in the 2012 rate base.

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June 3, 2011

Ms. Jane Scott
Hydro Ottawa Limited
3025 Albion Road North
PO Box 8700
Ottawa, Ontario, K1G3S4

Sent by e:mail: janescott@hydroottawa.com

Dear Ms. Scott:

Navigant was retained by Hydro Ottawa Limited ("HOL" or "the Company") to perform an independent review of its lead lag study supporting its request for a working capital allowance from the Ontario Energy Board ("OEB" or "the Board"). The purpose of this letter is to present the results of our review of HOL's analysis on working capital requirements dated June 2011.

Based on our review, we conclude that the HOL analysis is:

- **Complete**, in terms of revenue and expense items considered.
- Generally **consistent**, in terms of methods used with other studies that have been presented before the OEB by Horizon Utilities ("Horizon"), Hydro One Networks ("HONI") and Toronto Hydro Electric System Limited ("THESL").

Our conclusion therefore, is that the result of HOL's analysis – a request to the Board for 14.2% of Operations, Maintenance, and Administration ("OM&A") expenses including cost of power – is **reasonable** for two reasons: a) it represents a working capital requirement as evidenced by the Company's 2009-10 operations and, b) it is based on a study that is comparable in terms of approach, though not necessarily its result which by definition is HOL specific, with those supporting other such requests that have been historically accepted by the OEB.

Summary of the HOL Analysis dated June 2011

In its analysis dated June 2011, the Company has identified a working capital requirement of 14.2% of OM&A expenses including cost of power. The approach taken by the Company was to utilize actual experience from 2009 and 2010 in order to determine an average percent of OM&A expense including cost of power represented by working capital. The result, i.e., 14.2%, has then been applied to the Company's 2012 estimate of OM&A expenses including cost of power to determine the amount of working capital to include in its regulated rate-base. The derivation of the 14.2% working capital percentage is shown in Table 1 below.

Table 1: Derivation of the Working Capital Percentage[1]

Line	Description	2009 Revenue Lag Days	2010 Revenue Lag Days	2009 Expense Lead Days	2010 Expense Lead Days	2009 Net Lag (Lead) Days	2010 Net Lag (Lead) Days	2009 Working Capital Factor	2010 Working Capital Factor	2009 Amounts $M	2010 Amounts $M	2009 WCA - $M	2010 WCA - $M
	(A)	(B)	(C)	(D)	(E)	(F) = (B) - (D)	(G) = (C) - (E)	(H) = (F)/365	(I) = (G)/365	(J)	(K)	(L) = (H) X (J)	(M) = (I) X (K)
1	Cost of Power	75.3	75.2	34.0	33.7	41.3	41.6	11.32%	11.39%	588.0	621.8	66.6	70.8
2	OM&A Expenses	75.3	75.2	11.3	11.2	64.0	64.1	17.53%	17.55%	53.8	54.9	9.4	9.6
3	Interest on Long Term Debt	75.3	75.2	45.6	45.6	29.7	29.6	8.12%	8.12%	14.6	15.5	1.2	1.3
4	PILs	75.3	75.2	13.6	(3.3)	61.7	78.6	16.90%	21.52%	13.9	13.8	2.4	3.0
5	Debt Retirement Charges	75.3	75.2	33.8	32.7	41.5	42.6	11.36%	11.66%	52.5	52.7	6.0	6.1
6	HST											5.1	5.5
7	Total											90.6	96.3
8	Average WCA as a % of OM&A Including Cost of Power											**14.2%**	

The Company has considered its three major sources of revenues in its study: a) from residential and business customers, b) from retailers, and c) from other sources. Considered together and on a dollar-weighted basis, the Company's analysis indicates that the revenue lag is 75.3 days for 2009 and 75.2 days for 2010 respectively. The information is summarized in Table 2 below.

Table 2: Derivation of Overall Revenue Lag Days[2]

Source of Revenues	2010				2009				Weighted Average Days
	Revenue Lag (Days)	**Amount $s**	**Weighting Factor**	**Weighted Revenue Lag Days**	**Revenue Lag (Days)**	**Amount $s**	**Weighting Factor**	**Weighted Revenue Lag Days**	
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Residential and Business	74.97	770,833,454	98.05%	73.51	74.97	732,196,506	98.42%	73.78	
Retailers	30.15	321,152	0.04%	0.01	32.90	347,827	0.05%	0.02	
Other Sources	90.51	15,016,106	1.91%	1.73	96.16	11,420,912	1.54%	1.48	
Total		786,170,711	100.00%	75.2		743,965,246	100.00%	75.3	
Weighted Average 2009-2010		51.4%		75.2		48.6%		75.3	75.3

The majority of the Company's revenues in 2009 and 2010 were from residential and business customers (98% or more). The average lag time, i.e., the average of 2009 and 2010, associated with the realization of these revenues was 74.97 days consisting of a service lag time of 30.24 days, a billing lag time of 18.17 days, a collections lag time of 25.41 days, and finally, a payment processing lag time of about 1.14 days.

[1] Note that we have not conducted an independent evaluation of the amounts shown in Cols (J) and (K) of Table 1 and as such cannot render an opinion on such amounts.

[2] Note that we have not conducted an independent evaluation of the amounts shown in Cols (C) and (G) of Table 2 and as such cannot render an opinion on such amounts.

In terms of expenses and as shown on Table 1, the Company has considered the suite of major expense items driving working capital in its study. These include:

- The Cost of Power associated with purchases from the Ontario Independent System Operator ("IESO"), Hydro One Networks, and other embedded generators
- OM&A expenses
- Interest expense
- The Debt Retirement Charge (or "DRC")
- Payments in Lieu of Taxes ("or PILs") and,
- The Harmonized Sales Tax (or "HST")

The expense lead time associated with the two major drivers of working capital requirement, i.e., cost of power and OM&A expenses, have been estimated to be on average, 33.8 days and 11.2 days respectively. These are averages for 2009 and 2010 respectively and are the result of giving full consideration, where applicable, to both the mid-point method and dollar-weighting. Other drivers of working capital that have been considered by the Company and quantified include interest on long term debt (45.6 days), the debt retirement charge (33.3 days), and PIL's (5.1 days). Again, these are averages for 2009 and 2010 respectively and consider, where applicable, the use of both the mid-point method and dollar-weighting. Finally, the Company estimates that the working capital requirement associated with the HST represents approximately 0.80% of the Company's OM&A expenses including the cost of power. This working capital requirement is driven by timing differences between collections from and remittances to Revenue Canada of the HST and is calculated on a statutory basis.

It should be noted that within OM&A expenses, HOL has considered the following major components in its analysis:

- Payroll and Benefits including the Canada Pension Plan, Employment Insurance, Payments on account of the Workers Safety Improvement Board (or "WSIB"), the Ontario Municipal Employment Retirement System (or "OMERS"), the Employer Health Tax (or "EHT") and various categories of health and welfare benefits provided by the Company to its employees.
- Payments made to Consulting and Contract Staff
- Payments on account of Property Taxes, and
- Miscellaneous OM&A.

Considered together and on a dollar-weighted basis, the expense weighted lead time for OM&A expenses is 11.2 days on average for 2009 and 2010.

Discussion
Any assessment of the working capital requirements of a regulated electric distributor such as HOL based on a lead-lag study would, at a minimum, require the following two criteria to be addressed:

- Completeness. The completeness of a study on working capital requirements depends on the breadth of payment and receipt items considered. The wider the breadth of items considered, the clearer the picture of the working capital requirements of a business such as HOL.

- Consistency, in terms of methodology with other such studies that have been accepted by the Board. As defined here, consistency would entail selecting between actual data or statutory approaches when quantifying revenue lag and expense lead times. The use of the mid-point methodology and the application of dollar-weighting where appropriate would also be factors to consider.

The Company's study has considered a broad spectrum of revenue and expense items including the cost of power. Major items relating to the day to day operations of the Company (OM&A) such as payroll and benefits, consulting and contract staff related expenses, WSIB payments, property taxes, and PIL's have been included in the analysis thereby enhancing its completeness. Additionally, the Company has taken into consideration interest expense payments, debt retirement charge payments, and HST pass-through's when calculating its working capital requirements. The expense categories are wide enough in terms of the breadth of the Company's operations to be a snap-shot of how the Company does business on a daily basis. Thus, it would be reasonable to conclude that the working capital study performed by HOL is **complete** in terms of items that have been considered including the two key ones, i.e., OM&A expenses and cost of power.

Is HOL's study **consistent** with other studies that have been accepted by the Board? By and large, yes. The Company has prudently used a combination of actual data and statutory approaches for the determination of revenue lags and/or expense lead times while at the same time giving due consideration, where appropriate, to the use of both the mid-point method and Dollar-Weighting in its calculations. Consider, for instance, the key features of how HOL calculated the revenue lag associated with providing bundled service to its residential and small business customers, i.e., the majority of its revenues:

- The Company has used a customer-weighting approach in its calculation of the service lag component. This is consistent with prior studies that have been either filed with and/or accepted by the OEB.[3]
- The Company's estimate of the Billing lag, while HOL specific, is based on methods and constraints similar to those which have been used by HONI, THESL, and Horizon in their distribution rate applications.
- In terms of calculating its collections lag however, the Company has conservatively elected to use a simple Days of Sales Outstanding ("DSO", or average accounts receivable turnover) method for calculating its collections lag time. Had HOL elected to perform a more rigorous sales-weighted or true DSO analysis, we believe that the result would have been a collections lag time higher than the 25.41 days used by the Company here. Note that the 25.41 days is an average of 2009 and 2010. In the alternative, had the Company elected to use a mid-point method as a proxy for either a sales weighted or true DSO analysis, the result would still have been higher, and more representative of actual

[3] See EB-2005-0378, EB-2007-0680, EB-2009-0096, and EB-2010-0131.

collections, compared with the simple DSO analysis it elected to use. In this respect, the Company's result of 14.2% of OM&A including cost of power is conservative.

- HOL's payment processing lag time of 1.14 days, while HOL specific, has been calculated in a manner generally consistent with that used by Horizon and THESL in their last distribution rate applications.
- HOL's revenue lag result considering all sources of revenues (75.3 days on average for 2009 and 2010) is the result of dollar-weighting as shown on Table 2.

Focusing on the calculation of expense lead days, HOL has aptly calculated the expense lead times associated with cost of power, payroll and benefits, consulting and contract staff, miscellaneous OM&A expenses, interest expense, PILs, and the Debt Reduction Charge giving due consideration to both the mid-point method and dollar-weighting where actual data has been used. The expense lead time associated with HST on the other hand, has been calculated using a statutory approach, i.e., payments or receipts are due on the last day of the month following the date on an invoice. Both these approaches are consistent with that used by Horizon, HONI, and THESL in their last distribution rate applications before the Board.

In conclusion, the methods used for calculating both revenue lags and expense leads in the HOL study are, for practical purposes, identical to and therefore, consistent with those used in the Horizon, HONI, and THESL studies filed with or accepted by the OEB. We conclude therefore that HOL's study is **consistent,** in terms of methodology, with current practice for electricity distributors in the province of Ontario.

For the various reasons discussed above, we conclude that HOL's result in terms of its request for working capital, i.e., 14.2% of OM&A expenses including the cost of power, is **reasonable**. It represents a working capital requirement as evidenced by the Company's 2009-10 operations and is based on a study that is comparable in terms of approach, though not necessarily its result which by definition is HOL specific, with those supporting other such requests that have been historically accepted by the OEB.

Jane, it has been my pleasure to support you on this important project. Please let us know if you require our assistance on similar endeavors in the future.

Sincerely,

Nagendra S. Krishna

Nagendra ("Subba") Subbakrishna
Associate Director, Energy

2. RATE BASE

Issue 2.2 - Is the working capital allowance for the test year appropriate?

Board Staff Question #10 - Ref: Exh B4-2-1, p20

The evidence states that Hydro Ottawa will be changing to monthly billing for all customer classes in 2013. No adjustment has been made to the WCA in this regard as the impact of changing to monthly billing will not be seen until 2013. What is the expected impact on WCA when monthly billing is fully implemented?

Response

When monthly billing is fully implemented, Hydro Ottawa Limited's residential and general service customers' service lag will change from 30.24 days to 15.21 days. Using Hydro Ottawa's current lead-lag study as a base, this would result in a WCA of 9.6%, a decrease of 4.6%.

Hydro Ottawa plans to revisit its WCA once monthly billing has been fully implemented.

Please refer to Exhibit K2-2-19 (VECC # 17) for additional information on Hydro Ottawa's monthly billing plans.

2. RATE BASE

Issue 2.2 - Is the working capital allowance for the test year appropriate?

Board Staff Question #11 - Ref: Exh B4-2-1, p4; Ref: Horizon Utilities Corporation EB-2010-0131 (BS #11)

Hydro Ottawa's study uses a service lag of 30.24 days based on a weighting of the average number of customers. The recent Horizon Utilities proceeding determined that it was more appropriate to determine service lag on the basis of distribution revenues.

a) Please provide any concerns Hydro Ottawa has with the determination of service lag on the basis of distribution revenue.
b) Please determine the impact on WCA when service lag is determined on the basis of distribution revenue.

Response

a) It is not Hydro Ottawa Limited's belief that the recent Horizon Utility proceeding determined that the service lag was more appropriately based on distribution revenue.

b) When using distribution revenue as the basis for weighting the service lag for residential and general service customers it changes from 30.24 days in 2009 and 2010 to 25.7 days in 2009 and 25.66 days in 2010. This would result in a 0.5% decrease to the WCA, from 14.2% to 13.7%.

2. RATE BASE

Issue 2.2 - Is the working capital allowance for the test year appropriate?

<u>Energy Probe Question #15 - Ref: Exhibit B4, Tab 2, Schedule 1</u>

a) Please provide a revised Table 3 and Table 4 that uses sales dollars as the weighting factor to calculate the service lag in the same way billing lag is calculated in Tables 5 and 6.

b) Please show the calculations used to determine the Days Sales Outstanding in Tables 7 and 8. In particular, please show the calculation of 26.38 days in Table 7 in the month of January and the assumptions used.

c) Please provide a version of Tables 7 and 8 that calculates the collection lag in both years separately for the customers that are billed monthly and for the customers that are billed bi-monthly.

d) Please show the calculation of the number of days for each the forms of payment processing noted on page 8 for 2009 and 2010, along with the weighting assigned to each form in each of 2009 and 2010 that was used to calculate the weighted average of 1.15 days in 2009 and 1.13 days in 2010.

e) Please provide the data, assumptions and calculations used to calculate the each of the lags shown in Table 10.

Response

a) Please find Table 3 and 4 of Exhibit B4-2-1 with sales dollars as the weighting factor. Please note that weighting by sales dollars has not been the generally accepted method for service lag.

Table 3 - 2009 Service Lag – Residential and General Service Customers

Customer Type	Average # of Customers	Frequency of Meter Read	Mid Point of Service Period	Customer Weight	Service Lag
Residential	252,919,083	Bi-monthly	30.42	34.54%	10.51
General Service < 50 kW	77,002,452	Bi-monthly	30.42	10.52%	3.2
GS 50 – 1,499 kW	272,554,577	Monthly	15.21	37.22%	5.66
GS 1,500 – 4,999 kW	72,377,217	Monthly	15.21	9.89%	1.5
Large Users	53,233,888	Monthly	15.21	7.27%	1.11
Street Lighting	3,613,935	Monthly	15.21	0.49%	0.08
Unmetered Scattered Load	495,355	Monthly	15.21	0.07%	0.01
TOTAL	732,196,506			100.00%	22.07

Table 4 - 2010 Service Lag – Residential and General Service Customers

Customer Type	Average # of Customers	Frequency of Meter Read	Mid Point of Service Period	Customer Weight	Service Lag
Residential	267,560,504	Bi-monthly	30.42	34.71%	10.56
General Service < 50 kW	82,536,260	Bi-monthly	30.42	10.71%	3.26
GS 50 – 1,499 kW	283,209,918	Monthly	15.21	36.74%	5.59
GS 1,500 – 4,999 kW	73,990,275	Monthly	15.21	9.60%	1.46
Large Users	59,628,830	Monthly	15.21	7.74%	1.18
Street Lighting	3,935,758	Monthly	15.21	0.51%	0.08
Unmetered Scattered Load	(28,092)	Monthly	15.21	0.00%	0
TOTAL	770,833,454			100.00%	22.13

b) The Days Sales Outstanding ("DSO") in Tables 7 and 8, of Exhibit B4-2-1, is based on data from Hydro Ottawa Limited's ("Hydro Ottawa") customer information system ("CIS"). It gathers all receivables not yet paid and determines how long the receivables have been outstanding. For example, if the customer invoice is billed January 30, 2009 and the report is run January 31 the receivable would go into the 1-17 days DSO bucket. No additional calculations on the bucket data was preformed other than to summarise it in Tables 7 and 8.

The total column adds each bucket to get the total DSO for that month. Using January 2009 as the example, dollars are in thousands:

44,143 + 4,980 + 5,024 + 1,502 + 830 + 984 = 57,465[1]

[1] Totals is out due to rounding

Ontario Energy Board

Commission de l'énergie de l'Ontario

Ontario

EB-2011-0054

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, (Schedule B);

AND IN THE MATTER OF an application by Hydro Ottawa Limited for an order approving or fixing just and reasonable rates and other charges for the distribution of electricity to be effective January 1, 2012.

BEFORE: Marika Hare
Presiding Member

Ken Quesnelle
Member

DECISION AND ORDER

(Original December 28, 2011, as corrected December 30, 2011)

BACKGROUND

Hydro Ottawa Limited ("Hydro Ottawa" or the "Applicant") filed an application (the "Application") with the Ontario Energy Board (the "Board") on June 17, 2011. The Application was filed under section 78 of the *Ontario Energy Board Act, 1998*, S.O 1998, c. 15 (Schedule B) (the "Act"), seeking approval for changes to the rates that Hydro Ottawa charges for electricity distribution to be effective January 1, 2012. The Board assigned the Application file number EB-2011-0054.

issues as filed, but requested full reference to the evidence and interrogatories. The document, compliant with the Board request, was re-filed on November 10, 2011.

The Settlement Agreement filed on November 1, 2011 and approved by the Board is provided at Appendix A to this Decision. The Supplementary Settlement Agreement filed on November 10, 2011 is provided at Appendix B to this Decision.

The Board's findings with respect to the issues that were not settled are set out below. Hydro Ottawa's Application was completed on a Canadian Generally Accepted Accounting Principles ("CGAAP") basis, and included a final exhibit that converted the results of the application to MIFRS. Unless otherwise noted, the references below are on a CGAAP basis.

RATE BASE

2.1 Is the proposed rate base for the test year appropriate?

2.2 Is the working capital allowance for the test year appropriate?

As updated on September 14, 2011, Hydro Ottawa proposed a rate base for 2012 in the amount of $669.1 M on a CGAAP basis and $670.6 M on a MIFRS basis. Hydro Ottawa and the participating intervenors agreed on the capital expenditure forecast for 2012. Agreement was not reached on the working capital allowance and the capitalization policy and allocation procedure. The latter is discussed in the MIFRS section of this Decision.

Working Capital Allowance

Hydro Ottawa has proposed a working capital allowance ("WCA") factor of 14.2% of the sum of the cost of power and controllable expenses. As noted in the Application, the WCA requirement is $106.0 M.

In its previous 2008 Cost of Service application, a WCA factor of 12.5% was accepted as part of the Settlement Agreement approved by the Board in its Decision and Order (EB-2007-0713). In this Application, the 14.2% WCA factor was derived as a result of a lead-lag study prepared by Hydro Ottawa and reviewed by Navigant Consulting Inc. ("Navigant").

Energy Probe made detailed submissions that are summarized below. CCC, SEC and VECC supported the submissions of Energy Probe.

Service Lag
During the oral hearing it was confirmed that, while revenue weighting is used for most components of the lead-lag study, customer weighting is used to estimate the service lag.

Board staff submitted that customer weighting overestimates the service lag and that revenue weighting is appropriate. Board staff referred to Energy Probe's cross-examination. That cross-examination reviewed an example in which the service lag based on revenue-weighting was unchanged even when the billing cycles for different customer classes were reversed. Board staff acknowledged that the demand and associated revenues of customers within a class with a common billing cycle (i.e. every month or every two months) is not taken into consideration for the service lag, but noted that most revenues are from customers on monthly billing cycles, while the customer-weighting of the service lag is largely determined by the residential class currently on bi-monthly billing.

Energy Probe submitted that, based on the response to Energy Probe interrogatory #15, a service lag based on revenue weighting would be lower by 8 days and would reduce the WCA factor to less than 12%.[1]

Hydro Ottawa replied that customer weighting is more appropriate because it more closely reflects the time between the service being provided and reading of the meter, and that prior to meter readings and a price from the IESO, revenue has not yet been considered. Further, Hydro Ottawa stated that adjustments would need to be made to other components to use revenue weighting in order to be consistent in the analysis.

Collection Lag
Hydro Ottawa used the Days Sales Outstanding ("DSO") approach to determine collection lag. During the oral hearing, the witness from Navigant stated that the use of DSO is an industry standard. Energy Probe submitted that Hydro Ottawa's calculation of collection lag should be rejected as it does not take into account the age of the receivables. Energy Probe suggested that 11.5 days should be the mid-point for the first bucket of receivables. Hydro Ottawa used 16 days, which Navigant stated is the period prescribed by the Board in the Distribution System Code. Based on responses to undertakings (LT1.2 and L1.3) and a mid-point of 11.5 days for the first bucket,

[1] Exh K2-2-5

Energy Probe submitted that the revenue lag should be reduced by a further 2.28 days and that the WCA factor should be 11.0%. This would result in a rate base reduction of $24.0 M.

Hydro Ottawa disagreed with Energy Probe's submission, stating that some customers will be late or may never pay, the analysis is based on the premise that customers generally wait as long as possible to pay, and the approach is consistent with that used in the rest of the WCA determination – including Hydro Ottawa's payment of suppliers.

Comparison with Other Utilities

Recognizing that comparisons with other utilities are not definitive in themselves, Board staff observed that Hydro Ottawa's proposed WCA factor of 14.2% is higher than the 11.9% approved for Hydro One Networks Inc., 12.9% for Toronto Hydro-Electric System Limited ("THESL") and 13.5% approved for Horizon. In light of Board staff's submission that the customer weighting of the service lag results in an upwardly biased WCA factor, Board staff submitted that a WCA factor within the range of THESL and Horizon may be more appropriate. Energy Probe noted that the Board approved WCA factor for Horizon was virtually identical to that suggested by Energy Probe. However, Horizon differs from Hydro Ottawa as Hydro Ottawa has a larger proportion of bi-monthly billed customers.

Hydro Ottawa replied that the Horizon decision is not an endorsement of revenue weighting of service lag, noting that the Horizon decision approved a 13.5% WCA factor rather than a 13.0% WCA factor that would have resulted from revenue weighting. Hydro Ottawa also observed that the Horizon decision stated that the WCA failed to include the impact of smart meters in reducing WCA. Hydro Ottawa stated that smart meters do not impact the WCA in its Application because there is a dependence on receipt of the IESO pricing. Hydro Ottawa submitted that the proposed 14.2% WCA factor is more consistent with the WCA factor approved for other utilities than the 11.0% proposed by Energy Probe.

Proposed WCA Factor

Hydro Ottawa reviewed Energy Probe's determination of the 11.0% WCA factor in undertaking L1.2. Hydro Ottawa argued that it would be more accurate to first separate customers into monthly and bi-monthly groups and that if the service lag were to be revenue weighted that all components of the revenue lag should be revenue weighted also. Hydro Ottawa determined a WCA factor of 14.4% using this methodology, but asserted that the 14.2% in its application is the most appropriate WCA factor. Energy Probe submitted that the methodology for the determination of the 14.4% had not been tested.

Hydro Ottawa's proposed 14.2% WCA factor is below the default value of 15% established by the Board for utilities that do not file a lead-lag study. Hydro Ottawa observed that the Board has not approved a WCA factor that approaches 11.0%, and that the Energy Probe proposal is based on only two elements of the WCA calculations without regard to circumstances and the use of an internally consistent approach.

Hydro Ottawa agreed that the WCA should be recalculated to reflect the updated cost of power and approved OM&A.

Monthly Billing

Finally, as Hydro Ottawa plans to move to monthly billing in late 2013 for all its customers, Energy Probe submitted that Hydro Ottawa should be directed to file an updated lead-lag study in its next cost of service application. Hydro Ottawa replied that it intends to file an updated lead-lag study with its next cost of service application, but does not agree that direction from the Board is necessary or appropriate.

Board Findings

Energy Probe has identified several issues with Hydro Ottawa's lead-lag study, however, the Board notes that these issues relate to only two elements of the WCA factor determination. The Board finds that the 11.0% WCA factor proposed by Energy Probe is too low when compared with Hydro One Networks, Horizon and THESL, and this may be the result of changing only two elements in isolation.

In the Horizon proceeding, EB-2010-0131, the Board found that the operational impacts of smart meters and TOU pricing should have been considered in the WCA determination. As a result, the Board directed that a 13.5% WCA factor be used which was also closer to the range of the WCA factor used by Hydro One Networks and THESL than the 14.0% proposed by Horizon.

Hydro Ottawa did consider smart meters and provided the view that they will have no impact on cash flow. This view was not successfully challenged during this proceeding and the Board therefore does not believe the comparability to Horizon to be sufficient to draw a conclusion. While at the same time noting that this argument has not been fully tested by Board staff and the interveners, the Board is prepared to accept it for now. The Board however, directs that Hydro Ottawa prepare a new lead-lag study for its next cost of service application to reflect the move to monthly billing at the end of 2013. This will allow further examination of the differences in approaches at that time. The Board further notes that it has made this finding with an awareness that the default for Hydro Ottawa for the 2012 year might have been to use the default WCA factor of 15%.

In conclusion, the Board accepts 14.2% as the WCA factor. The determination of working capital is subject to adjustments the Board has determined are appropriate for OM&A.

LOAD FORECASTING AND OPERATING REVENUE

3.1 Is the load forecast methodology including weather normalization appropriate?
3.2 Are the proposed customers/connections and load forecasts (both kWh and kW) for the test year appropriate?
3.4 Is the proposed forecast of test year throughput revenue appropriate?

The customer/connection count for the test year, the impact of CDM on the load forecast, and demand sales were agreed to by Hydro Ottawa and the participating intervenors. Agreement was not reached on energy sales.

Hydro Ottawa used a statistical modeling software program from Itron Inc. to develop its system energy forecast. The model forecast a test year system energy of 8,030 GWh based on historical systems purchases, weather data and GDP data.

The forecast system energy was adjusted by a loss factor to derive a billed load forecast. As noted in Technical Conference undertaking LT2.6, Hydro Ottawa is seeking Board approval for a test year billed load forecast before adjustments of 7,753 GWh. This represents a 1.44% increase from 2010 actual billed load.

Class sales forecast models were also created. The results of these models, totaling 7,880 GWh, were calibrated to the loss adjusted system energy forecast of 7,753 GWh.

Board staff considered the billed sales forecast and compared it with the 2010 normalized actual year load and the growth trend for the period 2005 to 2010. Board staff submitted that the system energy forecast of 7,753 GWh was appropriate.

WORKING CAPITAL (LEAD-LAG STUDY)

1.0 INTRODUCTION

Working capital is the amount of funds required to finance the day-to-day operations of a regulated utility and is included as part of rate base for ratemaking purposes. The determination of working capital relies on a lead-lag study.

In 2009, Hydro One commissioned Navigant to carry out a lead-lag study. In the OEB's EB-2009-0096 Decision with Reasons, the OEB accepted the results of the Navigant lead-lag study. In 2013, Hydro One commissioned Navigant to conduct an updated lead-lag study which is included in Exhibit D1, Tab 1, Schedule 3, Attachment A (entitled Working Capital Requirements of Hydro One Networks' Distribution Business – dated December 3, 2013).

2.0 SUMMARY

Hydro One Distribution's net cash working capital requirement for the 2015 test year is $236.2 million or 7.4% of OM&A ($564.3M) and Cost of Power expenses ($2,626.9M). Applying the same formula the remaining test years are: 2016 - 7.4%; 2017 - 7.5%; 2018 - 7.5% and 2019 - 7.6%. Table 1 summarizes the net cash working capital requirements determined by using the lead/lag days from the Navigant study filed in Exhibit D1, Tab 1, Schedule 3, Attachment 1 to reflect the 2015 and 2019 test year revenues, expenses and HST amounts (Table 2).

The methodology used to determine the net working cash required is based on the Navigant study that was accepted by the OEB and updated as part of this filing, and it takes the following into consideration:

- has considered the most important elements of revenue lags, including the service, billing and collection lags;
- includes the most important elements of expense leads such as payroll and benefits, operations, maintenance, administration expenses, and taxes, including property taxes; and
- takes the major cost elements into consideration in calculating the net cash working capital.

Filed: 2013-12-19
EB-2013-0416
Exhibit D1
Tab 1
Schedule 3
Page 3 of 4

Table 1

Distribution Net Cash Working Capital Requirement

(All Data in $millions Except Lead/Lag Days)

	Revenue Lag (Days)	**Expense Lag (Days)**	**Net Lag (Lead Days)**	**2015 Test Year**	**2016 Test Year**	**2017 Test Year**	**2018 Test Year**	**2019 Test Year**
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Expenses								
Cost of Power	52.25	32.74	19.51	2626.9	2623.4	2614.4	2586.2	2582.5
OM&A	52.25	27.11	25.14	564.3	610.2	614.0	603.9	600.0
Removal Costs	52.25	16.51	35.74	54.5	57.0	60.4	63.3	65.8
Environmental Costs	52.25	40.98	11.27	14.2	22.0	22.4	22.0	21.6
Interest on Long-Term Debt	52.25	8.93	43.32	177.9	188.6	200.4	217.5	238.2
PILS	52.25	128.37	(76.12)	55.6	61.6	62.2	65.6	69.4
Total				3493.2	3562.7	3573.8	3558.5	3577.6
HST (see Table 2)				941.4	957.1	961.2	960.3	966.7
Total Amounts Paid/Accrued				**4434.7**	**4519.8**	**4534.9**	**4518.7**	**4544.4**
Working Capital Required (Calculations based on above values, for each expense category, calculated using the following formula: For Test Years 2015 to 2019 (Col (D)*Col (C)/365))								
Cost of Power				140.4	139.8	139.7	138.2	138.0
OM&A				38.9	41.9	42.3	41.6	41.3
Removal Costs				5.3	5.6	5.9	6.2	6.4
Environmental Costs				0.4	0.7	0.7	0.7	0.7
Interest on Long-Term Debt				21.1	22.3	23.8	25.8	28.3
Income & Capital Tax				(11.6)	(12.8)	(13.0)	(13.7)	(14.5)
Total				194.6	197.5	199.4	198.8	200.3
HST (see Table 2)				41.7	41.6	41.4	41.0	40.9
Net Working Cash Required				**236.2**	**239.1**	**240.8**	**239.8**	**241.1**

Table 2

Distribution Summary of HST Cash Working Capital Requirement

(All Data in $M Except Lead-Lag Days)

	HST Lead Time (Days)	**Working Capital Factor**	**2015 Test Year**	**2016 Test Year**	**2017 Test Year**	**2018 Test Year**	**2019 Test Year**
Revenue (external)	(7.13)	-2.0%	(10.3)	(10.5)	(10.6)	(10.7)	(10.8)
OM&A	42.92	11.8%	3.2	3.5	3.5	3.5	3.4
Cost of power	45.92	12.6%	43.0	42.9	42.8	42.3	42.2
Removal costs	44.30	12.1%	0.1	0.1	0.1	0.1	0.1
Environmental costs	44.30	12.1%	0.1	0.1	0.1	0.1	0.1
Capital expenditures	44.30	12.1%	5.6	5.6	5.5	5.6	5.8
Total			**41.7**	**41.8**	**41.4**	**41.0**	**40.9**

Refer to page 11 of Attachment 1 for more detail on the Distribution HST Cash Working Capital Requirement.

Filed: 2013-12-19
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Working Capital Requirements of Hydro One Networks' Distribution Business

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This report (the “report”) was prepared for Hydro One Networking Inc. (“HONI”) by Navigant Consulting, Ltd. (“Navigant”). The report was prepared solely for the purposes of HONI’s rate filing to before the Ontario Energy Board and may not be used for any other purpose. Use of this report by any third party outside of HONI’s rate filing is prohibited. Use of this report should not, and does not, absolve the third party from using due diligence in verifying the report’s contents. Any use which a third party makes of this report, or any reliance on it, is the responsibility of the third party. Navigant extends no warranty to any third party.

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Section I: Executive Summary

Summary

In preparation for a 2015-2019 distribution rate filing before the Ontario Energy Board ("OEB"), Hydro One Networks, Incorporated ("HONI") retained Navigant Consulting Limited ("Navigant") to prepare an update to its prior working capital study. This report provides the results of the update and the working capital requirements of HONI's distribution business.

Listed below are key findings and conclusions from this study:

1. In terms of lead-lag days, the results from this study are generally comparable with HONI's previous distribution working capital study (EB-2009-0096). Where there are differences, they have been identified, explained, and their impact on working capital requirements quantified;
2. The approach and methods used in this study are generally consistent with prior HONI studies as well as studies performed by other local distribution companies in Ontario; and,
3. Data from calendar year 2012 was used as a basis for this analysis. Results from the lead-lag study applied to HONI's test years identify the following working capital amounts.

Table 1: Summary of Working Capital Requirements

Year	2015	2016	2017	2018	2019
Percentage of OMA	7.40%	7.39%	7.46%	7.52%	7.58%
Working Capital Requirement $(M)	$236.21	$239.08	$240.76	$239.75	$241.11

Organization of the Report

Section II of this report discusses the lag times associated with HONI's collections of revenues. This includes a description of the sources revenues and how an overall revenue lag is derived.

Section III presents the lead times associated with HONI's expenses. This includes a description of the types of expenses incurred by HONI's distribution operations and how expenses are treated for the purposes of deriving an overall expenses lead.

Section IV presents the working capital requirements of HONI's distribution business including the working capital requirement associated with the Harmonized Sales Tax ("HST").

Section V presents a summary comparison of the results from this study with results from EB-2009-0096 study. Differences between the two have been noted, explained, and their impacts on working capital quantified. The intent of presenting the discussion in Section V is to demonstrate that the approach used in this study is an accurate reflection of the current distribution operations of HONI and that the results are reasonable when compared with the prior distribution studies.

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Section II: Working Capital Methodology

Working capital is the amount of funds that are required to finance the day-to-day operations of a regulated utility and which are included as part of a rate base for ratemaking purposes. A lead-lag study is the most accurate basis for determination of working capital and was used by Navigant for this purpose.

A lead-lag study analyzes the time between the date customers receive service and the date that customers' payments are available to HONI (or "lag") together with the time between which HONI receives goods and services from its vendors and pays for them at a later date (or "lead")[1]. "Leads" and "Lags" are both measured in days and are dollar-weighted where appropriate.[2] The dollar-weighted net lag (lag minus lead) days is then divided by 365 (or 366 for leap years) and then multiplied by the annual test year expenses to determine the amount of working capital required. The resulting amount of working capital is then included in HONI's rate base for the purpose of deriving revenue requirements.

Key Concepts

Two key concepts need to be defined as they appear throughout this report:

Mid-Point Method

When a service is provided to (or by) HONI over a period of time, the service is deemed to have been provided (or received) evenly over the midpoint of the period, unless specific information regarding the provision (or receipt) of that service indicates otherwise. If both the service end date ("Y") and the service start date ("X") are known, the mid-point of a service period can be calculated using the formula:

$$\text{Mid-Point} = \frac{([Y-X]+1)}{2}$$

When specific start and end dates are unknown, but it is known that a service is evenly distributed over the mid-point of a period, an alternative formula that is generally used is shown below. The formula uses the number of days in a year (A) and the number of periods in a year (B):

$$\text{Mid-Point} = \frac{A/B}{2}$$

[1] A positive lag (or lead) indicates that payments are received (or paid for) after the provision of a good or service.

[2] The notion of dollar-weighting is pursued further in the sub-section titled "Key Concepts".

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Statutory Approach

In conjunction with the mid-point method, it is important to note that not all areas of this study may utilize dates on which actual payments were made to (or by) HONI. In some instances, particularly for the HST, the due dates for payments are established by statute or by regulation with significant penalties for late payments. In these instances, the due date established by statute has been used in lieu of when payments were actually made.

Expense Lead Components

As used in this study, Expense Leads are defined to consist of two components:

1. Service Lead component (services are assumed to be provided to HONI evenly around the mid-point of the service period), and
2. Payment Lead component (the time period from the end of the service period to the time payment was made and when funds have left HONI's possession).

Dollar Weighting

Both leads and lags should be dollar-weighted where appropriate and where data is available to accurately reflect the flow of dollars. For example, suppose that a particular transaction has a lead time of 100 days and has a dollar value of $100. Further, suppose that another transaction has a lead time of 30 days with a dollar value of $1 Million. A simple un-weighted average of the two transactions would give us a lead time of 65 days ([100+30]/2). However, when these two transactions are dollar weighted, the resulting lead time would be closer to 30 days which is more representative of how the dollars actually flow.

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Methodology

Performing a lead-lag study requires two key undertakings:

1. Developing an understanding of how the regulated distribution business operates in terms of products and services sold to customers/purchased from vendors, and the policies and procedures that govern such transactions; and,
2. Modeling such operations using data from a relevant period of time and a representative data set. It is important to ascertain and factor into the study whether (or not) there are known changes to existing business policies and procedures going forward. Where such changes are known and material, they should be factored into the study.

To develop an understanding of HONI's operations, interviews with personnel within HONI's Accounts Payable, Customer Service, Wholesale Market Operations, Human Resources, Payroll, Treasury, and Tax Departments were conducted. Key questions that were addressed during the course of the interviews included:

1. What is being sold (or purchased)? If a service is being provided to (or by) HONI, over what time period was this service provided;
2. Who are the buyers (or sellers);
3. What are the terms for payment? Are the terms for payment driven by industry norms or by company policy? Is there flexibility in the terms for payment;
4. Are any changes to the terms for payment expected? Are these terms driven by industry or internally? What is the basis for any such changes;
5. Are there any new rules or regulations governing transactions relating to distribution operations that are expected to materialize over the time frame considered in this report; and,
6. How are payments made (or received)? Payment types have different payment lead times (i.e., internet payments have shorter deposit times than cheque deposit times)

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Section III: Revenue Lags

A distribution utility providing service to its customers generally derives its revenue from bills paid for service by its customers. A revenue lag represents the number of days from the date service is rendered by HONI until the date payments are received from customers and funds are available to HONI.

Interviews with HONI personnel indicate that its distribution business receives funds from the following funding streams:

1. Retail Customers;
2. Rural Rate Assistant Customers;
3. The Ontario Ministry of Finance via the Independent Electricity System Operation ("IESO");
4. Other Sources (revenues from municipalities, electricity retailers and revenues for miscellaneous services such as jobbing and contracting work performed by HONI); and,
5. The Ontario Clean Energy Benefit ("OCEB").

The lag times associated with the funding streams above were weighted and combined to calculate an overall revenue lag time as shown below.

Table 2: Summary of Revenue Lag

Description	Lag Days	Revenues ($M)	Weighting	Weighted Lag
Retail Revenue	52.87	$5,283	83%	43.87
Rural Rate Assistance	32.74	$164	3%	0.84
Other Revenue	38.09	$392	6%	2.35
Ontario Clean Energy Benefit	62.58	$528	8%	5.19
Total		**$6,367**	**100%**	**52.25**

Retail Revenue lag consists of the following components[3]:

1. Service Lag;
2. Billing Lag; and,
3. Collections Lag.

The lag times for each of the above components, when added together, results in the Retail Revenue Lag for the purpose of calculating the working capital requirements for HONI's distribution business. Table 3 below summarizes the total Retail Revenue Lag.

[3] There is no additional lag time for payment processing as funds are available to HONI immediately after funds are deposited

Table 3: Summary of Retail Revenue Lag

Description	Lag Days
Service Lag	16.40
Billing Lag	7.70
Collections Lag	28.77
Total	**52.87**

The estimation of each component of the Retail Revenue Lag is described below.

Service Lag

The Service Lag is the time from HONI's provision of electricity to a customer, to the time the customer's service period ends, which is typically defined as when the meter is read. Interviews with customer service staff at HONI indicated that based upon revenue weighting, approximately 96% of customers are on a monthly billing schedule, 0.4% of customers are on a bi-monthly billing schedule and 3.6% of customers are on a quarterly billing schedule. The breakdown of the customer meter reading frequency shows a shift of more customers into the monthly billing category versus the prior study due to the implementation of smart meters, which allow for accurate monthly meter readings. Taking this information into account and using a mid-point methodology, the Service Lag was estimated to be 16.40 days.

Billing Lag

The Billing Lag is the time period from when the customer's service period ends, which is typically defined as when the meter is read, and the time that the customer's bill is generated and provided to the customer. Interviews with billing staff at HONI and analysis of meter billing data indicated that HONI customers have an average billing lag of 7.70 days, which is significantly shorter than billing lag in the prior study due to the implementation of a new customer information system.

Collections Lag

The Collections Lag is the time period from when the customer's bill is provided to the customer, to the time period that the customer provides a payment to HONI and when that payment is recorded in HONI's billing system. This period of time is measured by analyzing the receivables aging data contained in receivables reports used by HONI for normal business purposes. Using such data provided by HONI for the calendar year 2012, a dollar-weighted average collections lag of 28.77 days was determined for HONI's distribution operations. This collections lag is shorter than the collections lag in the prior study due to HONI's increased efficiencies in the collection of receivables outstanding from customers.

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Section IV: Expense Leads

The determination of working capital requires both a measurement of the lag in the collection of revenues for services provided by HONI's distribution business, and the lead times associated with payments for services provided to HONI. Therefore, in conjunction with the calculation of the revenue lag, expense lead times were calculated for the following items:

1. Cost of Power;
2. OM&A Expenses;
3. Removal & Environmental Remediation Costs;
4. Interest on Long Term Debt;
5. Payments in Lieu of Taxes; and,
6. HST.

Cost of Power

HONI purchases its power supply requirements on a monthly basis from the IESO and pays for such supplies on a schedule defined within the IESO's billing and settlement procedures. Taking all this information on actual payments made by HONI in 2012, a dollar-weighted Cost of Power expense lead time of 32.74 days was calculated. Table 4 below summarizes the components of the Cost of Power expense lead calculation.

Table 4: Summary of IESO Cost of Power Expenses

Delivery Month	Amounts ($M)	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$204.91	10.27%	2/16/2012	15.50	16.00	31.50	3.23
Feb 12	$189.54	9.50%	3/16/2012	14.50	16.00	30.50	2.90
Mar 12	$182.95	9.17%	4/19/2012	15.50	19.00	34.50	3.16
Apr 12	$147.67	7.40%	5/16/2012	15.00	16.00	31.00	2.29
May 12	$132.44	6.64%	6/18/2012	15.50	18.00	33.50	2.22
Jun 12	$148.15	7.42%	7/18/2012	15.00	18.00	33.00	2.45
Jul 12	$144.45	7.24%	8/17/2012	15.50	17.00	32.50	2.35
Aug 12	$190.68	9.55%	9/19/2012	15.50	19.00	34.50	3.30
Sep 12	$127.09	6.37%	10/17/2012	15.00	17.00	32.00	2.04
Oct 12	$159.96	8.01%	11/19/2012	15.50	19.00	34.50	2.76
Nov 12	$167.60	8.40%	12/18/2012	15.00	18.00	33.00	2.77
Dec 12	$200.53	10.05%	1/17/2013	15.50	17.00	32.50	3.27
Total	**$1,995.97**	**100.00%**					**32.74**

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OM&A Expenses

For the purpose of the distribution lead-lag study, OM&A expenses were considered to consist of payments made by HONI to its vendors in the following categories:

1. Payroll & Benefits;
2. Property Taxes;
3. Corporate Procurement Card;
4. Trinity Lease Payments;
5. Payments to Inergi;
6. Consulting & Contract Staff; and,
7. Miscellaneous OM&A

Expense lead times were calculated individually for each of the items listed above and then dollar-weighted to derive a composite expense lead time of 27.11 days for OM&A expenses.

Table 5: Summary of OM&A Expenses

Description	Amounts ($M)	Weighting	Expense Lead Time	Weighted Lead Time
Payroll & Benefits	$1,091.25	60%	8.20	4.93
Property Taxes	$22.10	1%	-38.56	-0.47
Corporate Procurement Card	$100.09	6%	33.36	1.84
Trinity Lease Payments	$11.95	1%	-14.25	-0.09
Payments to Inergi	$152.09	8%	44.40	3.72
Consulting and Contract Staff	$200.55	11%	80.15	8.85
Miscellaneous OM&A	$237.83	13%	63.60	8.33
Total	**$1,815.86**	**100%**		**27.11**

Payroll & Benefits

The following items were considered to be expenses related to the Payroll & Benefits of HONI:

1. Four types of payroll including basic, trades, management, and board of directors payroll;
2. Three types of payroll withholdings including the Canada Pension Plan, Employment Insurance, and Income Tax withholdings;
3. Contributions made by Hydro One to the Hydro One Pension Plan;
4. Group Health, Dental, and Life Insurance related administrative fees and claims;
5. Payments made by Hydro One on account of the Employer Health Tax ("EHT"); and,
6. Payments made by Hydro One to the Worker Safety Improvement Board ("WSIB").

When all Payroll, Withholdings and Benefits were dollar-weighted using actual payment data, the weighted average expense lead time associated with Payroll & Benefits was determined to be 8.20 days as shown in Table 6 below.

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Table 6: Summary of Payroll & Benefits Expenses

Description	Amounts ($M)	Weighting	Expense Lead Time	Weighted Lead Time
Pensions	$171.12	16%	-45.68	-7.16
WSIB	$6.61	1%	45.28	0.27
EHT	$17.54	2%	30.88	0.50
Group Life Insurance	$16.71	2%	6.56	0.10
Group Health & Dental – ASO	$6.71	1%	30.83	0.19
Group Health & Dental – Claims	$45.11	4%	1.89	0.08
Payroll – Basic	$355.68	33%	18.50	6.03
Payroll – Construction	$134.99	12%	18.50	2.29
Payroll – Management	$59.64	5%	-0.80	-0.04
Payroll – Board of Directors	$0.49	0%	59.64	0.03
Payroll – Sup Pensions	$2.18	0%	-15.13	-0.03
Payroll Withholdings – Basic	$181.20	17%	26.14	4.34
Payroll Withholdings – Construction	$57.44	5%	26.16	1.38
Payroll Withholdings – Management	$35.06	3%	7.22	0.23
Payroll Withholdings – Board of Directors	$0.19	0%	66.38	0.01
Payroll Withholdings – Sup Pensions	$0.59	0%	-8.50	0.00
Total	**$1,091.25**	**100%**	**267.87**	**8.20**

Property Taxes

HONI makes property tax payments to a number of municipalities and taxing authorities in the Province of Ontario. These payments are made in the current year for the current year and are typically made in installments. Using actual payment dates and amounts associated with HONI's distribution business for calendar year 2012, a dollar-weighted expense lead (-lag) time of -0.47 days was determined.

Corporate Procurement Card

Procurement (or charge) cards are used by the HONI's employees for a variety of company related reasons including, and not limited to, purchases of materials in the field, incidental expenses, and to settle charges for travel and accommodation. Based on actual invoices from the HONI's charge card provider and payments made by HONI, a dollar-weighted expense lead time of 1.84 days was determined.

Trinity Lease Payments

HONI leases its office space in the Bell Trinity Square Building from Northam Realty. HONI generally makes its lease payments on or around the end of the month prior for the current month. Taking this information into account and using actual invoices and payments for 2012, a dollar-weighted expense lead (-lag) time of -0.09 days was determined.

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Payments to Inergi

Inergi (a division of CapGemini) provides a number of services to HONI including (and not limited to) customer service operations, finance, human resources, accounts payable, information technology, IESO settlement services, and supply management services. HONI generally makes payments to Inergi on or around the last day of the month for the current month. Based on a review of payments made by HONI to Inergi in 2012, a dollar-weighted expense lead time of 3.72 days was determined.

Consulting and Contract Staff

HONI engages consulting and contract staff to provide assistance in the areas of engineering, environmental services, receivables management, accounting, and general consulting.
A dollar-weighted expense lead time of 8.85 days was determined based on a review of invoices rendered and payments made by HONI in 2012.

Miscellaneous OM&A

This category of expense includes items such as product purchases, equipment rentals, and provision of general services to HONI. Based on transactions in HONI's accounts payable system under this category, a dollar-weighted expense lead time of 8.33 days was derived.

Removal and Environmental Remediation Costs

HONI incurs costs when removing or replacing equipment from existing sites or right of ways. Further, costs relating to environmental remediation at these sites are also incurred. While costs are required to be reported as a depreciation and amortization expense for accounting purposes, there is a cash flow impact associated with HONI's expenditures on such removal and environmental remediation costs. Based upon discussions with HONI staff, estimates for the derivation of removal and environmental remediation costs were determined and summarized in Table 7 below.

Table 7: Summary of Removal and Environmental Remediation Expenses

Description	Expense Lead Time	% of Remediation Expenses	Weighted Lead Time
Removal			
HONI Labour	8.20	85.00%	6.97
HONI Materials	63.60	15.00%	9.54
External Labour	80.15	0.00%	0.00
External Materials	63.60	0.00%	0.00
Total		**100.00%**	**16.51**
Environmental Remediation			
HONI Labour	8.20	51.00%	4.18
HONI Materials	63.60	9.00%	5.72
External Labour	80.15	34.00%	27.25
External Materials	63.60	6.00%	3.82
Total		**100.00%**	**40.98**

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Interest on Long Term Debt

HONI makes interest payments on its long term debt outstanding out of current year revenues. Such payments are generally made twice a year. Taking into account the various bonds and other long term debt instruments, a dollar-weighted expense lead time of 8.93 days was determined for the 2012 calendar year.

Payments in Lieu of Taxes ("PILs")

HONI makes payments in lieu of taxes in monthly installments to the relevant taxing authorities. Using payment amounts that were made in calendar year 2012, a dollar-weighted expense lead time of 128.37 days was determined for PIL's.

HST

The expense lead times associated with the following items that attract HST were considered in HONI's distribution lead-lag study.

1. Revenues;
2. Cost of Power;
3. OM&A[4]; and,
4. Removals, Environmental Remediation and Capital Costs.

A summary of the expense lead times and working capital amounts associated with each of the above items is provided in Table 8. Note that the statutory approach described at the outset was used to determine the expense lead times associated with HONI's remittances and disbursements of HST (i.e., both remittances and collections are generally on the last day of the month following the date of the applicable invoice.

Table 8: Summary of HST Working Capital Amounts

Description	HST Lead Time	Working Capital Factor	2015 ($M)	2016 ($M)	2017 ($M)	2018 ($M)	2019 ($M)
Revenues	-7.13	-2%	-$10.3	-$10.5	-$10.6	-$10.7	-$10.8
Cost of Power	45.92	13%	$43.0	$42.9	$42.8	$42.3	$42.2
OM&A Expenses	42.92	12%	$3.2	$3.5	$3.5	$3.5	$3.4
Removals	44.30	12%	$0.1	$0.1	$0.1	$0.1	$0.1
Environmental Remediation	44.30	12%	$0.1	$0.1	$0.1	$0.1	$0.1
Capital	44.30	12%	$5.6	$5.6	$5.5	$5.6	$5.8
Total			**$41.7**	**$41.8**	**$41.4**	**$41.0**	**$40.9**

[4] Costs within OM&A that attract HST include Corporate Procurement Card, Trinity Lease Payments, Payments to Inergi, Consulting and Contract Staff and Miscellaneous OM&A

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Section V: Hydro One Distribution – Working Capital Requirements

Using the results described under the discussion of revenue lags and expense leads, and applying them to HONI's proposed distribution expenses for the 2015-2019 test years, HONI's working capital requirements were determined and shown in the tables below.

Table 9: HONI Distribution Working Capital Requirements (2015)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses ($M)	Working Capital Requirements ($M)
Cost of Power	52.25	32.74	19.50	5%	$2,626.87	$140.35
OM&A Expenses	52.25	27.11	25.14	7%	$564.30	$38.87
PILS	52.25	128.37	-76.12	-21%	$55.60	-$11.59
Interest Expense	52.25	8.93	43.32	12%	$177.86	$21.11
Environmental Remediation	52.25	40.98	11.27	3%	$14.16	$0.44
Removals	52.25	16.51	35.73	10%	$54.46	$5.33
Total					$3,493.25	$194.51
HST						$41.70
Total - Including HST						**$236.21**
Working Capital as a Percent of OM&A incl. Cost of Power						**7.40%**

Table 10: HONI Distribution Working Capital Requirements (2016)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses ($M)	Working Capital Requirements ($M)
Cost of Power	52.25	32.74	19.50	5%	$2,623.37	$139.78
OM&A Expenses	52.25	27.11	25.14	7%	$610.18	$41.91
PILS	52.25	128.37	-76.12	-21%	$61.60	-$12.81
Interest Expense	52.25	8.93	43.32	12%	$188.57	$22.32
Environmental Remediation	52.25	40.98	11.27	3%	$22.00	$0.68
Removals	52.25	16.51	35.73	10%	$56.99	$5.56
Total					$3,562.71	$197.45
HST						$41.64
Total - Including HST						**$239.08**
Working Capital as a Percent of OM&A incl. Cost of Power						**7.39%**

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Table 11: HONI Distribution Working Capital Requirements (2017)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses ($M)	Working Capital Requirements ($M)
Cost of Power	52.25	32.74	19.50	5%	$2,614.41	$139.69
OM&A Expenses	52.25	27.11	25.14	7%	$613.97	$42.29
PILS	52.25	128.37	-76.12	-21%	$62.24	-$12.98
Interest Expense	52.25	8.93	43.32	12%	$200.37	$23.78
Environmental Remediation	52.25	40.98	11.27	3%	$22.36	$0.69
Removals	52.25	16.51	35.73	10%	$60.40	$5.91
Total					$3,573.75	$199.38
HST						$41.38
Total - Including HST						**$240.76**
Working Capital as a Percent of OM&A incl. Cost of Power						**7.46%**

Table 12: HONI Distribution Working Capital Requirements (2018)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses ($M)	Working Capital Requirements ($M)
Cost of Power	52.25	32.74	19.50	5%	$2,586.17	$138.18
OM&A Expenses	52.25	27.11	25.14	7%	$603.86	$41.59
PILS	52.25	128.37	-76.12	-21%	$65.57	-$13.68
Interest Expense	52.25	8.93	43.32	12%	$217.54	$25.82
Environmental Remediation	52.25	40.98	11.27	3%	$22.03	$0.68
Removals	52.25	16.51	35.73	10%	$63.28	$6.20
Total					$3,558.46	$198.79
HST						$40.96
Total - Including HST						**$239.75**
Working Capital as a Percent of OM&A incl. Cost of Power						**7.52%**

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Table 13: HONI Distribution Working Capital Requirements (2019)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses ($M)	Working Capital Requirements ($M)
Cost of Power	52.25	32.74	19.50	5%	$2,582.55	$137.99
OM&A Expenses	52.25	27.11	25.14	7%	$600.00	$41.33
PILS	52.25	128.37	-76.12	-21%	$69.39	-$14.47
Interest Expense	52.25	8.93	43.32	12%	$238.25	$28.27
Environmental Remediation	52.25	40.98	11.27	3%	$21.62	$0.67
Removals	52.25	16.51	35.73	10%	$65.82	$6.44
Total					$3,577.62	$200.23
HST						$40.88
Total - Including HST						**$241.11**
Working Capital as a Percent of OM&A incl. Cost of Power						**7.58%**

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Section VI: Findings and Conclusions

The purpose of this section is to compare the results from this study to HONI's prior working capital distribution study as per EB-2009-0096. In addition, this section demonstrates that the results from this study reflect the current operations of HONI.

Comparison with Prior Distribution Study

Table 14: Working Capital Requirements (2010)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses ($M)	Working Capital Requirements ($M)
Cost of Power	69.99	32.67	37.32	10%	$2,008.40	$205.33
OM&A Expenses	69.99	22.92	47.07	13%	$591.00	$76.21
PILS	69.99	16.51	53.48	15%	$16.50	$2.42
Interest Expense	69.99	52.87	17.12	5%	$155.50	$7.29
Environmental Remediation	69.99	34.84	35.15	10%	$12.80	$1.23
Removals	69.99	30.02	39.97	11%	$33.00	$3.61
Total					**$2,817.20**	**$296.10**
GST						$8.02
Total - Including GST						**$304.13**
Working Capital as a Percent of OM&A incl. Cost of Power						**11.70%**

Table 15: HONI Distribution Working Capital Requirements (2015)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses ($M)	Working Capital Requirements ($M)
Cost of Power	52.25	32.74	19.50	5%	$2,626.87	$140.35
OM&A Expenses	52.25	27.11	25.14	7%	$564.30	$38.87
PILS	52.25	128.37	-76.12	-21%	$55.60	-$11.59
Interest Expense	52.25	8.93	43.32	12%	$177.86	$21.11
Environmental Remediation	52.25	40.98	11.27	3%	$14.16	$0.44
Removals	52.25	16.51	35.73	10%	$54.46	$5.33
Total					$3,493.25	$194.51
HST						$41.70
Total - Including HST						**$236.21**
Working Capital as a Percent of OM&A incl. Cost of Power						**7.40%**

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Table 16: Working Capital Requirements (2015 VS 2010)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses ($M)	Working Capital Requirements ($M)
Cost of Power	-17.74	0.07	-17.81	-5%	$618.47	-$64.98
OM&A Expenses	-17.74	4.19	-21.93	-6%	-$26.70	-$37.34
PILS	-17.74	111.86	-129.60	-36%	$39.10	-$14.01
Interest Expense	-17.74	-43.94	26.20	7%	$22.36	$13.81
Environmental Remediation	-17.74	6.13	-23.88	-7%	$1.36	-$0.80
Removals	-17.74	-13.51	-4.23	-1%	$21.46	$1.72
Total					$676.05	-$101.60
HST						$33.68
Total - Including HST						**-$67.92**
Working Capital as a Percent of OM&A incl. Cost of Power						**-4.30%**

Revenue Lag

As shown in Table 16 above, the overall revenue lag in the current study has decreased significantly versus the prior study. The primary driver of this change is the reduction of the service lag which was due to a shift of the majority of the customers moving to monthly meter reading frequencies as a result of the implementation of smart meters. Another driver for this decrease in revenue lag is a result of HONI's new Customer Information System, which greatly reduced the billing lag. Furthermore, HONI's distribution collections lag also decreased indicating that HONI is collecting outstanding balances more efficiently.

Cost of Power

Cost of Power expense lead days have not changed significantly versus the prior study. HONI distribution still procures power from the IESO on a monthly basis and pays the IESO approximately two weeks after the end of the prior service period. Since payment schedules have not changed since the prior study, Cost of Power expense lead days have not changed significantly either.

OM&A Expenses

OM&A expense lead days have increased slightly by approximately 4 days versus the prior study. Factors driving this increase include longer expense lead times for Payments to Inergi, Consulting and Contract Staff and Miscellaneous OM&A. After dollar-weighting all OM&A categories however, the impact of these slightly increased expense lead times is minimal on HONI's overall working capital requirements.

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Interest Expense

Interest expense lead days have increased significantly versus the prior study. This study has a revised methodology for calculating interest expense versus the prior study. Previously, the expense lead calculation summed the lead days relating to the two payments in the year for each outstanding debt instrument, and calculated the weighted lead days for this instrument by weighting the total bond value. This study treats each debt instrument payment as an individual payment and the weighted lead days for each payment is based upon that individual debt instrument payment amount. Navigant believes the change is an improvement in the methodology and is consistent with interest lead time calculations for other utilities across Ontario.

PILs

PILs expense lead days have increased significantly in this study versus the prior study primarily due to a large true-up payment made in 2012 for 2011. Discussions with HONI subject matter experts indicated that these true-up payments are expected to continue with the same magnitude and scheduling parameters in the future. Navigant believes the change is an improvement in the methodology and is consistent with PILs lead time calculations for other utilities across Ontario.

Removals & Environmental Remediation

Removals & Environmental Remediation expense lead days have decreased by approximately 13 days and increased by approximately 6 days respectively. This change is primarily driven by different allocations of Removals & Environmental Remediation expenses into HONI Labour/Materials, and Outside Labour/Materials. Discussions with HONI subject matter experts confirmed that these updated allocations are indicative of how Removals & Environmental Remediation expenses are currently allocated and how they are supposed to be allocated in the future. After dollar-weighting all OM&A categories however, the impact of these changes is minimal on HONI's overall working capital requirements.

Comparison with the Prior Distribution Working Capital Study Using Constant Revenue Lag Days

Since the revenue lag days was one of the most significant changes over the prior study, an analysis using constant revenue lag days was conducted to show the individual impacts of the differences in expense leads days. Table 16 below shows that when holding revenue lag days constant, working capital requirement in 2015 is approximately 1% higher than the amount in 2010.

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Table 17: Working Capital Requirements with 2010 Revenue Lag Days Held Constant (2015 VS 2010)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses ($M)	Working Capital Requirements
Cost of Power	0.00	0.07	-0.07	0%	$618.47	$62.71
OM&A Expenses	0.00	4.19	-4.19	-1%	-$26.70	-$9.91
PILS	0.00	111.86	-111.86	-31%	$39.10	-$11.31
Interest Expense	0.00	-43.94	43.94	12%	$22.36	$22.46
Environmental Remediation	0.00	6.13	-6.13	-2%	$1.36	-$0.11
Removals	0.00	-13.51	13.51	4%	$21.46	$4.37
Total					$676.05	$68.20
HST						$33.68
Total - Including HST						**$101.88**
Working Capital as a Percent of OM&A incl. Cost of Power						**1.02%**

Conclusions

The results of this study indicate a lower working capital requirement compared to HONI's EB-2009-0096 distribution lead-lag study. The reasons for the differences lie primarily with the revenue lag days, where this figure has decreased significantly in the current study due to the shift of customers to monthly billing frequencies, the upgrade of HONI's Customer Information System, and HONI's ability to collect outstanding balances more efficiently. Table 17 below summarizes the working capital requirements calculated in this study along with historical working capital amounts.

Table 18: Summary of Historical Working Capital Requirements

Year	Working Capital Requirements %
2010	*11.7%*
2011	*11.9%*
2015	**7.40%**
2016	**7.39%**
2017	**7.46%**
2018	**7.52%**
2019	**7.58%**

Comparison with Other Lead-Lag Studies

Navigant has prepared a table comparing the components of lead-lag studies that have been filed and is public. The results are shown in Table 19 below. Note that the prior studies are based on data of an older vintage and are mostly based on the customer weighting method for revenue lags. This is an obsolete methodology and HONI's current study is based upon the revenue weighting method for revenue lags.

Table 19: Comparison with Other Lead-Lag Studies

Name of Utility	Working Capital Requirements (Filed)	Vintage For Base Year Data	Type of Service	Customer/Retail Revenues	IESO/ISO Revenues	Other Revenues	Payroll & Withholdings	Employee Benefits	Cost of Power	Other OM&A	Income & Related Taxes	GST/HST	Interest Expense
Hydro One Networks	11.70%	2009	Electric Distribution	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Toronto Hydro	12.45%	2005	Electric Distribution	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hydro Ottawa Ltd.	14.20%	2008	Electric Distribution	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Horizon's Utilities Corp.	14.20%	2009	Electric Distribution	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
London Hydro Inc.	11.42%	2010	Electric Distribution	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2-Staff-23 Working Capital Allowance

Reference:

1. Exhibit 2 Tab 4 Appendix 2-3 - A Determination of the Working Capital Requirements of Horizon Utilities' Distribution Business

Preamble:

Horizon retained Navigant Consulting Inc. to perform a lead lag study to establish the working capital factor to be applied to controllable OM&A and the cost of power for setting the level of working capital to be included in rate base. The analysis resulted in a Billing Service Lag of 27.6 days.

a. Please provide the details of the calculation of the Billing Service Lag of 27.6 days.

b. Is Horizon planning to bill monthly at any time during the CIR period? If so, when?

Response:

a. Subsequent to the submission of its Application, Horizon Utilities reviewed the inputs used to calculate the Billing Service Lag of 27.06. It determined that some of the revenue allocations between monthly and bi-monthly billing were incorrect.

Navigant Consulting Inc. ("Navigant") recalculates the Billing Service Lag to be 25.02 days, based on the correct revenue allocations. The details of the calculation of the Billing Service Lag of 25.02 days are filed as attachment 2-Staff-23a_Attch 3_Service Lag Revised Table. Horizon Utilities has provided the revised Navigant Report, which incorporates the revised Billing Service Lag as 2-Staff-23a_Attch 1_Revised Navigant Working Capital Report. Horizon Utilities has also provided a marked-up (track changes) version of the same report as 2-Staff-23a_Attch 2_Revised Navigant Working Capital Report_Track Changes. The revised Navigant Report was also updated for minor typographical errors in the original report (Tables 5, 6 and 7 as well as the expense lead time for Property Taxes on page 16 - revised Navigant Working Capital Report and service, payment and expense lead times for Payments in Lieu of Taxes on page 16 – revised Navigant Working Capital Report). None of the typographical errors affected the Working Capital % calculation.

The revised Billing Service Lag of 25.02 has been used to calculate a revised Working Capital Allowance. This revision results in a reduction in the Working Capital Allowance of 0.7% from 12.7% to 12.0%.

The impact on revenue requirement due to the change in Working Capital Allowance is identified in the table below:

Table 1: Impact on Revenue Requirement

	2015	2016	2017	2018	2019
Submitted Base Revenue Requirement	$ 112,956,026	$ 118,628,501	$ 121,743,444	$ 123,920,317	$ 127,881,899
Base Revenue Requirement (WC at 12%)	$ 112,665,477	$ 118,326,485	$ 121,430,522	$ 123,592,298	$ 127,540,488
Variance in Revenue Requirement	$ (290,549)	$ (302,016)	$ (312,922)	$ (328,019)	$ (341,411)

b. Horizon Utilities is not planning to transition customers to monthly billing at any time during the CIR period.

Horizon Utilities is aware of the recent policy review initiated by the Board on July 27, 2014 related to *Electricity and Natural Gas Distributors' Residential Customer Billing Practices and Performance* (EB-2014-0198). Changes to billing practices during the term of the rate plan may result from this policy review.

Please also see Horizon Utilities' response to Interrogatory 2-EP-11 b) for a discussion of the one-time and ongoing incremental costs for such a transition.

2-Staff-23a_Attch 1_ Revised Navigant Working Capital Report

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A Determination of the Working Capital Requirements of Horizon Utilities' Distribution Business

Prepared for:

Horizon Utilities Corporation

horizon UTILITIES Looking beyond...

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March 31, 2014
Updated July 17, 2014

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Section I: Executive Summary

Summary

In preparation for HUC's 2014 Distribution Cost of Service Rate Application before the Ontario Energy Board ("OEB" or "Board"), Horizon Utilities Corporation ("HUC") retained Navigant Consulting Ltd. ("Navigant") to perform a lead-lag study using the most recent data available, and to derive HUC's Working Capital Amount ("WCA") using historical 2012 data with known and measurable forward looking changes applied. This report provides the results of the study and the WCA of HUC's distribution business.

This report includes the following changes from the previous report dated March 31, 2014:

- The updated report reflects a change from the prior study in which the revenues associated with Residential, General Service <50, Unmetered and Scattered, and Streetlighting customer classes were reflected as being billed on a bi-monthly basis, instead of being billed based upon a split between monthly and bi-monthly frequencies. As a result of this change, the WCA of 12.7% in the previous report was overstated. When the correction was captured in the analysis the resulting WCA becomes 12.0%.
- Typographical errors were corrected in the following sections of the report which had no impact on the resulting WCA percentage:
    - Pg 11 – Table 5: Delivery month for IESO COP;
    - Pg 11 – Table 6: Service lead time for Hydro One COP;
    - Pg 12 & 13 – Table 7: Expense lead time for Group Life Insurance & LTD Insurance;
    - Pg 16 – Expense lead time for Property Taxes; and
    - Pg 16 – Service, payment and expense lead times for Payments in Lieu of Taxes.
- All calculation changes in this report are a result of the change in frequency of monthly versus bi-monthly customer billing for the service lag component.

Results from the lead-lag study applied to HUC's 2012 distribution expenses identify an average working capital percentage of 12.0% of the Cost of Power and OM&A Expenses for the 2014-2019 test years. This report also represents the 2014-2019 time periods. Inasmuch as slight variation exists from year-to-year in our analysis Navigant believes application of the 12.0% provides an accurate recovery of the cost of working capital for the time period 2014 through 2019. Based upon the working capital dollar amounts for each of the test years, the weighted average working capital was calculated to be 12.0%. Table 1 below provides the estimated working capital dollars and percentages for the test years 2014-2019.

Table 1: Estimated Working Capital Requirements

	2014	2015	2016	2017	2018	2019	2014 to 2019
Estimated Working Capital Requirements ($)	$69,456,886	$70,287,875	$72,767,684	$75,440,421	$78,139,129	$80,754,758	$74,474,459
Estimated Working Capital Requirements (%)	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%

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Organization of the Report

Section I of this report is the Executive Summary and discusses the key findings and conclusions from this study.

Section II presents the methods and assumptions used in determining the lead-lag approach. Included in this section is a description of two key concepts; the mid-point method and the statutory approach for services and materials provided and expensed.

Section III of this report discusses the lags associated with HUC's collections of revenues. This includes a description of the sources of such revenues, how they were treated for the purposes of deriving an overall revenue lag, and how it affects HUC's distribution operations.

Section IV presents a description of the various expenses and their attendant lead times. Included in this discussion are the lead times on Payroll and Benefits, OM&A, Taxes, Interest, Debt Retirement Charges and the Harmonized Sales Tax ("HST"). The methods used to calculate the expense lead times associated with each of the items as well as the results from the application of the methods are described.

Section V presents the cash WCA of HUC's distribution business including the WCA associated with the HST.

Section II: Methodology Used to Estimate Cash Working Capital

Working capital is the amount of funds that are required to finance the day-to-day operations of a utility and are included as part of a rate base for ratemaking purposes. A lead-lag study is the most accurate basis for the determination of working capital and was used by Navigant for this purpose.

A lead-lag study analyzes the time between the date customers receive service and the date customers' payments are available to HUC (or "lag") together with the time between which HUC receives goods and services from its vendors and pays for them at a later date (or "lead")[1]. "Leads" and "Lags" are both measured in days and are generally where appropriate, dollar-weighted.[2] The dollar-weighted net lag (i.e., lag minus lead) days is divided by 365 (or 366 if a leap year is selected) and then multiplied by the annual test year cash expenses to determine the amount of working capital required for operations. The resulting amount of working capital is then included as part of HUC's rate base for the purpose of deriving revenue requirement.

Key Concepts

Two key concepts need to be defined up-front as they appear throughout the lead-lag study described in this report:

Mid-Point Method: When a service is provided to (or by) HUC over a period of time, the service is deemed to have been provided (or received) evenly over the midpoint of the period, unless specific information regarding the provision (or receipt) of that service is available indicating otherwise. If both the service end date ("Y") and the service start date ("X") are known, the mid-point of a service period can be calculated using the formula:

$$\text{Mid-Point} = \frac{\left([\text{Y-X}]+1\right)}{2}$$

When specific start and end dates are unknown but it is known that a service is evenly distributed over the mid-point of a period, an alternative formula that is typically used is shown below. The formula uses the number of days in a year ("A") and the number of periods in a year ("B"):

$$\text{Mid-Point} = \frac{\text{A/B}}{2}$$

Statutory Approach: In conjunction with the use of the mid-point method, it is important to note that not all areas of this study may utilize dates on which actual payments were made by HUC. In some instances, particularly for the HST, the due dates for payments are established by statute or by regulation with significant penalties in place for late payments. In these instances, the due date established by statute has been used in lieu of when payments were actually made.

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[1] A positive lag (or lead) indicates that payments are received (or paid for) after the provision of a good or service.

[2] The notion of dollar-weighting is pursued further in the sub-section titled "Key Concepts".

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Expense Lead Components: As used in this study, Expense Leads are defined to consist of two components:

1. A Service Lead component (i.e., services are assumed to be provided to HUC evenly around the mid-point of the service period); and
2. A Payment Lead component (i.e., the time period from the end of the service period to the time payment was made and the funds left HUC's possession).

Dollar-Weighting: Both "Leads" and "Lags" should be dollar-weighted where appropriate and where data is available to more accurately reflect the flow of dollars. As an example, suppose that a transaction has a Cash Outflow Lead time of 100 days and its dollar value was $100. Suppose further that another transaction has a Cash Outflow Lead time of 30 days with a dollar value of $1M. A simple un-weighted average of the two transactions would give us a Cash Outflow Lead time of 65 days ([100+30]/2). On the other hand, dollar-weighting the two transactions gives us a Cash Outflow Lead time closer to 30 days; an answer which is more representative of how the dollars actually flowed in this example.

Methodology

Performing a lead-lag study requires two key undertakings:

1. Developing an understanding of how the regulated business works, (i.e., in terms of products and services sold to customers or purchased from vendors and the collections and payment policies and procedures that govern such transactions); and
2. Modeling such operations using data from a relevant period of time and a representative data set. It is important to ascertain and factor into the study whether (or not) there are known changes to existing business policies and procedures going forward. Where such changes are known and material, they should be factored into the study.

To develop an understanding of HUC's operations, interviews with HUC personnel were conducted. Key questions that were addressed during the interviews included:

1. What is being sold (or bought)? If a service is being provided (purchased), over what time period was the service provided (or purchased);
2. Who are the buyers (sellers);
3. What are the terms for payment? Are the terms for payment driven by industry norms or by company policy? Is there flexibility in the terms for payment;
4. Are any changes expected to the terms for payment either driven by industry or internally by HUC? What is the basis for such changes (if any);
5. Are there any new rules and regulations governing such transactions that are expected to materialize over the time frame considered in this report; and
6. How payments are made (i.e., cash, check, electronic funds transfer).

Data for calendar year 2012 was used in the analysis. Development of the data set entailed gathering raw data from the HUC's General Accounting, Accounts Payable, Customer Service, Payroll, and Tax Systems. Once the raw data had been gathered from the multiple in-house systems, data validation was performed to the extent necessary and appropriate.

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Section III: Revenue Lags

A distribution utility providing service to its customers generally derives its revenue from bills paid for service by its customers. A revenue lag represents the number of days from the date service is rendered by HUC until the date payments are received from customers and funds are available to HUC.

Interviews with HUC personnel indicate that its distribution business primarily receives funds from Retail Customers. The Ontario Clean Energy Benefit ("OCEB") was considered in this study, however since the OCEB expires on December 31, 2015 and since Horizon is applying for a 2014-2019 rate application, the OCEB will be excluded from the calculation of Retail Customer Revenue lag.

Retail Customer Revenue lag consists of the four following sequential components:

1. Service Lag;
2. Billing Lag;
3. Collections Lag; and
4. Payment Processing Lag.

The lag times for each of the above components, when added together, results in the Retail Customer Revenue Lag for the purpose of calculating the WCA for HUC's distribution business. Table 2 below summarizes the total weighted average Revenue Lag.

Table 2: Summary of Weighted Average Revenue Lag Days

Description	Lag Days
Retail Revenue	67.30

Table 3 below summarizes the components of Retail Revenue Lag.

Table 3: Summary of Retail Revenue Lag

Description	Weighted Lag Days
Service Lag	25.02
Billing Lag	18.98
Collections Lag	21.77
Payment Lag	1.54
Total	**67.30**

The estimation of each component of the Retail Revenue Lag is described below.

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Service Lag

The Service Lag is the time from HUC's provision of electricity to a customer, to the time the customer's service period ends, which is typically defined as when the meter is read. Interviews with Customer Service Staff at HUC indicated that "Residential Retail", "General Service < 50", "Unmetered and Scattered" and "Sentinel" customers are on a monthly and bi-monthly service schedule, and "General Service > 50", "Large User" and "Streetlight" customers are on a monthly service schedule. Taking this information into account and using a mid-point methodology, the Service Lag was estimated to be 25.02 days. Note that this report reflects an update from the Navigant study dated March 31, 2014. The prior study had a larger percentage of customers billed on a bi-monthly basis, which resulted in a WCA of 12.7%. The 12.0% WCA shown in this report reflects updated data from the client regarding the customer monthly/bi-monthly split, which was provided by HUC to Navigant after the March 31, 2014 report submission.

Billing Lag

The Billing Lag is the time period from when the customer's service period ends, which is typically defined as when the meter is read, and the time that the customer's bill is generated and provided to the customer. Interviews with Billing Staff at HUC and analyses regarding meter reading and billing dates both indicated that both Residential and General Service customers have an average billing lag of 18.98 days.

Collections Lag

The Collections Lag is the time period from when the customer's bill is provided to the customer, to the time period that the customer provides a payment to HUC and when that payment is recorded in HUC's billing system. This period of time is measured by analyzing the receivables aging data contained in receivables reports used by HUC for normal business purposes. Using such data provided by HUC for the calendar year 2012, a dollar-weighted average collections lag of 21.77 days was determined for HUC's operations.

Payment Processing Lag

The Payment Processing Lag is the time period between the recording of a payment as having been received by HUC from the customer, and the payment being deposited into HUC's bank account. Based on interviews with HUC's staff, it was discovered that different payment methods result in different dates in which the payment is received in HUC's bank account. The following payment processing methods were considered in this study:

1. If the customer paid by Credit Card, that payment is in HUC's bank account two days after;
2. If the customer paid by Cheques or through ATM/Tellers, that payment is in the HUC's bank account three days after; and
3. If the customer paid by Internet, or Pre-authorization, that payment is in HUC's bank account two days after.

Taking into account HUC's different Payment Processing methods, an overall Payment Processing Lag of 1.54 days is the result and was used in the determination of HUC's overall revenue lag time.

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Section IV: Expense Leads

The determination of working capital requires both a measurement of the lag in the collection of revenues for services provided by HUC's distribution business, and the lead times associated with payments for services provided to HUC. Therefore, in conjunction with the calculation of the revenue lag, expense lead times were calculated for the following items:

1. Cost of Power;
2. Payroll and Benefits;
3. OM&A Expenses;
4. Payments in Lieu of Taxes;
5. Interest Expenses; and
6. Debt Retirement Charge.

HUC's benefits and costs in terms of the WCA associated with the HST are discussed separately.

Cost of Power

HUC purchases its power supply requirements on a monthly basis from the IESO and pays for such supplies on a schedule defined within the IESO's billing and settlement procedures. HUC also settles payments to Hydro One for the use of their transmission system. Taking all this information on actual payments made by HUC in 2012, a dollar-weighted Cost of Power expense lead time of 32.86 days was calculated. Table 4 below summarizes the components of the Cost of Power expense lead calculation. Table 5 and Table 6 show the derivation of the weighted lag days for the components of Cost of Power.

Table 4: Summary of Cost of Power Expenses

Description	Amounts ($M)	Weighting Factor %	Lead Time	Weighted Lead Time
IESO	$399.68	98.93%	32.58	32.23
Hydro One	$4.32	1.07%	58.84	0.63
Total	**$404.00**	**100.00%**		**32.86**

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Table 5: Summary of IESO Cost of Power Expenses

Delivery Month[3]	Amounts ($M)	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Dec 11	$32.62	8.16%	1/18/2012	15.50	18.00	33.50	2.73
Jan 12	$32.05	8.02%	2/16/2012	15.50	16.00	31.50	2.53
Feb 12	$31.31	7.83%	3/16/2012	14.50	16.00	30.50	2.39
Mar 12	$30.95	7.74%	4/19/2012	15.50	19.00	34.50	2.67
Apr 12	$28.82	7.21%	5/16/2012	15.00	16.00	31.00	2.24
May 12	$31.80	7.96%	6/18/2012	15.50	18.00	33.50	2.67
Jun 12	$36.89	9.23%	7/18/2012	15.00	18.00	33.00	3.05
Jul 12	$39.47	9.88%	8/17/2012	15.50	17.00	32.50	3.21
Aug 12	$42.81	10.71%	9/19/2012	15.50	19.00	34.50	3.69
Sep 12	$29.52	7.39%	10/17/2012	15.00	17.00	32.00	2.36
Oct 12	$30.99	7.75%	11/15/2012	15.50	15.00	30.50	2.37
Nov 12	$32.46	8.12%	12/18/2012	15.00	18.00	33.00	2.68
Total	**$399.68**	**100.00%**					**32.58**

Table 6: Summary of Hydro One Cost of Power Expenses

Delivery Month	Amounts ($M)	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$0.32	7.38%	3/20/2012	16.00	42.00	58.00	4.28
Feb 12	$0.31	7.24%	4/19/2012	15.00	43.00	58.00	4.20
Mar 12	$0.29	6.74%	5/18/2012	15.00	43.00	58.00	3.91
Apr 12	$0.28	6.44%	6/20/2012	17.00	43.00	60.00	3.86
May 12	$0.40	9.20%	7/19/2012	15.00	43.00	58.00	5.33
Jun 12	$0.45	10.53%	8/16/2012	15.50	41.00	56.50	5.95
Jul 12	$0.46	10.66%	9/18/2012	15.00	45.00	60.00	6.40
Aug 12	$0.42	9.84%	10/18/2012	17.00	42.00	59.00	5.81
Sep 12	$0.38	8.76%	11/19/2012	15.00	45.00	60.00	5.25
Oct 12	$0.30	7.01%	12/18/2012	16.50	42.00	58.50	4.10
Nov 12	$0.32	7.47%	1/21/2013	15.50	46.00	61.50	4.60
Dec 12	$0.38	8.74%	2/19/2013	17.00	42.00	59.00	5.16
Total	**$4.32**	**100.00%**					**58.84**

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Payroll and Benefits

For the purpose of the distribution lead-lag study, the following items were considered to be expenses related to the Payroll and Benefits of HUC:

1. Regular Staff Payroll;
2. Board of Director Payroll;
3. Great West Life – MDV;
4. Great West Life – HCS;
5. Group Life Insurance & LTD Insurance;
6. WSIB; and,
7. Pensions.

Expense lead times were calculated individually for each of the items listed above and then dollar-weighted to derive a composite expense lead time of 11.82 days for Payroll and Benefit expenses. A summary of the dollar-weighted expense lead time is provided in Table 7 below.

Table 7: Summary of Payroll and Benefit Expenses

Description	Amounts ($M)	Weighting Factor %	Lead (Lag) Time	Weighted Lead Time
Regular Staff Payroll	$37.64	78.95%	6.00	4.74
Board of Directors Payroll	$0.43	0.90%	47.75	0.43
Great West Life – MDV	$3.01	6.32%	27.93	1.77
Great West Life – HCS	$0.04	0.09%	53.13	0.05
Group Life Insurance & LTD Insurance	$3.01	6.32%	27.36	1.73
WSIB	$0.31	0.66%	29.30	0.19
Pensions (OMERS)	$3.22	6.76%	43.09	2.91
Total	**$47.67**	**100.00%**		**11.82**

Regular Payroll

HUC's Regular Payroll Staff are paid on a weekly basis on every Wednesday of every week for the prior week's services. Based on HUC's payroll data for 2012, an average service lead time of 4.00 days and an average payment lag time of 2.00 days were determined. Taking this information into account, a dollar-weighted net expense lead time of 6.00 days was determined for Regular Staff Payroll.

Board of Directors Payroll

HUC's Board of Directors Staff is paid to ADP on a quarterly basis on every second day of the quarter beginning month for the prior quarters pay period services. Based on HUC's payroll data for 2012, an average service lead time of 45.75 days and an average payment lead time of 2.00 days were determined. Taking this information into account, a dollar-weighted expense lead time of 47.75 days was determined for Board of Directors Payroll.

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Great West Life – Medical, Dental, and Vision

HUC pays for Medical, Dental, and Vision medical coverage in arrears for the prior month. Based on HUC's benefits data for 2012, an average service lead time of 15.25 days and an average payment lead time of 12.68 days were determined. Taking this information into account, a dollar-weighted expense lead time of 27.93 days was determined for Great West Life – Medical, Dental and Vision medical coverage.

Great West Life – Health Care Spending Account

HUC pays for employee Health Care Spending accounts in arrears for the prior month. Based on HUC's benefits data for 2012, an average service lead time of 15.23 days and an average payment lead time of 37.90 days were determined. Taking this information into account, a dollar-weighted expense lead time of 53.13 days was determined for Great West Life – Medical, Dental and Vision medical coverage.

Group Life & Long Term Disability Insurance

HUC pays for employee Group Life & Long Term Disability Insurance in arrears for the prior month. Based on HUC's benefits data for 2012, an average service lead time of 15.25 days and an average payment lead time of 12.11 days were determined. Taking this information into account, a dollar-weighted expense lead time of 27.36 days was determined for Group Life & Long Term Disability Insurance.

Workplace Safety & Insurance Board

HUC pays for employee Workplace Safety & Insurance Board payments in arrears for the prior month. Based on HUC's benefits data for 2012, an average service lead time of 15.23 days and an average payment lead time of 14.08 days were determined. Taking this information into account, a dollar-weighted expense lead time of 29.30 days was determined for Workplace Safety & Insurance Board payments.

Pensions (OMERS)

HUC pays for employee Pensions, also known as Ontario Municipal Employees Retirement System ("OMERS") payments in arrears for the prior month. Based on HUC's benefits data for 2012, an average service lead time of 15.23 days and an average payment lead time of 27.86 days were determined. Taking this information into account, a dollar-weighted expense lead time of 43.09 days was determined for Pensions (OMERS) payments.

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OM&A Expenses

For the purpose of the distribution lead-lag study, OM&A expenses were considered to consist of payments made by HUC to its vendors in the following categories:

1. P Card;
2. Contract Labour;
3. Vehicles;
4. Computer Maintenance;
5. Software;
6. Cellphone & Pager;
7. Wireless;
8. Freight, Postage & Delivery;
9. Consulting;
10. Tree Trimming;
11. Outside Services; and,
12. Property Taxes.

Expense lead times were calculated individually for each of the items listed above and then dollar-weighted to derive a composite expense lead time of 1.23 days for OM&A expenses. A summary of the dollar-weighted expense lead time is provided in Table 8 below.

Table 8: Summary of OM&A Expenses

Description	Amounts ($M)	Weighting Factor %	Lead Time	Weighted Lead Time
Credit Card	$0.30	2.86%	44.21	1.27
Contract Labour	$0.21	2.02%	29.30	0.59
Vehicles	$0.02	0.16%	31.65	0.05
Computer Maintenance	$0.63	6.03%	(357.55)	(21.57)
Software	$2.42	23.23%	15.21	3.53
Cell & Pager	$0.29	2.76%	29.45	0.81
Wireless	$0.23	2.22%	31.84	0.71
Freight / Postage / Delivery	$0.11	1.09%	33.31	0.36
Consulting Services	$2.37	22.75%	33.03	7.52
Tree Trimming	$0.55	5.27%	33.71	1.78
Outside Services	$2.62	25.11%	31.76	7.98
Property Taxes	$0.68	6.47%	(27.66)	(1.79)
Total	**$10.43**	**100.00%**		**1.23**

P Card

During 2012, HUC used Credit Cards for a variety of services procured by its employees. Based on HUC's Credit Card expense data for 2012, an average service lead time of 15.24 days and an average payment lead time of 28.97 days were determined. Taking this information into account, a dollar-weighted expense lead time of 44.21 days was determined for Credit Card expenses.

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Contract Labour

During 2012, HUC procured Contract Labour for a variety of services required for distribution services. Based on HUC's Contract Labour data for 2012, an average service lead time of 15.26 days and an average payment lead time of 14.03 days were determined. Taking this information into account, a dollar-weighted expense lead time of 29.30 days was determined for Contract Labour.

Vehicles

During 2012, HUC expensed Vehicles for a variety of services required for distribution services. Based on HUC's Vehicle spending data for 2012, an average service lead time of 15.38 days and an average payment lead time of 16.27 days were determined. Taking this information into account, a dollar-weighted expense lead time of 31.65 days was determined for Vehicle expenses.

Computer Maintenance

During 2012, HUC procured services from multiple vendors for Computer Maintenance agreements. Based on HUC's Computer Maintenance Procurement data for 2012, an average service lead time of 373.61 days and an average payment lead time of (731.16) days were determined. Taking this information into account, a dollar-weighted expense lead time of (357.55) days were determined for Computer Maintenance.

Software

During 2012, HUC procured licenses from multiple vendors for computer Software. Based on HUC's Software Procurement data for 2012, an average service lead time of 23.93 days and an average payment lead time of (8.71) days were determined. Taking this information into account, a dollar-weighted expense lead time of 15.21 days was determined for Software expenses.

Cellphone & Pager

During 2012, HUC expensed Cellphone & Pager use for a variety of services required for distribution services. Based on HUC's Cellphone & Pager data for 2012, an average service lead time of 15.25 days and an average payment lead time of 14.20 days were determined. Taking this information into account, a dollar-weighted expense lead time of 29.45 days was determined for Cellphone & Pager expenses.

Wireless Services

During 2012, HUC expensed Wireless Services for a variety of services required for distribution services. Based on HUC's Wireless Services data for 2012, an average service lead time of 15.28 days and an average payment lead time of 16.55 days were determined. Taking this information into account, a dollar-weighted expense lead time of 31.84 days was determined for Wireless expenses.

Freight / Postage / Delivery

During 2012, HUC expensed Freight / Postage / Delivery services for a variety of activities required for distribution services. Based on HUC's Freight / Postage / Delivery data for 2012, an average service lead time of 15.25 days and an average payment lead time of 18.06 days were determined. Taking this information into account, a dollar-weighted expense lead time of 33.31 days was determined for Freight / Postage / Delivery expenses.

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Consulting Services

During 2012, HUC procured Consulting Services required for a variety of activities related to distribution services. Based on HUC's Consulting Services data for 2012, an average service lead time of 15.23 days and an average payment lead time of 17.79 days were determined. Taking this information into account, a dollar-weighted expense lead time of 33.03 days was determined for Consulting Services.

Tree Trimming

During 2012, HUC expensed Tree Trimming services required for distribution services. Based on HUC's Tree Trimming spending data for 2012, an average service lead time of 15.17 days and an average payment lead time of 18.53 days were determined. Taking this information into account, a dollar-weighted expense lead time of 33.71 days was determined for Tree Trimming expenses.

Outside Services

During 2012, HUC procured Outside Services for a variety of activities required for distribution services. Based on HUC's Outside Services data for 2012, an average service lead time of 15.28 days and an average payment lead time of 16.48 days were determined. Taking this information into account, a dollar-weighted expense lead time of 31.76 days was determined for Outside Services.

Property Taxes

During 2012, HUC paid property tax payments to the following municipalities:

1. City of Hamilton; and,
2. City of St. Catharines.

Based on HUC's Property Tax data for 2012, an average service lead time of 183.00 days and an average payment lead (lag) time of (210.66) days were determined. Since property taxes are an annual expense, services were rendered on an annual basis, with (27.66) days resulting as the expense lead time associated with property taxes.

Payments in Lieu of Taxes

HUC makes payments in lieu of taxes ("PILs") in monthly installments to the relevant taxing authorities. In 2012, HUC made (12) payments for each month of the year. Based on HUC's PILs data for 2012, an average service lead time of 183.00 days and an average payment lead (lag) time of (168.50) days were determined. Taking this information into account, a dollar-weighted expense lead time of 14.50 days was determined for PILs.

Debt Retirement Charge

HUC makes a Debt Retirement Charge in monthly installments to the Ontario Electricity Finance Corporation. The payment for the current charge month is made during the middle of the following month. Based on HUC's Debt Retirement Charge data for 2012, an average service lead time of 15.26 days and an average payment lead time of 10.34 days were determined. Taking this information into account, a dollar-weighted expense lead time of 25.59 days was determined for Debt Retirement Charge.

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Interest Expense

HUC has two outstanding debt issuances which incur interest expenses. Based on HUC's Interest Expense data for 2012, an average service lead time of 91.50 days and an average payment lead (lag) time of (158.65) days were determined. Taking this information into account, a dollar-weighted expense lead (lag) time of (67.15) days were determined for Interest Expense.

Harmonized Sales Tax

The expense lead (lag) times associated with the following items that attract HST were considered in this study:

1. Customer Revenues including Cost of Power;
2. Cost of Power expenses; and
3. OM&A Expenses.

Effective July 1, 2010, the Ontario government implemented the harmonization of the Provincial Sales Tax with the Federal Goods and Service Tax into a single Harmonized Sales Tax. Given this is a known and measurable change forward looking; the WCA was calculated using the HST rate of 13.00%. Note that the statutory approach described at the outset was used to determine the expense lead times associated with HUC's remittances and disbursements of HST (i.e., both remittances and collections are generally on the last day of the month following the date of the applicable invoice)
A summary of the expense lead (lag) times associated with each of the above items is provided in Table 10 and Table 10 below.

Table 9: HST Working Capital Factor

HST Category	HST Lead/Lag Days	Working Capital Factor	Working Capital Factor (Leap Year)
HST Rate	13%	13%	13%
Revenues [inc. COP] Lead Days	(23.12)	(6.33%)	(6.32%)
Cost of Power Lead Days	43.73	11.98%	11.95%
OM&A Lead Days	2.55	0.70%	0.70%

Table 10: Summary of Expense Lead Times Associated With HST

HST Category	2014	2015	2016	2017	2018	2019
Revenues [incl. COP]	$622,203,415	$638,342,404	$664,944,611	$688,586,511	$711,468,938	$734,283,591
HST Rate	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%
Cost of Power	$514,946,434	$520,720,617	$542,171,542	$562,422,662	$583,269,859	$602,042,446
OM&A	$30,783,301	$29,728,985	$29,849,980	$30,659,445	$31,709,813	$33,108,690
Revenues [incl. COP]	-$5,123,216	-$5,256,105	-$5,460,188	-$5,669,814	-$5,858,228	-$6,046,083
Cost of Power	$8,020,726	$8,110,664	$8,421,707	$8,760,209	$9,084,921	$9,377,320
OM&A	$28,011	$27,052	$27,088	$27,899	$28,854	$30,127
Total	**$2,925,521**	**$2,881,611**	**$2,988,607**	**$3,118,293**	**$3,255,548**	**$3,361,364**

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Section V: HUC's Working Capital Allowance

Using the results described under the discussion of revenue lags and expense leads, and applying them to HUC's distribution expenses for 2014-2019, the weighted average WCA was determined to be 12.0% of HUC's distribution OM&A expenses (including Cost of Power) for each of the test years 2014-2019. A summary of HUC's WCA for individual 2014-2019 years is provided in the subsequent tables below. These tables include HST amounts which have been derived from Table 10 above.

Table 11: Summary of Working Capital Allowance - 2014

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Amounts ($M)	Working Capital Allowance ($M)
Cost of Power	67.30	32.86	34.44	9.4%	$514,946,434	$48,584,754
OM&A Expenses[4]	67.30	7.30	60.00	16.4%	$64,986,015	$10,683,086
PILs	67.30	14.50	52.80	14.5%	$555,146	$80,303
Debt Retirement Charge	67.30	25.59	41.70	11.4%	$32,180,619	$3,676,858
Interest Expense	67.30	(67.15)	134.45	36.8%	$9,519,067	$3,506,363
Sub-Total					**$622,187,281**	**$66,531,364**
HST						$2,925,521
Total						**$69,456,886**
WCA as a % of OM&A (incl. Cost of Power)						**12.0%**

Table 12: Summary of Working Capital Allowance - 2015

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Amounts ($M)	Working Capital Allowance ($M)
Cost of Power	67.30	32.86	34.44	9.4%	$520,720,617	$49,129,543
OM&A Expenses[5]	67.30	7.30	60.00	16.4%	$64,479,807	$10,599,871
PILs	67.30	14.50	52.80	14.5%	$2,874,217	$415,763
Debt Retirement Charge	67.30	25.59	41.70	11.4%	$31,854,423	$3,639,588
Interest Expense	67.30	(67.15)	134.45	36.8%	$9,831,640	$3,621,500
Sub-Total					**$629,760,705**	**$67,406,264**
HST						$2,881,611
Total						**$70,287,875**
WCA as a % of OM&A (incl. Cost of Power)						**12.0%**

[4] Includes Payroll and Benefits
[5] Includes Payroll and Benefits

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Table 13: Summary of Working Capital Allowance - 2016

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Amounts ($M)	Working Capital Allowance ($M)
Cost of Power	67.30	32.86	34.44	9.4%	$542,171,542	$51,013,656
OM&A Expenses[6]	67.30	7.30	60.00	16.4%	$65,940,947	$10,810,450
PILs	67.30	14.50	52.80	14.4%	$4,252,792	$613,496
Debt Retirement Charge	67.30	25.59	41.70	11.4%	$31,531,534	$3,592,852
Interest Expense	67.30	(67.15)	134.45	36.7%	$10,204,633	$3,748,622
Sub-Total					**$654,101,448**	**$69,779,077**
HST						$2,988,607
Total						**$72,767,684**
WCA as a % of OM&A (incl. Cost of Power)						**12.0%**

Table 14: Summary of Working Capital Allowance - 2017

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Amounts ($M)	Working Capital Allowance ($M)
Cost of Power	67.30	32.86	34.44	9.4%	$562,422,662	$53,064,095
OM&A Expenses[7]	67.30	7.30	60.00	16.4%	$67,692,855	$11,128,065
PILs	67.30	14.50	52.80	14.5%	$4,496,240	$650,392
Debt Retirement Charge	67.30	25.59	41.70	11.4%	$31,211,917	$3,566,177
Interest Expense	67.30	(67.15)	134.45	36.8%	$10,624,086	$3,913,398
Sub-Total					**$676,447,760**	**$72,322,128**
HST						$3,118,293
Total						**$75,440,421**
WCA as a % of OM&A (incl. Cost of Power)						**12.0%**

[6] Includes Payroll and Benefits
[7] Includes Payroll and Benefits

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Table 15: Summary of Working Capital Allowance - 2018

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Amounts ($M)	Working Capital Allowance ($M)
Cost of Power	67.30	32.86	34.44	9.4%	$583,269,859	$55,031,010
OM&A Expenses[8]	67.30	7.30	60.00	16.4%	$69,773,217	$11,470,057
PILs	67.30	14.50	52.80	14.5%	$3,925,141	$567,781
Debt Retirement Charge	67.30	25.59	41.70	11.4%	$30,895,541	$3,530,029
Interest Expense	67.30	(67.15)	134.45	36.8%	$11,632,105	$4,284,704
Sub-Total					**$699,495,863**	**$74,883,581**
HST						$3,255,548
Total						**$78,139,129**
WCA as a % of OM&A (incl. Cost of Power)						**12.0%**

Table 16: Summary of Working Capital Allowance - 2019

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Amounts ($M)	Working Capital Allowance ($M)
Cost of Power	67.30	32.86	34.44	9.4%	$602,042,446	$56,802,187
OM&A Expenses[9]	67.30	7.30	60.00	16.4%	$72,228,903	$11,873,749
PILs	67.30	14.50	52.80	14.5%	$4,021,290	$581,690
Debt Retirement Charge	67.30	25.59	41.70	11.4%	$30,582,371	$3,494,247
Interest Expense	67.30	(67.15)	134.45	36.8%	$12,600,791	$4,641,521
Sub-Total					**$721,475,801**	**$77,393,394**
HST						$3,361,364
Total						**$80,754,758**
WCA as a % of OM&A (incl. Cost of Power)						**12.0%**

[8] Includes Payroll and Benefits
[9] Includes Payroll and Benefits

2-Staff-23a_Attch 3_Service Lag Revised Table

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HORIZON UTILITIES
Working Capital Allowance

Derivation of Service Lag

2-Staff-23 1(a)

Service Lag Derivation	# Days	# Months	Mid-Point Service Lag
	A	B	C = A / B / 2
Monthly Service Lag	366	12	15.25
Bi-Monthly Sevice Lag	366	6	30.5

				SERVICE LAG						
DISTRIBUTION REVENUES	Year:	2012		Weighting Factors						
Rate Classification	Monthly	Bi Monthly	Total	Monthly	Monthly Service Lag		Bi Monthly	Bi-Monthly Service Lag		Weighted Lag
Residential	$ 1,985,015	$ 60,046,695	$ 62,031,710	2.0%	15.25	0.31	61.79%	30.50	18.84	19.16
General Service < 50	$ 10,496,135	$ 2,180,356	$ 12,676,491	10.8%	15.25	1.65	2.24%	30.50	0.68	2.33
General Service > 50	$ 14,435,421		$ 14,435,421	14.9%	15.25	2.27	0.00%	30.50	-	2.27
Large Users	$ 5,422,396		$ 5,422,396	5.6%	15.25	0.85	0.00%	30.50	-	0.85
Unmetered and Scattered	$ 498,067	$ 2,000	$ 500,067	0.5%	15.25	0.08	0.00%	30.50	0.00	0.08
Sentinel	$ 22,165	$ 15,788	$ 37,953	0.0%	15.25	0.00	0.02%	30.50	0.00	0.01
Streetlights	$ 2,081,032		$ 2,081,032	2.1%	15.25	0.33	0.00%	30.50	-	0.33
	$ 34,940,230	**$ 62,244,840**	**$ 97,185,070**							**25.02**

2-Energy Probe-11

Ref: Exhibit 2, Tab 4, Appendix 2-3

a) Does Horizon have any plans to move customers from bi-monthly to monthly billing?

b) If all customers were moved to monthly billing, please show the impact on the overall working capital percentage along with the changes in days for the components of the revenue lag and expense lead, and any change associated with the HST.

c) If Horizon does move some or all customers to monthly billing in 2015-2019, would this adjustment be part of the annual adjustment to the working capital calculation? If not, why not?

Response:

Subsequent to the submission of its Application, Horizon Utilities reviewed the inputs used to calculate the Revenue Lag of 27.06. It determined that some of the revenue allocations between monthly and bi-monthly billing were incorrect. Navigant Consulting Inc. recalculates the Revenue Lag to be 25.02 days, based on the correct revenue allocations. The revised Revenue Lag of 25.02 has been used to calculate a revised Working Capital Allowance. This revision results in a reduction in the Working Capital Allowance of 0.7% from 12.7% to 12.0%. Horizon Utilities has included a revised Lead/Lag Report from Navigant as an attachment to its response to 2-Staff-23a. Horizon Utilities response to part b) is based on the revised Working Capital Allowance of 12.0%.

a) Please see Horizon Utilities' response to Interrogatory 2-Staff-23b).

b) Horizon Utilities provides the impact of switching to monthly billing to its overall working capital percentage along with the changes in days for the components of the revenue lag and expense lead, and any change associated with the HST in an attachment to this response as 2-EP-11b_Attch 1_Impact of Switching All Customers to Monthly Billing. A summary of the impact is identified in Table 1 below:

Table 1

		2015	2016	2017	2018	2019
Revenue Lag Days	Current State	67.30	67.30	67.30	67.30	67.30
	Monthly Billing - all Customers	57.53	57.53	57.53	57.53	57.53
Expense Lead Days		no change				
Working Capital Allowance	Current State	12.0%	12.0%	12.0%	12.0%	12.0%
	Monthly Billing - all Customers	8.8%	8.7%	8.7%	8.7%	8.7%
Total Working Capital Requirement including HST	Current State	$70,287,875	$72,767,684	$75,440,421	$78,139,129	$80,754,758
	Monthly Billing - all Customers	$51,215,047	$53,005,107	$54,943,476	$56,945,822	$58,893,908

The transition to monthly billing results in the issuance of an additional 1.2MM invoices annually.

The transition would require one-time implementation costs that are forecasted to be approximately $0.5MM. This cost includes: the development of implementation plans; testing; documentation, and training; the provision of necessary programming changes for the Customer Information System; and the development of a customer communications strategy and related materials.

Incremental annual operating expenditures are anticipated to be approximately $1.4MM annually (adjusted for inflation). These costs include: increased paper, printing, and mailing/ postage expenditures corresponding to increased billing volumes and Call Centre requirements. Horizon Utilities estimates it will require an additional five Call Centre staff to manage the increased call volumes arising from monthly billing. Approximately $0.84MM of this annual expenditure corresponds to additional postage expense; which has increased at super-inflationary levels and may continue to do so.

Horizon Utilities has estimated the net impact on Revenue Requirement (summarized in Table 2 below) resulting from:

i) The reduction in Revenue Requirement corresponding to the reduction in Working Capital Allowance provided in Table 1 above (Refer to Table 3 below);
ii) The ongoing increase in Revenue Requirement corresponding to an increase in annual operating expenditures necessary to support monthly billing (Refer to Table 4 below);
iii) The increase in Revenue Requirement from 2015 to 2019 corresponding to the recovery of implementation costs for monthly billing (Refer to Table 5 below).

Table 2

Impact on Revenue Requirement from Change to Monthly Billing
($000s)

	Reference	2015	2016	2017	2018	2019	Totals
Impact on Revenue Requirement							
Reduction of Working Capital Allowance	Table 3	(1,358)	(1,407)	(1,460)	(1,528)	(1,592)	(7,346)
Increase in OM&A	Table 4	1,409	1,437	1,466	1,495	1,525	7,332
Implementation Impact	Table 5	(6)	74	157	150	143	520
Net Increase/ (Decrease)		44	104	163	117	76	505

Table 2 demonstrates that Revenue Requirement would increase approximately $0.5MM across 2015 to 2019 as a result of implementing monthly billing. Thereafter, the outcome is marginally positive to ratepayers following the full amortization of one-time implementation costs and under the cost and inflation assumptions identified above and in Tables 3 through 5 below. Horizon Utilities submits that there is relative ratepayer indifference to monthly billing insofar as the impact on their distribution rates.

Horizon Utilities has not evaluated customer preferences with respect to monthly vs. bi-monthly billing. There have been very few calls from customers in the past requesting monthly billing, which may suggest relative indifference. Customers seeking to make electricity payments monthly for budgeting purposes already have opportunity to do so through Horizon Utilities equal monthly payment plan. Based on historical billing amounts, Horizon Utilities computes the monthly billing amount and settles on any differences relative to actual charges on an annual basis.

It is clear that a transition to monthly billing would effectively cause customers to advance one month of their electricity bills, which may be viewed negatively from a cash flow perspective.

Table 3

Impact on Revenue Requirement
Reduction of Working Capital Allowance from Change to Monthly Billing
($000s)

Assumptions:						
Working Capital Rate	8.80%					
PILs Rate	26.50%					
Deemed Debt %	60.00%					
Deemed Equity %	40.00%					
	2015	**2016**	**2017**	**2018**	**2019**	**Totals**
Working Capital Allowance Impact						
Current State	70,288	72,768	75,440	78,139	80,755	
Monthly Billing - All	51,215	53,005	54,943	56,946	58,894	
Working Capital Impact	19,073	19,763	20,497	21,193	21,861	
Cost of Capital						
Debt	3.38%	3.38%	3.38%	3.53%	3.65%	
Equity	9.36%	9.36%	9.36%	9.36%	9.36%	
Revenue Requirement						
Cost of Capital:						
Debt	387	401	416	449	479	2,131
Equity	714	740	767	793	818	3,833
PILs Gross-Up	257	267	277	286	295	1,382
Total	1,358	1,407	1,460	1,528	1,592	7,346

Table 4

Impact on Revenue Requirement
Increase in OM&A from Change to Monthly Billing
($000s)

Assumptions:	
OMA - Annual	1,400
Inflation Rate	2.00%
Working Capital Rate	8.80%
PILs Rate	26.50%
Deemed Debt %	60.00%
Deemed Equity %	40.00%

	2015	2016	2017	2018	2019	Totals
Cost of Capital						
Debt	3.38%	3.38%	3.38%	3.53%	3.65%	
Equity	9.36%	9.36%	9.36%	9.36%	9.36%	
Revenue Requirement						
OM&A	1,400	1,428	1,457	1,486	1,515	7,286
Cost of Capital:						
Debt	2	3	3	3	3	13
Equity	5	5	5	5	5	24
PILs Gross-Up	2	2	2	2	2	9
Total	1,409	1,437	1,466	1,495	1,525	7,332
Working Capital Impact	123	126	128	131	133	

Table 5

Implementation Costs - Monthly Billing
Impact of Increase in OM&A from Change to Monthly Billing
($000s)

Assumptions:	
Implementation CapEx	500
Depreciable Life (Years)	5
CCA Rate	100.00%
PILs Rate	26.50%
Deemed Debt %	60.00%
Deemed Equity %	40.00%

	2015	**2016**	**2017**	**2018**	**2019**	**Totals**
Fixed Asset Continuity						
Opening Balance	-	450	350	250	150	
Additions	500					
Depreciation	(50)	(100)	(100)	(100)	(100)	
Closing Balance	450	350	250	150	50	
Average Balance	225	400	300	200	100	
UCC Continuity						
Opening	-	250	-	-	-	
Additions	500	-	-	-	-	
CCA	(250)	(250)	-	-	-	
Closing	250	-	-	-	-	
Cost of Capital						
Debt (Exhibit 5)	3.38%	3.38%	3.38%	3.53%	3.65%	
Equity (Exhibit 5)	9.36%	9.36%	9.36%	9.36%	9.36%	
Revenue Requirement						
Depreciation	50	100	100	100	100	450
Cost of Capital:						
Debt	5	8	6	4	2	25
Equity	8	15	11	7	4	46
PILs Gross-Up (1)	(69)	(49)	40	39	37	(1)
Total	(6)	74	157	150	143	520
PILs Calculation						
Cost of Equity Capital	8	15	11	7	4	46
Add:						
Depreciation	50	100	100	100	100	450
Deduct:						
CCA	(250)	(250)	-	-	-	(500)
PILs Income	(192)	(135)	111	107	104	(4)
PILs before Gross-Up	(51)	(36)	29	28	27	(1)
PILs Gross-Up	(69)	(49)	40	39	37	(1)

1) PILs Gross-Up only applies to change in Cost of Equity

c) Yes.

However, it is Horizon Utilities' expectation that it would commence recovery of one-time and ongoing incremental costs identified in b) at the same time as the adjustment to working capital.

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2-EP-11b_Attch 1_Impact of Switching All Customers to Monthly Billing

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HORIZON UTILITIES
Working Capital Allowance

Monthly/bi-monthly customers (filed) VS all customers with monthly billing

As per updated filed report

2014 WORKING CAPITAL REQUIREMENT

2014

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2014 Expenses	2014 Working Capital Requirement
Cost of Power	67.30	32.86	34.44	9.4%	$514,946,434	$48,584,754
OM&A Expenses	67.30	7.30	60.00	16.4%	$64,986,015	$10,683,086
PILS	67.30	14.50	52.80	14.5%	$555,146	$80,303
DRC	67.30	25.59	41.70	11.4%	$32,180,619	$3,676,858
Interest Expense	67.30	(67.15)	134.45	36.8%	$9,519,067	$3,506,363
Total					**$622,187,281**	**$66,531,364**
HST						$2,925,521
Total - Including HST						**$69,456,886**
Working Capital as a Percent of OM&A incl. Cost of Power						**12.0%**

2015 WORKING CAPITAL REQUIREMENT

2015

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2015 Expenses	2015 Working Capital Requirement
Cost of Power	67.30	32.86	34.44	9.4%	$520,720,617	$49,129,543
OM&A Expenses	67.30	7.30	60.00	16.4%	$64,479,807	$10,599,871
PILS	67.30	14.50	52.80	14.5%	$2,874,217	$415,763
DRC	67.30	25.59	41.70	11.4%	$31,854,423	$3,639,588
Interest Expense	67.30	(67.15)	134.45	36.8%	$9,831,640	$3,621,500
Total					**$629,760,705**	**$67,406,264**
HST						$2,881,611
Total - Including HST						**$70,287,875**
Working Capital as a Percent of OM&A incl. Cost of Power						**12.0%**

2016 WORKING CAPITAL REQUIREMENT

2016

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2016 Expenses	2016 Working Capital Requirement
Cost of Power	67.30	32.86	34.44	9.4%	$542,171,542	$51,013,656
OM&A Expenses	67.30	7.30	60.00	16.4%	$65,940,947	$10,810,450
PILS	67.30	14.50	52.80	14.4%	$4,252,792	$613,496
DRC	67.30	25.59	41.70	11.4%	$31,531,534	$3,592,852
Interest Expense	67.30	(67.15)	134.45	36.7%	$10,204,633	$3,748,622
Total					**$654,101,448**	**$69,779,077**
HST						$2,988,607
Total - Including HST						**$72,767,684**
Working Capital as a Percent of OM&A incl. Cost of Power						**12.0%**

Monthly/bi-monthly customers (filed) VS all customers with monthly billing

2017 WORKING CAPITAL REQUIREMENT

2017

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2017 Expenses	2017 Working Capital Requirement
Cost of Power	67.30	32.86	34.44	9.4%	$562,422,662	$53,064,095
OM&A Expenses	67.30	7.30	60.00	16.4%	$67,692,855	$11,128,065
PILS	67.30	14.50	52.80	14.5%	$4,496,240	$650,392
DRC	67.30	25.59	41.70	11.4%	$31,211,917	$3,566,177
Interest Expense	67.30	(67.15)	134.45	36.8%	$10,624,086	$3,913,398
Total					**$676,447,760**	**$72,322,128**
HST						$3,118,293
Total - Including HST						**$75,440,421**
Working Capital as a Percent of OM&A incl. Cost of Power						**12.0%**

2018 WORKING CAPITAL REQUIREMENT

2018

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2018 Expenses	2018 Working Capital Requirement
Cost of Power	67.30	32.86	34.44	9.4%	$583,269,859	$55,031,010
OM&A Expenses	67.30	7.30	60.00	16.4%	$69,773,217	$11,470,057
PILS	67.30	14.50	52.80	14.5%	$3,925,141	$567,781
DRC	67.30	25.59	41.70	11.4%	$30,895,541	$3,530,029
Interest Expense	67.30	(67.15)	134.45	36.8%	$11,632,105	$4,284,704
Total					**$699,495,863**	**$74,883,581**
HST						$3,255,548
Total - Including HST						**$78,139,129**
Working Capital as a Percent of OM&A incl. Cost of Power						**12.0%**

2019 WORKING CAPITAL REQUIREMENT

2019

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2019 Expenses	2019 Working Capital Requirement
Cost of Power	67.30	32.86	34.44	9.4%	$602,042,446	$56,802,187
OM&A Expenses	67.30	7.30	60.00	16.4%	$72,228,903	$11,873,749
PILS	67.30	14.50	52.80	14.5%	$4,021,290	$581,690
DRC	67.30	25.59	41.70	11.4%	$30,582,371	$3,494,247
Interest Expense	67.30	(67.15)	134.45	36.8%	$12,600,791	$4,641,521
Total					**$721,475,801**	**$77,393,394**
HST						$3,361,364
Total - Including HST						**$80,754,758**
Working Capital as a Percent of OM&A incl. Cost of Power						**12.0%**

As per switching all customers to monthly billing

2014 WORKING CAPITAL REQUIREMENT

2014

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2014 Expenses	2014 Working Capital Requirement
Cost of Power	57.53	32.86	24.67	6.8%	$514,946,434	$34,804,956
OM&A Expenses	57.53	7.30	50.24	13.8%	$64,986,015	$8,944,082
PILS	57.53	14.50	43.03	11.8%	$555,146	$65,448
DRC	57.53	25.59	31.94	8.7%	$32,180,619	$2,815,715
Interest Expense	57.53	(67.15)	124.68	34.2%	$9,519,067	$3,251,636
Total					**$622,187,281**	**$49,881,837**
HST						$761,026
Total - Including HST						**$50,642,863**
Working Capital as a Percent of OM&A incl. Cost of Power						**8.7%**

2015 WORKING CAPITAL REQUIREMENT

2015

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2015 Expenses	2015 Working Capital Requirement
Cost of Power	57.53	32.86	24.67	6.8%	$520,720,617	$35,195,230
OM&A Expenses	57.53	7.30	50.24	13.8%	$64,479,807	$8,874,412
PILS	57.53	14.50	43.03	11.8%	$2,874,217	$338,850
DRC	57.53	25.59	31.94	8.7%	$31,854,423	$2,787,174
Interest Expense	57.53	(67.15)	124.68	34.2%	$9,831,640	$3,358,408
Total					**$629,760,705**	**$50,554,074**
HST						$660,973
Total - Including HST						**$51,215,047**
Working Capital as a Percent of OM&A incl. Cost of Power						**8.8%**

2016 WORKING CAPITAL REQUIREMENT

2016

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2016 Expenses	2016 Working Capital Requirement
Cost of Power	57.53	32.86	24.67	6.7%	$542,171,542	$36,544,963
OM&A Expenses	57.53	7.30	50.24	13.7%	$65,940,947	$9,050,714
PILS	57.53	14.50	43.03	11.8%	$4,252,792	$500,004
DRC	57.53	25.59	31.94	8.7%	$31,531,534	$2,751,384
Interest Expense	57.53	(67.15)	124.68	34.1%	$10,204,633	$3,476,295
Total					**$654,101,448**	**$52,323,360**
HST						$681,747
Total - Including HST						**$53,005,107**
Working Capital as a Percent of OM&A incl. Cost of Power						**8.7%**

HORIZON UTILITIES

Working Capital Allowance

Monthly/bi-monthly customers (filed) VS all customers with monthly billing

2017 WORKING CAPITAL REQUIREMENT

2017

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2017 Expenses	2017 Working Capital Requirement
Cost of Power	57.53	32.86	24.67	6.8%	$562,422,662	$38,013,849
OM&A Expenses	57.53	7.30	50.24	13.8%	$67,692,855	$9,316,627
PILS	57.53	14.50	43.03	11.8%	$4,496,240	$530,074
DRC	57.53	25.59	31.94	8.7%	$31,211,917	$2,730,957
Interest Expense	57.53	(67.15)	124.68	34.2%	$10,624,086	$3,629,101
Total					**$676,447,760**	**$54,220,608**
HST						$722,868
Total - Including HST						**$54,943,476**
Working Capital as a Percent of OM&A incl. Cost of Power						**8.7%**

2018 WORKING CAPITAL REQUIREMENT

2018

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2018 Expenses	2018 Working Capital Requirement
Cost of Power	57.53	32.86	24.67	6.8%	$583,269,859	$39,422,900
OM&A Expenses	57.53	7.30	50.24	13.8%	$69,773,217	$9,602,949
PILS	57.53	14.50	43.03	11.8%	$3,925,141	$462,746
DRC	57.53	25.59	31.94	8.7%	$30,895,541	$2,703,275
Interest Expense	57.53	(67.15)	124.68	34.2%	$11,632,105	$3,973,432
Total					**$699,495,863**	**$56,165,302**
HST						$780,520
Total - Including HST						**$56,945,822**
Working Capital as a Percent of OM&A incl. Cost of Power						**8.7%**

2019 WORKING CAPITAL REQUIREMENT

2019

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	2019 Expenses	2019 Working Capital Requirement
Cost of Power	57.53	32.86	24.67	6.8%	$602,042,446	$40,691,729
OM&A Expenses	57.53	7.30	50.24	13.8%	$72,228,903	$9,940,927
PILS	57.53	14.50	43.03	11.8%	$4,021,290	$474,081
DRC	57.53	25.59	31.94	8.7%	$30,582,371	$2,675,873
Interest Expense	57.53	(67.15)	124.68	34.2%	$12,600,791	$4,304,328
Total					**$721,475,801**	**$58,086,938**
HST						$806,970
Total - Including HST						**$58,893,908**
Working Capital as a Percent of OM&A incl. Cost of Power						**8.7%**

Toronto Hydro-Electric System Limited
EB-2014-0116
Exhibit 2A
Tab 3
Schedule 2
ORIGINAL
(35 pages)

Working Capital Requirements of Toronto Hydro Electric System Limited's Distribution Business

Prepared for:

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June 27, 2014

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Section I: Executive Summary

Summary

This report provides the results of the working capital requirements of THESL's distribution business.

Performing a lead-lag study requires two key undertakings:

1. Developing an understanding of how the regulated distribution business operates in terms of products and services sold to customers/purchased from vendors, and the policies and procedures that govern such transactions; and,
2. Modeling such operations using data from a relevant period of time and a representative data set. It is important to ascertain and factor into the study whether (or not) there are known changes to existing business policies and procedures going forward. Where such changes are known and material, they should be factored into the study.

Results from the lead-lag study using 2012 data identify the following working capital amount in Table 1, below.

Table 1: Summary of Working Capital Requirements

Year	2012
Percentage of OMA	7.91%
Working Capital Requirement	$218,720,393

The results of the study indicate a lower working capital requirement compared to THESL's EB-2007-0680 distribution lead-lag study. A considerable amount of time has lapsed between the two studies. The primary reason for the difference is the decrease in retail revenue lag days due to the upgrade of THESL's Customer Information System since the prior study. The retail revenue lag days have decreased by approximately 20 percent. Table 2, below summarizes the detailed working capital requirements for 2012 calculated in the study.

Table 2: THESL Distribution Working Capital Requirements (2012)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses	Working Capital Requirements
Cost of Power	55.04	32.84	22.20	6.07%	$ 2,450,597,565	$ 148,654,316
OM&A Expenses	55.04	33.86	21.19	5.79%	$ 312,961,220	$ 18,115,434
PILS	55.04	(48.95)	103.99	28.41%	$ 7,831,000	$ 2,225,034
Interest Expense	55.04	46.17	8.87	2.42%	$ 76,173,950	$ 1,845,550
DRC	55.04	33.31	21.74	5.94%	$ 162,416,324	$ 9,645,577
Total					**$ 3,009,980,059**	**$ 180,485,912**
HST						$ 38,234,481
Total - Including HST						**$ 218,720,393**
Working Capital as a Percent of OM&A incl. Cost of Power						**7.91%**

Organization of the Report

Section II of the report discusses the lag times associated with THESL's collections of revenues. The section includes a description of the sources revenues and how an overall revenue lag is derived.

Section III presents the lead times associated with THESL's expenses. The section includes a description of the types of expenses incurred by THESL's distribution operations and how expenses are treated for the purposes of deriving an overall prov expenses lead.

Section IV presents a summary of the results from the study.

Section II: Revenue Lags

A distribution utility providing service to its customers generally derives its revenue from bills paid for service by its customers. A revenue lag represents the number of days from the date service is rendered by THESL until the date payments are received from customers and funds are available to THESL.

Interviews with THESL personnel indicate that its distribution business receives funds from the following funding streams:

1. Retail Customers;
2. Other Sources (revenues from electricity retailers and revenues for miscellaneous services such as jobbing and contracting work performed by THESL); and,
3. The Ontario Clean Energy Benefit (OCEB).

The lag times associated with the funding streams above were weighted and combined to calculate an overall revenue lag time as shown below. Detailed data tables are provided in Appendix B.

Table 3: Summary of Revenue Lag

Description	Lag Days	Revenues	Weighting	Weighted Lag
Retail Revenue	54.78	$ 3,265,502,197	94.18%	51.59
Other Revenue	33.93	$ 25,540,425	0.74%	0.25
Ontario Clean Energy Benefit	62.98	$ 176,156,432	5.08%	3.20
Total		**$ 3,467,199,054**	**100.00%**	**55.04**

Retail Revenue Lag

Retail Revenue lag consists of the following components:

1. Service Lag;
2. Billing Lag;
3. Collections Lag; and,
4. Payment Processing Lag.

The lag times for each of the above components, when added together, results in the Retail Revenue Lag for the purpose of calculating the working capital requirements for THESL's distribution business. The components are intended to represent a continuous process from the end date of the customer's previous billing cycle to the date in which the payment is available to THESL. Figure 1 illustrates the start and end point for each component of THESL's retail revenue lag.

Figure 1: Retail Revenue Lag

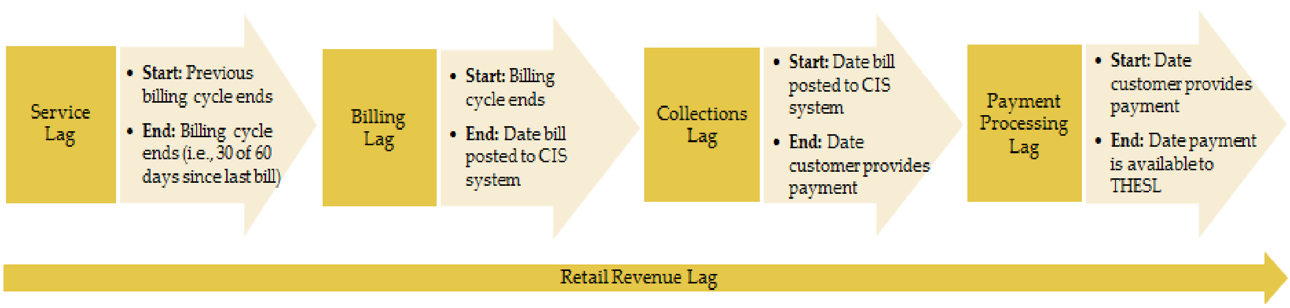

Table 3, below summarizes the total Retail Revenue Lag.

Table 4: Summary of Retail Revenue Lag

Description	Lag Days
Service Lag	18.72
Billing Lag	12.52
Collections Lag	22.21
Payment Processing Lag	1.32
Total	**54.78**

The estimation of each component of the Retail Revenue Lag is described below.

Service Lag

The Service Lag is the time from THESL's provision of electricity to a customer, to the time the customer's service period ends, which is typically defined as when the meter is read. Customer Service staff at THESL provided data which documented that approximately 78% of revenues are billed monthly and 22% of revenues are billed bi-monthly. Using the information provided, the Service Lag was estimated to be 18.72 days.

Billing Lag

The Billing Lag is the time period from when the customer's service period ends, which is typically defined as when the meter is read, and the time that the customer's bill is generated in the customer information system (CIS). Interviews with billing staff at THESL and analysis of meter billing data indicated that THESL customers have an average billing lag of 12.52 days, which is significantly shorter than billing lag in the prior study due to the implementation of a new CIS.

Collections Lag

The Collections Lag is the time period from when the bill is generated in the CIS, until the time when the customer provides a payment to THESL. The Collections Lag is measured by analyzing the receivables aging data provided by THESL. THESL's Collection lag was calculated to be 22.21 days was determined for THESL's distribution operations.

Payment Processing Lag

The Payment Processing lag is the time period from when the customer provides a payment to THESL until such time as the funds associated with that payment are available to the company. The Payment Processing Lag is measured by analyzing the payment methods used by THESL customers. Some examples of the payment methods used include credit card, pre-authorized payment and branch payment. THESL provided the processing time associated with each method of payment and the number of customers using each method of payment. Using such data provided by THESL for the calendar year 2012, a customer-weighted average payment processing lag of 1.32 days was determined for THESL's distribution operations.

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Section III: Expense Leads

Expense Leads are defined as the time period between when a service is provided to THESL and when payment is required for that service. Typically services are provided in advance of payment which reduces the capital requirement of the company. Therefore, in conjunction with the calculation of the revenue lag, expense lead times were calculated for the following items:

1. Cost of Power;
2. OM&A Expenses;
3. Interest on Long Term Debt;
4. Payments in Lieu of Taxes; and,
5. Harmonized Sales Tax.

Cost of Power

For the purpose of the distribution lead-lag study, cost of power expenses were considered to consist of payments made by THESL to its vendors in the following categories:

1. Independent Electricity System Operator (IESO) Cost of Power Expenses;
2. Hydro One Low Voltage Charges;
3. Payments to Non-Utility Generators; and,
4. Payments to Renewable Energy Standard Offer Program (RESOP), Micro Feed-in Tariff (MFIT), and Feed-in Tariff (FIT) customers.

Expense lead times were calculated individually for each of the items listed above and then dollar-weighted to derive a composite expense lead time of 32.84 days for cost of power expenses.

Table 5: Summary of Cost of Power Expenses

Description	Amounts	Weighting	Expense Lead Time	Weighted Lead Time
IESO Cost of Power	$ 2,442,084,555	99.65%	32.80	32.68
Hydro One Low Voltage Charges	$ 352,519	0.01%	32.22	0.00
Payments to Non-Utility Generators	$ 293,330	0.01%	32.26	0.00
Payments to RESOP, MFIT, and FIT customers	$ 7,867,160	0.32%	46.29	0.15
Total	**$ 2,450,597,565**	**100.00%**		**32.84**

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IESO Cost of Power Expenses

THESL purchases its power supply requirements on a monthly basis from the IESO and pays for such supplies on a schedule defined by the IESO's billing and settlement procedures. Taking the information on actual payments made by THESL in 2012, a dollar-weighted Cost of Power expense lead time of 32.80 days was calculated. Table 6 below summarizes the components of the Cost of Power expense lead calculation.

Table 6: Summary of IESO Cost of Power Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$ 201,741,673	8.26%	2/21/2012	15.50	21.00	31.50	2.60
Feb 12	$ 189,300,906	7.75%	3/20/2012	14.50	20.00	30.50	2.36
Mar 12	$ 200,593,695	8.21%	4/23/2012	15.50	23.00	34.50	2.83
Apr 12	$ 182,265,321	7.46%	5/18/2012	15.00	18.00	31.00	2.31
May 12	$ 202,835,582	8.31%	6/20/2012	15.50	20.00	33.50	2.78
Jun 12	$ 217,612,164	8.91%	7/20/2012	15.00	20.00	33.00	2.94
Jul 12	$ 220,868,561	9.04%	8/21/2012	15.50	21.00	32.50	2.94
Aug 12	$ 231,368,962	9.47%	9/21/2012	15.50	21.00	34.50	3.27
Sep 12	$ 195,552,497	8.01%	10/19/2012	15.00	19.00	32.00	2.56
Oct 12	$ 198,526,123	8.13%	11/21/2012	15.50	21.00	34.50	2.80
Nov 12	$ 204,231,158	8.36%	12/20/2012	15.00	20.00	33.00	2.76
Dec 12	$ 197,187,913	8.07%	1/21/2013	15.50	21.00	32.50	2.62
Total	**$ 2,442,084,555**	**100.00%**					**32.80**

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Hydro One Low Voltage Charges

THESL provides payment to Hydro One for low voltage charges on a monthly basis and pays for such charges on a monthly basis. Based upon information on payments made by THESL in 2012, a dollar-weighted Hydro One Low Voltage Charges Cost of Power expense lead time of 32.22 days was calculated. Table 7, below summarizes the components of the Hydro One Low Voltage Charges expense lead calculation.

Table 7: Summary of Hydro One Low Voltage Charges

Delivery Period		Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$	27,386	7.77%	2/16/2012	15.50	16.00	31.50	2.45
Feb 12	$	37,379	10.60%	3/16/2012	14.50	16.00	30.50	3.23
Mar 12	$	26,011	7.38%	4/19/2012	15.50	19.00	34.50	2.55
Apr 12	$	24,835	7.04%	5/16/2012	15.00	16.00	31.00	2.18
May 12	$	24,866	7.05%	6/16/2012	15.50	16.00	31.50	2.22
Jun 12	$	26,303	7.46%	7/18/2012	15.00	18.00	33.00	2.46
Jul 12	$	31,504	8.94%	8/17/2012	15.50	17.00	32.50	2.90
Aug 12	$	29,118	8.26%	9/19/2012	15.50	19.00	34.50	2.85
Sep 12	$	38,369	10.88%	10/17/2012	15.00	17.00	32.00	3.48
Oct 12	$	36,131	10.25%	11/17/2012	15.50	17.00	32.50	3.33
Nov 12	$	25,235	7.16%	12/16/2012	15.00	16.00	31.00	2.22
Dec 12	$	25,384	7.20%	1/17/2013	15.50	17.00	32.50	2.34
Total	**$**	**352,519**	**100.00%**					**32.22**

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Payments to Non-Utility Generators

THESL purchases power supply from Non-Utility Generators on a monthly basis and pays for such supplies on a monthly basis. For the year 2012, a dollar-weighted expense lead time of 32.26 days was calculated. Table 8 below summarizes the components of the Non-Utility Generator payments expense lead calculation.

Table 8: Summary of Non-Utility Generator Payments

Delivery Period		Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$	34,011	11.59%	2/16/2012	15.50	16.00	31.50	3.65
Feb 12	$	18,356	6.26%	3/16/2012	14.50	16.00	30.50	1.91
Mar 12	$	13,579	4.63%	4/19/2012	15.50	19.00	34.50	1.60
Apr 12	$	13,586	4.63%	5/16/2012	15.00	16.00	31.00	1.44
May 12	$	14,235	4.85%	6/16/2012	15.50	16.00	31.50	1.53
Jun 12	$	13,825	4.71%	7/18/2012	15.00	18.00	33.00	1.56
Jul 12	$	31,504	10.74%	8/17/2012	15.50	17.00	32.50	3.49
Aug 12	$	29,118	9.93%	9/19/2012	15.50	19.00	34.50	3.42
Sep 12	$	38,369	13.08%	10/17/2012	15.00	17.00	32.00	4.19
Oct 12	$	36,131	12.32%	11/17/2012	15.50	17.00	32.50	4.00
Nov 12	$	25,235	8.60%	12/16/2012	15.00	16.00	31.00	2.67
Dec 12	$	25,384	8.65%	1/17/2013	15.50	17.00	32.50	2.81
Total	**$**	**293,330**	**100.00%**					**32.26**

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Payments to RESOP, MFIT, and FIT Customers

THESL purchases power supply from RESOP, MFIT and FIT customers. Using payment information in 2012 and the service and billing lag values determined from the revenue analysis, a dollar-weighted expense lead time of 46.29 days was calculated. Table 9 below summarizes the components of the RESOP, MFIT, and FIT payments expense lead calculation. Additional detail can be found in Appendix B.

Table 9: RESOP, MFIT, and FIT Customer Payments

Description	Amounts	Weighting	Expense Lead Time	Weighted Lead Time
RESOP	$ 113,497	1.44%	38.41	0.55
MFIT	$ 1,843,520	23.43%	43.31	10.15
FIT	$ 5,910,143	75.12%	47.38	35.59
Total	**$ 7,867,160**	**100.00%**		**46.29**

OM&A Expenses

For the purpose of the distribution lead-lag study, OM&A expenses were considered to consist of payments made by THESL to its vendors in the following categories:

1. Payroll & Benefits;
2. Property Taxes;
3. Non-Resident Withholding Tax;
4. Corporate Procurement Card;
5. Lease Payments;
6. Outside Services; and,
7. Miscellaneous OM&A.

Expense lead times were calculated individually for each of the items listed above and then dollar-weighted to derive a composite expense lead time of 33.86 days for OM&A expenses.

Table 10: Summary of OM&A Expenses

Description	Amounts	Weighting	Expense Lead Time	Weighted Lead Time
Payroll & Benefits	$ 207,829,884	66.41%	27.30	18.13
Property Taxes	$ 6,494,693	2.08%	(27.57)	(0.57)
Non-Resident Withholding Tax	$ 249,209	0.08%	29.44	0.02
Corporate Procurement Card	$ 187,473	0.06%	26.21	0.02
Lease Payments	$ 8,971,928	2.87%	12.85	0.37
Outside Services	$ 49,864,366	15.93%	53.51	8.53
Miscellaneous OM&A	$ 39,363,668	12.58%	58.56	7.37
Total	**$ 312,961,220**	**100.00%**		**33.86**

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Payroll & Benefits

The following items were considered to be expenses related to the Payroll & Benefits of THESL:

1. Two types of payroll including basic and board of directors payroll;
2. Three types of payroll withholdings including the Canada Pension Plan, Employment Insurance, and Income Tax withholdings;
3. Contributions made by THESL to the THESL Pension Plan;
4. Group Health, Dental, and Life Insurance related administrative fees and claims, long-term disability, accidental death and dismemberment, and employee assistance program;
5. Payments made by THESL on account of the Employer Health Tax (EHT); and,
6. Payments made by THESL to the Workplace Safety and Insurance Board (WSIB).

When all Payroll, Withholdings and Benefits were dollar-weighted using actual payment data, the weighted average expense lead time associated with Payroll & Benefits was determined to be 27.30 days as shown in Table 11, below. Additional detail can be found in Appendix B.

Table 11: Summary of Payroll & Benefits Expenses

Description	Amounts	Weighting	Expense Lead Time	Weighted Lead Time
Payroll	$ 102,963,943	19.68	49.54%	9.75
Withholdings	$ 52,044,775	33.58	25.04%	8.41
Pensions	$ 29,800,561	56.83	14.34%	8.15
Group Life Insurance	$ 2,760,011	(4.25)	1.33%	(0.06)
Group Medical & Dental Claims	$ 13,286,318	0.50	6.39%	0.03
Long-Term Disability	$ 2,160,971	(4.25)	1.04%	(0.04)
Accidental Death and Dismemberment	$ 28,747	(4.25)	0.01%	(0.00)
Employee Assistance Program	$ 118,870	(4.10)	0.06%	(0.00)
EHT	$ 3,167,626	42.39	1.52%	0.65
WSIB	$ 1,498,062	57.96	0.72%	0.42
Total	**$ 207,829,884**		**100.00%**	**27.30**

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Property Taxes

THESL makes property tax payments to the City of Toronto and taxing authorities in the Province of Ontario. These payments are made in the current year for the current year and are typically made in installments. Using the payment dates and amounts associated with THESL's distribution business for calendar year 2012, a dollar-weighted expense lead (-lag) time of negative 27.57 days was determined. Table 12, below summarizes the components of the property tax expense lead calculation. Additional detail can be found in Appendix B.

Table 12: Summary of Property Tax Expenses

Description	Amounts	Weighting	Expense Lead Time	Weighted Lead Time
PIL Property Tax	$ 53,851	0.83%	(15.39)	(0.13)
Property Tax	$ 6,440,842	99.17%	(27.67)	(27.44)
Total	**$ 6,494,693**	**100.00%**		**(27.57)**

Non-Resident Withholding Tax

THESL makes non-resident withholding tax payments to the relevant taxing authority. These payments are made on a monthly basis. Using actual payment dates and amounts provided by THESL, a dollar-weighted expense lead time of 29.44 days was determined. Table 13, below summarizes the components of the non-resident withholding tax expense lead calculation.

Table 13: Summary of Non-Resident Withholding Tax Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$ 17,561	7.05%	1/13/2012	15.50	13.00	28.50	2.01
Feb 12	$ 32,228	12.93%	2/15/2012	15.50	15.00	30.50	3.94
Mar 12	$ 5,623	2.26%	3/15/2012	14.00	16.00	30.00	0.68
Apr 12	$ 56,377	22.62%	4/13/2012	15.50	13.00	28.50	6.45
May 12	$ 9,885	3.97%	5/15/2012	15.00	15.00	30.00	1.19
Jun 12	$ 12,593	5.05%	6/15/2012	15.50	15.00	30.50	1.54
Jul 12	$ 16,577	6.65%	7/13/2012	15.00	13.00	28.00	1.86
Aug 12	$ 4,793	1.92%	8/15/2012	15.50	15.00	30.50	0.59
Sep 12	$ 23,459	9.41%	9/14/2012	15.50	14.00	29.50	2.78
Oct 12	$ 37,550	15.07%	10/15/2012	15.00	15.00	30.00	4.52
Nov 12	$ 15,812	6.34%	11/15/2012	15.50	15.00	30.50	1.94
Dec 12	$ 16,751	6.72%	12/14/2012	15.00	14.00	29.00	1.95
Total	**$ 249,209**	**100.00%**					**29.44**

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Corporate Procurement Card

Procurement (or charge) cards are used by the THESL's employees for a variety of company related reasons including, and not limited to, purchases of materials in the field, incidental expenses, and to settle charges for travel and accommodation. Based on invoice and payment information provided by THESL, a dollar-weighted expense lead time of 26.21 days was determined. Table 14 below summarizes the components of the corporate procurement card expense lead calculation.

Table 14: Summary of Corporate Procurement Card Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$ 15,927	8.50%	1/13/2012	15.50	11.00	26.50	2.25
Feb 12	$ 11,782	6.28%	2/15/2012	14.50	11.00	25.50	1.60
Mar 12	$ 4,624	2.47%	3/15/2012	15.50	11.00	26.50	0.65
Apr 12	$ 5,756	3.07%	4/13/2012	15.00	11.00	26.00	0.80
May 12	$ 12,882	6.87%	5/15/2012	15.50	11.00	26.50	1.82
Jun 12	$ 14,794	7.89%	6/15/2012	15.00	11.00	26.00	2.05
Jul 12	$ 4,246	2.27%	7/13/2012	15.50	11.00	26.50	0.60
Aug 12	$ 5,776	3.08%	8/15/2012	15.50	11.00	26.50	0.82
Sep 12	$ 6,420	3.42%	9/14/2012	15.00	11.00	26.00	0.89
Oct 12	$ 13,849	7.39%	10/15/2012	15.50	11.00	26.50	1.96
Nov 12	$ 59,012	31.48%	11/15/2012	15.00	11.00	26.00	8.18
Dec 12	$ 32,403	17.28%	12/14/2012	15.50	11.00	26.50	4.58
Total	**$ 187,473**	**100.00%**					**26.21**

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Lease Payments

Using actual payment dates and amounts provided by THESL, a dollar-weighted lease expense lead time of 12.85 days was determined. Table 15, below summarizes the components of the lease expense lead calculation.

Table 15: Summary of Lease Expenses

Delivery Period	Amounts	Weighting Factor %	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$ 844,861	9.42%	48.81	0.51	49.32	4.64
Feb 12	$ 740,722	8.26%	14.93	5.63	20.56	1.70
Mar 12	$ 740,722	8.26%	15.07	(7.91)	7.16	0.59
Apr 12	$ 740,722	8.26%	15.21	(7.35)	7.86	0.65
May 12	$ 740,722	8.26%	15.29	(9.35)	5.94	0.49
Jun 12	$ 740,722	8.26%	15.21	(2.36)	12.86	1.06
Jul 12	$ 719,847	8.02%	15.28	(3.25)	12.03	0.97
Aug 12	$ 740,722	8.26%	15.50	(6.91)	8.59	0.71
Sep 12	$ 740,722	8.26%	15.21	(10.48)	4.73	0.39
Oct 12	$ 740,722	8.26%	15.29	(4.20)	11.08	0.91
Nov 12	$ 740,722	8.26%	15.21	(10.76)	4.45	0.37
Dec 12	$ 740,722	8.26%	15.29	(10.77)	4.52	0.37
Total	**$ 8,971,928**	**100.00%**				**12.85**

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Outside Services

THESL engages outside services to provide assistance in the areas of engineering, information technology, receivables management, accounting, and general consulting. Based on 2012 transactions in THESL's accounts payable system under the outside services category, a dollar-weighted expense lead time of 53.51 days was determined. Table 16, below summarizes the components of outside services expense lead calculation.

Table 16: Summary of Outside Services Expenses

Delivery Period	Amounts	Weighting Factor %	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-12	$ 4,612,817	9.25%	14.38	37.70	52.08	4.82
Feb-12	$ 2,781,515	5.58%	14.58	43.98	58.56	3.27
Mar-12	$ 3,033,721	6.08%	12.29	41.93	54.22	3.30
Apr-12	$ 2,865,796	5.75%	14.44	46.31	60.75	3.49
May-12	$ 6,084,596	12.20%	28.24	13.45	41.68	5.09
Jun-12	$ 5,110,106	10.25%	14.48	47.74	62.22	6.38
Jul-12	$ 3,904,682	7.83%	29.29	13.85	43.14	3.38
Aug-12	$ 3,800,454	7.62%	13.96	35.58	49.54	3.78
Sep-12	$ 4,129,948	8.28%	19.05	33.91	52.97	4.39
Oct-12	$ 5,325,608	10.68%	30.95	32.32	63.28	6.76
Nov-12	$ 4,810,172	9.65%	13.73	44.26	57.98	5.59
Dec-12	$ 3,404,952	6.83%	13.81	34.29	48.10	3.28
Total	**$ 49,864,366**	**100.00%**				**53.51**

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Miscellaneous OM&A

The Miscellaneous OM&A category includes items such as product purchases, equipment rentals, and provision of general services to THESL. Based on 2012 transactions in THESL's accounts payable system under the Miscellaneous OM&A category, a dollar-weighted expense lead time of 58.56 days was derived. Table 17, below summarizes the components of miscellaneous OM&A expense lead calculation.

Table 17: Summary of Miscellaneous OM&A Expenses

Delivery Period	Amounts	Weighting Factor %	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-12	$ 5,024,613	12.76%	74.53	(17.64)	56.88	7.26
Feb-12	$ 3,197,116	8.12%	57.20	(49.67)	7.53	0.61
Mar-12	$ 3,513,623	8.93%	39.78	(0.92)	38.86	3.47
Apr-12	$ 4,245,067	10.78%	60.99	62.93	123.92	13.36
May-12	$ 3,438,457	8.74%	59.78	(30.27)	29.51	2.58
Jun-12	$ 2,285,298	5.81%	15.80	35.12	50.92	2.96
Jul-12	$ 3,326,833	8.45%	49.06	(0.03)	49.03	4.14
Aug-12	$ 3,235,973	8.22%	60.64	(6.81)	53.84	4.43
Sep-12	$ 2,390,997	6.07%	16.04	42.90	58.94	3.58
Oct-12	$ 2,283,193	5.80%	15.93	36.91	52.84	3.06
Nov-12	$ 3,132,224	7.96%	56.56	18.42	74.98	5.97
Dec-12	$ 3,290,273	8.36%	66.50	18.88	85.38	7.14
Total	**$ 39,363,668**	**100.00%**				**58.56**

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Interest on Short-Term and Long-Term Debt

THESL makes interest payments on long-term and short-term intercompany promissory notes out of current year revenues. Payments on long-term debt are generally made twice a year. Though short-term debt was not part of THESL's financing in the base year of the analysis (2012), discussions with THESL staff indicate that short-term debt is expected to be a part of THESL's financing in the 2015-2019 period. Payments for short-term intercompany promissory notes in 2013 were included to reflect a known and measurable change from the base year of the analysis. Table 18, below summarizes the components of the interest expense lead calculation. Taking into account the various long term and short term debt instruments, a dollar-weighted expense lead time of 46.17 days was determined for the 2012 calendar year.

Table 18: Summary of Interest Expenses

Description	Amounts	Weighting	Expense Lead Time	Weighted Lead Time
2012 Long-term debt	$ 75,272,180	98.82%	46.38	45.83
2013 Short-term debt	$ 901,769	1.18%	28.84	0.34
Total	**$ 76,173,950**	**100.00%**		**46.17**

Debt Retirement Charge (DRC)

THESL makes payments for the debt retirement charge on a monthly basis to the Ontario Electricity Financial Corporation. Using payment amounts that were made in calendar year 2012, a dollar-weighted expense lead time of 33.31 days was determined for DRC. Table 19, below summarizes the components of the DRC expense lead calculation.

Table 19: Summary of DRC Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$ 12,414,868	7.64%	1/18/2012	15.50	18.00	33.50	2.56
Feb 12	$ 13,362,129	8.23%	2/17/2012	15.50	17.00	32.50	2.67
Mar 12	$ 13,574,039	8.36%	3/16/2012	14.00	17.00	31.00	2.59
Apr 12	$ 14,210,958	8.75%	4/18/2012	15.50	18.00	33.50	2.93
May 12	$ 12,537,844	7.72%	5/18/2012	15.00	18.00	33.00	2.55
Jun 12	$ 12,721,780	7.83%	6/18/2012	15.50	18.00	33.50	2.62
Jul 12	$ 12,952,542	7.97%	7/18/2012	15.00	18.00	33.00	2.63
Aug 12	$ 14,352,950	8.84%	8/20/2012	15.50	20.00	35.50	3.14
Sep 12	$ 15,787,738	9.72%	9/18/2012	15.50	18.00	33.50	3.26
Oct 12	$ 14,192,275	8.74%	10/18/2012	15.00	18.00	33.00	2.88
Nov 12	$ 13,282,921	8.18%	11/19/2012	15.50	19.00	34.50	2.82
Dec 12	$ 13,026,281	8.02%	12/18/2012	15.00	18.00	33.00	2.65
Total	**$ 162,416,324**	**100.00%**					**33.31**

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Payment in Lieu of Taxes (PILs)

THESL makes payments in lieu of taxes in installments to the relevant taxing authorities. Using payment amounts that were made in calendar year 2012, a dollar-weighted expense lead time of negative 48.95 days was determined for PILs. Table 20, below summarizes the components of the PILS expense lead calculation.

Table 20: Summary of PILs Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
2012	$ 1,665,000	21.26%	1/31/2012	183.00	(335.00)	(152.00)	(32.32)
2012	$ 1,665,000	21.26%	2/29/2012	183.00	(306.00)	(123.00)	(26.15)
2012	$ 1,822,000	23.27%	4/30/2012	183.00	(245.00)	(62.00)	(14.43)
2012	$ 914,000	11.67%	5/31/2012	183.00	(214.00)	(31.00)	(3.62)
2012	$ 541,000	6.91%	9/28/2012	183.00	(94.00)	89.00	6.15
2012	$ 612,000	7.82%	10/31/2012	183.00	(61.00)	122.00	9.53
2012	$ 612,000	7.82%	11/30/2012	183.00	(31.00)	152.00	11.88
Total	**$ 7,831,000**	**100.00%**					**(48.95)**

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Harmonized Sales Tax (HST)

The expense lead times associated with the following items that attract HST were considered in THESL's distribution lead-lag study.

1. Revenues;
2. Cost of Power; and,
3. OM&A[1].

A summary of the expense lead times and working capital amounts associated with each of the above items is provided in Table 21. Note that the statutory approach described at the outset was used to determine the expense lead times associated with THESL's remittances and disbursements of HST (i.e., remittances are generally on the last day of the month following the date of the applicable return).

Table 21: Summary of HST Working Capital Amounts

Description	HST Lead Time	Working Capital Factor	2012
Revenues	(5.47)	-1.50%	$ (6,347,016)
Cost of Power	45.92	12.55%	$ 39,967,966
OM&A Expenses	41.50	11.34%	$ 4,613,531
Total			**$ 38,234,481**

[1] Costs within OM&A that attract HST include Corporate Procurement Card, Outside Services, and Miscellaneous OM&A.

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Section IV: Conclusions

Using the results described under the discussion of revenue lags and expense leads, and applying them to THESL's distribution expenses for 2012, THESL's working capital requirements were determined. Table 22, below summarizes the working capital requirements for 2012 calculated in the study.

Table 22: THESL Distribution Working Capital Requirements (2012)

Description	Revenue Lag Days	Expense Lead Days	Net Lag Days	Working Capital Factor	Expenses	Working Capital Requirements
Cost of Power	55.04	32.84	22.20	6.07%	$ 2,450,597,565	$ 148,654,316
OM&A Expenses	55.04	33.86	21.19	5.79%	$ 312,961,220	$ 18,115,434
PILS	55.04	(48.95)	103.99	28.41%	$ 7,831,000	$ 2,225,034
Interest Expense	55.04	46.17	8.87	2.42%	$ 76,173,950	$ 1,845,550
DRC	55.04	33.31	21.74	5.94%	$ 162,416,324	$ 9,645,577
Total					**$ 3,009,980,059**	**$ 180,485,912**
HST						$ 38,234,481
Total - Including HST						**$ 218,720,393**
Working Capital as a Percent of OM&A incl. Cost of Power						**7.91%**

The results of the study indicate a lower working capital requirement compared to THESL's EB-2007-0680 distribution lead-lag study. A considerable amount of time has lapsed between the two studies. The primary reason for the difference is the decrease in retail revenue lag days, due to the upgrade of THESL's Customer Information System since the prior study. The retail revenue lag days have decreased by approximately 20 percent.

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Appendix A: Working Capital Methodology

Working capital is the amount of funds that are required to finance the day-to-day operations of a regulated utility and which are included as part of a rate base for ratemaking purposes. A lead-lag study is the most accurate basis for determination of working capital and was used by Navigant for this purpose.

A lead-lag study analyzes the time between the date customers receive service and the date that customers' payments are available to THESL (or "lag") together with the time between which THESL receives goods and services from its vendors and pays for them at a later date (or "lead")[2]. "Leads" and "Lags" are both measured in days and are dollar-weighted where appropriate.[3] The dollar-weighted net lag (lag minus lead) days is then divided by 365 (or 366 for leap years) and then multiplied by the annual test year expenses to determine the amount of working capital required. The resulting amount of working capital is then included in THESL's rate base for the purpose of deriving revenue requirements.

Key Concepts

Two key concepts need to be defined as they appear throughout the report:

Mid-Point Method

When a service is provided to (or by) THESL over a period of time, the service is deemed to have been provided (or received) evenly over the midpoint of the period, unless specific information regarding the provision (or receipt) of that service indicates otherwise. If both the service end date ("Y") and the service start date ("X") are known, the mid-point of a service period can be calculated using the formula:

$$\text{Mid-Point} = \frac{([Y - X] + 1)}{2}$$

When specific start and end dates are unknown, but it is known that a service is evenly distributed over the mid-point of a period, an alternative formula that is generally used is shown below. The formula uses the number of days in a year (A) and the number of periods in a year (B):

$$\text{Mid-Point} = \frac{A/B}{2}$$

Statutory Approach

In conjunction with the mid-point method, it is important to note that not all areas of the study may utilize dates on which actual payments were made to (or by) THESL. In some instances, particularly for the HST, the due dates for payments are established by statute or by regulation with significant penalties for late payments. In these instances, the due date established by statute has been used in lieu of when payments were actually made.

Expense Lead Components

As used in the study, Expense Leads are defined to consist of two components:

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[2] A positive lag (or lead) indicates that payments are received (or paid for) after the provision of a good or service.

[3] The notion of dollar-weighting is pursued further in the sub-section titled "Key Concepts".

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1. Service Lead component (services are assumed to be provided to THESL evenly around the mid-point of the service period), and
2. Payment Lead component (the time period from the end of the service period to the time payment was made and when funds have left THESL's possession).

Dollar Weighting

Both leads and lags should be dollar-weighted where appropriate and where data is available to accurately reflect the flow of dollars. For example, suppose that a particular transaction has a lead time of 100 days and has a dollar value of $100. Further, suppose that another transaction has a lead time of 30 days with a dollar value of $1 Million. A simple un-weighted average of the two transactions would give us a lead time of 65 days ([100+30]/2). However, when these two transactions are dollar weighted, the resulting lead time would be closer to 30 days which is more representative of how the dollars actually flow.

Methodology

Performing a lead-lag study requires two key undertakings:

1. Developing an understanding of how the regulated distribution business operates in terms of products and services sold to customers/purchased from vendors, and the policies and procedures that govern such transactions; and,
2. Modeling such operations using data from a relevant period of time and a representative data set. It is important to ascertain and factor into the study whether (or not) there are known changes to existing business policies and procedures going forward. Where such changes are known and material, they should be factored into the study.

To develop an understanding of THESL's operations, interviews with personnel within THESL's Accounts Payable, Customer Service, Wholesale Market Operations, Human Resources, Payroll, Treasury, and Tax Departments were conducted. Key questions that were addressed during the course of the interviews included:

1. What is being sold (or purchased)? If a service is being provided to (or by) THESL, over what time period was this service provided;
2. Who are the buyers (or sellers);
3. What are the terms for payment? Are the terms for payment driven by industry norms or by company policy? Is there flexibility in the terms for payment;
4. Are any changes to the terms for payment expected? Are these terms driven by industry or internally? What is the basis for any such changes;
5. Are there any new rules or regulations governing transactions relating to distribution operations that are expected to materialize over the time frame considered in this report; and,
6. How are payments made (or received)? Payment types have different payment lead times (i.e., internet payments have shorter deposit times than cheque deposit times)

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Appendix B: Detailed Data Tables

Other Revenues

Table 23: Summary of Other Revenues

Description	Amounts	Weighting	Revenue Lag Time	Weighted Lag Time
Hydro One Sub-Station	$ 431,151	1.69%	273.00	4.61
Demand Billable	$ 25,109,273	98.31%	29.83	29.32
Total	**$ 25,540,425**	**100.00%**		**33.93**

OCEB

Table 24: Summary of OCEB

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$ 14,777,518	8.39%	3/16/2012	15.50	45.00	60.50	5.08
Feb 12	$ 16,082,331	9.13%	4/18/2012	14.50	49.00	63.50	5.80
Mar 12	$ 15,985,774	9.07%	5/16/2012	15.50	46.00	61.50	5.58
Apr 12	$ 14,762,648	8.38%	6/18/2012	15.00	49.00	64.00	5.36
May 12	$ 14,085,387	8.00%	7/18/2012	15.50	48.00	63.50	5.08
Jun 12	$ 13,976,849	7.93%	8/17/2012	15.00	48.00	63.00	5.00
Jul 12	$ 16,150,445	9.17%	9/19/2012	15.50	50.00	65.50	6.01
Aug 12	$ 18,228,456	10.35%	10/17/2012	15.50	47.00	62.50	6.47
Sep 12	$ 14,618,252	8.30%	11/16/2012	15.00	47.00	62.00	5.15
Oct 12	$ 12,904,170	7.33%	12/18/2012	15.50	48.00	63.50	4.65
Nov 12	$ 12,919,262	7.33%	1/16/2013	15.00	47.00	62.00	4.55
Dec 12	$ 11,665,341	6.62%	2/18/2013	15.50	49.00	64.50	4.27
Total	**$ 176,156,432**	**100.00%**					**62.98**

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RESOP

Table 25: Summary of Payments to RESOP Customers

Payment Period	Amounts	Weighting Factor %	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$ 2,254	1.99%	15.79	22.43	38.21	0.76
Feb 12	$ 4,998	4.40%	16.29	22.43	38.71	1.70
Mar 12	$ 6,013	5.30%	16.29	22.43	38.71	2.05
Apr 12	$ 11,184	9.85%	15.29	22.43	37.71	3.72
May 12	$ 13,375	11.78%	16.11	22.43	38.54	4.54
Jun 12	$ 12,914	11.38%	15.90	22.43	38.33	4.36
Jul 12	$ 9,305	8.20%	16.29	22.43	38.71	3.17
Aug 12	$ 19,542	17.22%	15.79	22.43	38.21	6.58
Sep 12	$ 8,905	7.85%	16.29	22.43	38.71	3.04
Oct 12	$ 12,650	11.15%	16.28	22.43	38.71	4.31
Nov 12	$ 8,856	7.80%	15.79	22.43	38.21	2.98
Dec 12	$ 3,500	3.08%	16.29	22.43	38.71	1.19
Total	**$ 113,497**	**100.00%**				**38.41**

MFIT

Table 26: Summary of Payments to MFIT Customers

Payment Period	Amounts	Weighting Factor %	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$ 34,830	1.89%	15.98	27.09	43.07	0.81
Feb 12	$ 45,649	2.48%	16.46	27.09	43.54	1.08
Mar 12	$ 73,170	3.97%	16.43	27.09	43.52	1.73
Apr 12	$ 125,758	6.82%	15.46	27.09	42.54	2.90
May 12	$ 145,497	7.89%	16.44	27.09	43.53	3.44
Jun 12	$ 149,706	8.12%	15.96	27.09	43.05	3.50
Jul 12	$ 261,612	14.19%	16.44	27.09	43.53	6.18
Aug 12	$ 308,020	16.71%	15.96	27.09	43.05	7.19
Sep 12	$ 247,772	13.44%	16.46	27.09	43.54	5.85
Oct 12	$ 218,745	11.87%	16.45	27.09	43.54	5.17
Nov 12	$ 121,296	6.58%	15.96	27.09	43.04	2.83
Dec 12	$ 111,465	6.05%	16.46	27.09	43.54	2.63
Total	**$ 1,843,520**	**100.00%**				**43.31**

FIT

Table 27: Summary of Payments to FIT Customers

Payment Period	Amounts	Weighting Factor %	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan 12	$ 51,547	0.87%	15.88	31.24	47.12	0.41
Feb 12	$ 106,029	1.79%	16.38	31.24	47.62	0.85
Mar 12	$ 154,218	2.61%	16.38	31.24	47.62	1.24
Apr 12	$ 339,753	5.75%	15.38	31.24	46.62	2.68
May 12	$ 411,174	6.96%	15.65	31.24	46.89	3.26
Jun 12	$ 680,917	11.52%	16.09	31.24	47.34	5.45
Jul 12	$ 607,174	10.27%	16.38	31.24	47.62	4.89
Aug 12	$ 785,193	13.29%	16.03	31.24	47.28	6.28
Sep 12	$ 885,352	14.98%	16.38	31.24	47.62	7.13
Oct 12	$ 757,723	12.82%	16.38	31.24	47.62	6.11
Nov 12	$ 635,045	10.74%	15.88	31.24	47.12	5.06
Dec 12	$ 496,019	8.39%	16.38	31.24	47.62	4.00
Total	**$ 5,910,143**	**100.00%**				**47.38**

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Payroll

Table 28: Summary of Payroll Expenses

Delivery Period (Pay Period)		Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
12/18/2011 to 12/31/2011	$	3,743,615	3.64%	1/4/2012	7.00	4.00	11.00	0.40
01/01/2012 to 01/14/2012	$	3,685,570	3.58%	1/18/2012	7.00	4.00	11.00	0.39
01/15/2012 to 01/28/2012	$	3,637,840	3.53%	2/1/2012	7.00	4.00	11.00	0.39
01/29/2012 to 02/11/2012	$	3,951,309	3.84%	2/15/2012	7.00	4.00	11.00	0.42
02/12/2012 to 02/25/2012	$	3,939,521	3.83%	2/29/2012	7.00	4.00	11.00	0.42
02/26/2012 to 03/10/2012	$	3,593,195	3.49%	3/14/2012	7.00	4.00	11.00	0.38
03/11/2012 to 03/24/2012	$	3,448,774	3.35%	3/28/2012	7.00	4.00	11.00	0.37
03/25/2012 to 04/07/2012	$	3,323,462	3.23%	4/11/2012	7.00	4.00	11.00	0.36
04/08/2012 to 04/21/2012	$	3,638,829	3.53%	4/25/2012	7.00	4.00	11.00	0.39
04/22/2012 to 05/05/2012	$	3,722,814	3.62%	5/9/2012	7.00	4.00	11.00	0.40
05/06/2012 to 05/19/2012	$	3,674,061	3.57%	5/23/2012	7.00	4.00	11.00	0.39
05/20/2012 to 06/02/2012	$	3,737,336	3.63%	6/6/2012	7.00	4.00	11.00	0.40
06/03/2012 to 06/16/2012	$	3,721,799	3.61%	6/20/2012	7.00	4.00	11.00	0.40
06/17/2012 to 06/30/2012	$	3,750,644	3.64%	7/4/2012	7.00	4.00	11.00	0.40
07/01/2012 to 07/14/2012	$	3,863,603	3.75%	7/18/2012	7.00	4.00	11.00	0.41
07/15/2012 to 07/28/2012	$	3,823,881	3.71%	8/1/2012	7.00	4.00	11.00	0.41
07/29/2012 to 08/11/2012	$	3,908,038	3.80%	8/15/2012	7.00	4.00	11.00	0.42
08/12/2012 to 08/25/2012	$	3,880,714	3.77%	8/29/2012	7.00	4.00	11.00	0.41
08/26/2012 to 09/08/2012	$	3,841,950	3.73%	9/12/2012	7.00	4.00	11.00	0.41
09/09/2012 to 09/22/2012	$	3,811,314	3.70%	9/26/2012	7.00	4.00	11.00	0.41
09/23/2012 to 10/06/2012	$	3,802,499	3.69%	10/10/2012	7.00	4.00	11.00	0.41
10/07/2012 to 10/20/2012	$	3,934,557	3.82%	10/24/2012	7.00	4.00	11.00	0.42
10/21/2012 to 11/03/2012	$	4,193,257	4.07%	11/7/2012	7.00	4.00	11.00	0.45
11/04/2012 to 11/17/2012	$	4,329,636	4.21%	11/21/2012	7.00	4.00	11.00	0.46
11/18/2012 to 12/01/2012	$	4,121,857	4.00%	12/5/2012	7.00	4.00	11.00	0.44
12/02/2012 to 12/15/2012	$	4,157,888	4.04%	12/19/2012	7.00	4.00	11.00	0.44
01/01/2011 to 12/31/2011	$	3,416,730	3.32%	3/28/2012	182.50	88.00	270.50	8.98
01/01/2012 to 03/31/2012	$	92,750	0.09%	3/15/2012	45.50	(16.00)	29.50	0.03
04/01/2012 to 06/30/2012	$	87,750	0.09%	7/5/2012	45.50	5.00	50.50	0.04
07/01/2012 to 09/30/2012	$	65,875	0.06%	9/13/2012	46.00	(17.00)	29.00	0.02
10/01/2012 to 12/31/2012	$	62,875	0.06%	12/6/2012	46.00	(25.00)	21.00	0.01
Total	**$**	**102,963,943**	**100.00%**					**19.68**

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Withholdings

Table 29: Summary of Withholdings Expenses

Delivery Period (Pay Period)	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
12/18/2011 to 12/31/2011	$ 2,371,119	4.48%	1/4/2012	7.00	11.00	18.00	0.82
01/01/2012 to 01/14/2012	$ 2,314,472	4.37%	1/18/2012	7.00	11.00	18.00	0.80
01/15/2012 to 01/28/2012	$ 2,291,856	4.33%	2/1/2012	7.00	13.00	20.00	0.88
01/29/2012 to 02/11/2012	$ 2,472,835	4.67%	2/15/2012	7.00	13.00	20.00	0.95
02/12/2012 to 02/25/2012	$ 2,397,009	4.53%	2/29/2012	7.00	16.00	23.00	1.06
02/26/2012 to 03/10/2012	$ 2,173,168	4.99%	3/14/2012	7.00	16.00	23.00	0.96
03/11/2012 to 03/24/2012	$ 2,827,668	10.63%	3/28/2012	7.00	11.00	18.00	0.98
03/25/2012 to 04/07/2012	$ 1,922,646	4.45%	4/11/2012	7.00	11.00	18.00	0.66
04/08/2012 to 04/21/2012	$ 2,153,758	4.07%	4/25/2012	7.00	12.00	19.00	0.79
04/22/2012 to 05/05/2012	$ 2,102,868	3.97%	5/9/2012	7.00	12.00	19.00	0.77
05/06/2012 to 05/19/2012	$ 1,942,826	3.67%	5/23/2012	7.00	17.00	24.00	0.90
05/20/2012 to 06/02/2012	$ 1,981,111	3.74%	6/6/2012	7.00	10.00	17.00	0.65
06/03/2012 to 06/16/2012	$ 1,863,961	3.52%	6/20/2012	7.00	10.00	17.00	0.61
06/17/2012 to 06/30/2012	$ 1,734,066	3.28%	7/4/2012	7.00	11.00	18.00	0.60
07/01/2012 to 07/14/2012	$ 1,710,896	3.23%	7/18/2012	7.00	11.00	18.00	0.59
07/15/2012 to 07/28/2012	$ 1,560,219	2.95%	8/1/2012	7.00	13.00	20.00	0.60
07/29/2012 to 08/11/2012	$ 1,564,785	2.96%	8/15/2012	7.00	13.00	20.00	0.60
08/12/2012 to 08/25/2012	$ 1,476,121	2.79%	8/29/2012	7.00	12.00	19.00	0.54
08/26/2012 to 09/08/2012	$ 1,432,966	2.71%	9/12/2012	7.00	11.00	18.00	0.50
09/09/2012 to 09/22/2012	$ 1,404,023	2.65%	9/26/2012	7.00	11.00	18.00	0.49
09/23/2012 to 10/06/2012	$ 1,383,932	2.61%	10/10/2012	7.00	11.00	18.00	0.48
10/07/2012 to 10/20/2012	$ 1,480,490	2.80%	10/24/2012	7.00	16.00	23.00	0.65
10/21/2012 to 11/03/2012	$ 1,661,792	3.14%	11/7/2012	7.00	16.00	23.00	0.73
11/04/2012 to 11/17/2012	$ 1,788,194	3.38%	11/21/2012	7.00	18.00	25.00	0.86
11/18/2012 to 12/01/2012	$ 1,604,248	3.03%	12/5/2012	7.00	11.00	18.00	0.55
12/02/2012 to 12/15/2012	$ 1,626,355	3.07%	12/19/2012	7.00	13.00	20.00	0.62
Total	**$ 52,044,775**	**100.00%**					**33.58**

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Pensions

Table 30: Summary of Pension Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Feb 12	$ 2,207,160	7.41%	2/28/2012	7.00	51.49	58.49	4.33
Mar 12	$ 2,379,281	7.98%	3/31/2012	7.00	55.99	62.99	5.03
Apr 12	$ 5,293,218	17.76%	4/30/2012	7.00	46.61	53.61	9.52
May 12	$ 2,398,137	8.05%	5/31/2012	7.00	47.01	54.01	4.35
Jun 12	$ 2,397,522	8.05%	6/30/2012	7.00	49.02	56.02	4.51
Jul 12	$ 2,372,761	7.96%	7/31/2012	7.00	51.94	58.94	4.69
Aug 12	$ 2,346,717	7.87%	8/31/2012	7.00	55.02	62.02	4.88
Sep 12	$ 3,505,145	11.76%	9/30/2012	7.00	50.00	57.00	6.70
Oct 12	$ 2,310,456	7.75%	10/31/2012	7.00	46.04	53.04	4.11
Nov 12	$ 2,301,748	7.72%	11/30/2012	7.00	48.01	55.01	4.25
Dec 12	$ 2,288,416	7.68%	12/31/2012	7.00	51.00	58.00	4.45
Total	**$ 29,800,561**	**100.00%**					**56.83**

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Group Life Insurance

Table 31: Summary of Group Life Insurance Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-12	$ 225,021	8.15%	1/11/2012	15.50	(20.00)	(4.50)	(0.37)
Feb-12	$ 225,814	8.18%	2/11/2012	14.50	(18.00)	(3.50)	(0.29)
Mar-12	$ 228,422	8.28%	3/11/2012	15.50	(20.00)	(4.50)	(0.37)
Apr-12	$ 243,951	8.84%	4/11/2012	15.00	(19.00)	(4.00)	(0.35)
May-12	$ 246,579	8.93%	5/11/2012	15.50	(20.00)	(4.50)	(0.40)
Jun-12	$ 226,522	8.21%	6/11/2012	15.00	(19.00)	(4.00)	(0.33)
Jul-12	$ 225,714	8.18%	7/11/2012	15.50	(20.00)	(4.50)	(0.37)
Aug-12	$ 226,913	8.22%	8/11/2012	15.50	(20.00)	(4.50)	(0.37)
Sep-12	$ 226,673	8.21%	9/11/2012	15.00	(19.00)	(4.00)	(0.33)
Oct-12	$ 229,313	8.31%	10/11/2012	15.50	(20.00)	(4.50)	(0.37)
Nov-12	$ 228,291	8.27%	11/11/2012	15.00	(19.00)	(4.00)	(0.33)
Dec-12	$ 226,797	8.22%	12/11/2012	15.50	(20.00)	(4.50)	(0.37)
Total	**$ 2,760,011**	**100.00%**					**(4.25)**

Group Medical and Dental Claims

Table 32: Summary of Group Medical and Dental Claims Expenses

Delivery Period	Amounts	Weighting Factor %	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-12	$ 1,125,344	8.37%	0.50	0.00	0.50	0.04
Feb-12	$ 1,052,741	7.97%	0.50	0.00	0.50	0.04
Mar-12	$ 1,125,344	8.76%	0.50	0.00	0.50	0.04
Apr-12	$ 1,089,042	7.97%	0.50	0.00	0.50	0.04
May-12	$ 1,125,344	8.76%	0.50	0.00	0.50	0.04
Jun-12	$ 1,089,042	8.37%	0.50	0.00	0.50	0.04
Jul-12	$ 1,125,344	8.37%	0.50	0.00	0.50	0.04
Aug-12	$ 1,125,344	8.76%	0.50	0.00	0.50	0.04
Sep-12	$ 1,089,042	7.57%	0.50	0.00	0.50	0.04
Oct-12	$ 1,125,344	8.76%	0.50	0.00	0.50	0.04
Nov-12	$ 1,089,042	8.76%	0.50	0.00	0.50	0.04
Dec-12	$ 1,125,344	7.57%	0.50	0.00	0.50	0.04
Total	**$ 13,286,318**	**100.00%**				**0.50**

NAVIGANT

Long-term Disability

Table 33: Summary of Long-term Disability Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-12	$ 193,181	8.94%	1/11/2012	15.50	(20.00)	(4.50)	(0.40)
Feb-12	$ 191,492	8.86%	2/11/2012	14.50	(18.00)	(3.50)	(0.31)
Mar-12	$ 190,374	8.81%	3/11/2012	15.50	(20.00)	(4.50)	(0.40)
Apr-12	$ 179,311	8.30%	4/11/2012	15.00	(19.00)	(4.00)	(0.33)
May-12	$ 177,478	8.21%	5/11/2012	15.50	(20.00)	(4.50)	(0.37)
Jun-12	$ 177,478	8.21%	6/11/2012	15.00	(19.00)	(4.00)	(0.33)
Jul-12	$ 176,332	8.16%	7/11/2012	15.50	(20.00)	(4.50)	(0.37)
Aug-12	$ 176,177	8.15%	8/11/2012	15.50	(20.00)	(4.50)	(0.37)
Sep-12	$ 175,007	8.10%	9/11/2012	15.00	(19.00)	(4.00)	(0.32)
Oct-12	$ 174,191	8.06%	10/11/2012	15.50	(20.00)	(4.50)	(0.36)
Nov-12	$ 174,702	8.08%	11/11/2012	15.00	(19.00)	(4.00)	(0.32)
Dec-12	$ 175,247	8.11%	12/11/2012	15.50	(20.00)	(4.50)	(0.36)
Total	**$ 2,160,971**	**100.00%**					**(4.25)**

Accidental Death and Dismemberment

Table 34: Summary of Accidental Death and Dismemberment Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-12	$ 2,498	8.69%	1/11/2012	15.50	(20.00)	(4.50)	(0.39)
Feb-12	$ 2,440	8.49%	2/11/2012	14.50	(18.00)	(3.50)	(0.30)
Mar-12	$ 2,324	8.08%	3/11/2012	15.50	(20.00)	(4.50)	(0.36)
Apr-12	$ 2,376	8.27%	4/11/2012	15.00	(19.00)	(4.00)	(0.33)
May-12	$ 2,400	8.35%	5/11/2012	15.50	(20.00)	(4.50)	(0.38)
Jun-12	$ 2,374	8.26%	6/11/2012	15.00	(19.00)	(4.00)	(0.33)
Jul-12	$ 2,506	8.72%	7/11/2012	15.50	(20.00)	(4.50)	(0.39)
Aug-12	$ 2,356	8.20%	8/11/2012	15.50	(20.00)	(4.50)	(0.37)
Sep-12	$ 2,554	8.89%	9/11/2012	15.00	(19.00)	(4.00)	(0.36)
Oct-12	$ 2,302	8.01%	10/11/2012	15.50	(20.00)	(4.50)	(0.36)
Nov-12	$ 2,305	8.02%	11/11/2012	15.00	(19.00)	(4.00)	(0.32)
Dec-12	$ 2,310	8.04%	12/11/2012	15.50	(20.00)	(4.50)	(0.36)
Total	**$ 28,747**	**100.00%**					**(4.25)**

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Employee Assistance Program

Table 35: Summary of Employee Assistance Program Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-12	$ -	0.00%	1/11/2012	15.50	(20.00)	(4.50)	0.00
Feb-12	$ 23,403	19.69%	2/11/2012	14.50	(18.00)	(3.50)	(0.69)
Mar-12	$ -	0.00%	3/11/2012	15.50	(20.00)	(4.50)	0.00
Apr-12	$ 17,756	14.94%	4/11/2012	15.00	(19.00)	(4.00)	(0.60)
May-12	$ -	0.00%	5/11/2012	15.50	(20.00)	(4.50)	0.00
Jun-12	$ 17,755	14.94%	6/11/2012	15.00	(19.00)	(4.00)	(0.60)
Jul-12	$ -	0.00%	7/11/2012	15.50	(20.00)	(4.50)	0.00
Aug-12	$ 19,328	16.26%	8/11/2012	15.50	(20.00)	(4.50)	(0.73)
Sep-12	$ 5,932	4.99%	9/11/2012	15.00	(19.00)	(4.00)	(0.20)
Oct-12	$ 19,234	16.18%	10/11/2012	15.50	(20.00)	(4.50)	(0.73)
Nov-12	$ 7,178	6.04%	11/11/2012	15.00	(19.00)	(4.00)	(0.24)
Dec-12	$ 8,284	6.97%	12/11/2012	15.50	(20.00)	(4.50)	(0.31)
Total	**$ 118,870**	**100.00%**					**(4.10)**

EHT

Table 36: Summary of EHT Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Dec-11	$ 256,358	8.09%	2/15/2012	7.00	39.05	46.05	3.73
Jan-12	$ 258,387	8.16%	3/15/2012	7.00	39.91	46.91	3.83
Feb-12	$ 257,282	8.12%	4/16/2012	7.00	43.94	50.94	4.14
Mar-12	$ 387,857	12.24%	4/16/2012	7.00	27.85	34.85	4.27
Apr-12	$ 251,921	7.95%	5/15/2012	7.00	32.48	39.48	3.14
May-12	$ 249,372	7.87%	6/15/2012	7.00	35.60	42.60	3.35
Jun-12	$ 248,825	7.86%	7/16/2012	7.00	37.95	44.95	3.53
Jul-12	$ 250,312	7.90%	8/15/2012	7.00	41.41	48.41	3.83
Aug-12	$ 246,973	7.80%	9/17/2012	7.00	30.03	37.03	2.89
Sep-12	$ 243,255	7.68%	10/15/2012	7.00	30.03	37.03	2.84
Oct-12	$ 245,346	7.75%	11/15/2012	7.00	32.87	39.87	3.09
Nov-12	$ 271,737	8.58%	12/17/2012	7.00	36.86	43.86	3.76
Total	**$ 3,167,626**	**100.00%**					**42.39**

NAVIGANT

WSIB

Table 37: Summary of WSIB Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
Jan-12	$ 138,266	9.23%	2/28/2012	14.00	45.00	59.00	5.45
Feb-12	$ 139,473	9.31%	3/31/2012	14.00	49.00	63.00	5.87
Mar-12	$ 270,991	18.09%	4/30/2012	21.00	37.00	58.00	10.49
Apr-12	$ 132,178	8.82%	5/31/2012	14.00	40.00	54.00	4.76
May-12	$ 129,906	8.67%	6/30/2012	14.00	42.00	56.00	4.86
Jun-12	$ 129,136	8.62%	7/31/2012	14.00	45.00	59.00	5.09
Jul-12	$ 123,585	8.25%	8/31/2012	14.00	48.00	62.00	5.11
Aug-12	$ 165,653	11.06%	9/30/2012	21.00	36.00	57.00	6.30
Sep-12	$ 91,769	6.13%	10/31/2012	14.00	39.00	53.00	3.25
Oct-12	$ 77,282	5.16%	11/30/2012	14.00	41.00	55.00	2.84
Nov-12	$ 59,741	3.99%	12/31/2012	14.00	44.00	58.00	2.31
Dec-12	$ 40,083	2.68%	1/31/2013	14.00	47.00	61.00	1.63
Total	**$ 1,498,062**	**100.00%**					**57.96**

PILs Property Tax

Table 38: Summary of PILs Property Tax Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
2012	$ 36,310	67.43%	4/16/2012	183.00	(258.00)	(75.00)	(50.57)
2012	$ 17,541	32.57%	10/16/2012	183.00	(75.00)	108.00	35.18
Total	**$ 53,851**	**100.00%**					**(15.39)**

Property Tax

Table 39: Summary of Property Tax Expenses

Delivery Period	Amounts	Weighting Factor %	Payment Date	Service Lead Time	Payment Lead Time	Total Lead Time	Weighted Lead Time
2012	$ 1,064,974	16.53%	3/1/2012	183.00	(304.00)	(121.00)	(20.01)
2012	$ 1,064,869	16.53%	4/2/2012	183.00	(272.00)	(89.00)	(14.71)
2012	$ 1,064,792	16.53%	5/1/2012	183.00	(243.00)	(60.00)	(9.92)
2012	$ 1,082,192	16.80%	7/3/2012	183.00	(180.00)	3.00	0.50
2012	$ 1,082,063	16.80%	8/1/2012	183.00	(151.00)	32.00	5.38
2012	$ 1,081,952	16.80%	9/4/2012	183.00	(117.00)	66.00	11.09
Total	**$ 6,440,842**	**100.00%**					**(27.67)**

2.6.1.1 *Multivariate Regression Model*

- Rationale as to why the proposed model was chosen;
- Statistics of the regression equation(s) (coefficient estimates and associated t-statistics, and model statistics such as R^2, adjusted R^2, F-statistic, or Root-Mean-Squared-Error, etc.). Explanation for any resulting unintuitive relationships (e.g. negative correlation between load growth and economic growth, load growth and customer growth, etc.). A discussion of modelling approaches and alternative models tested must be provided;
- Explanation of the weather normalization methodology proposed including:
    - If the monthly Heating Degree Days ("HDD") and/or Cooling Degree Days ("CDD") are used to determine normal weather, the monthly HDD and CDD based on a) 10-year average and b) a trend based on 20-years;
    - Definition of HDD and CDD:
        - Climatological measurement point (i.e. identification of Environment Canada weather station(s)) and why that is (those are) appropriate for the distributor's service territory; and
        - Identification of base numbers from which HDDs and CDDs are measured (e.g. 18° C).
    - In addition to the proposed test year load forecast, the load forecasts based on a) 10-year average and b) 20-year trends in HDD and CDD; and
    - Rationale as to why the proposed normal weather methodology was chosen.
- Sources of data used for both the endogenous and exogenous variables. Where a variable has been constructed, a complete explanation of the variable, data used and source of the data must be provided. Where a utility has constructed the demand variable to model billed consumption on a class-specific basis, a full explanation of the approach used to pro-rate or interpolate non-interval data (i.e. billing data not based on calendar monthly readings as obtained from interval or smart meters) must be provided, including an explanation as to why the constructed demand series is suitable for modelling;
- Explanation of any specific adjustments made (e.g. to adjust for loss or gain of major customers or load, significant re-classifications of customers, etc.); and

Data and regression model and statistics used in the load forecast must be provided in working Microsoft Excel format. This would include showing the derivation of any constructed variables where practical.

EXHIBIT 3 – OPERATING REVENUE

3-Energy Probe-56TC

Ref: 3-Energy Probe-15

a) The response refers to the previously filed Excel spreadsheet. However, that spreadsheet appears to use a 20 year AVERAGE for 1994 through 2013 rather than the requested 20 year TREND over the same period. Please confirm.

RESPONSE

Confirmed, the average was used.

b) Please confirm that based on the following data, the TREND function yields the forecasts as noted for 2015. If this cannot be confirmed, please provide the 20 year trend forecasts for HDD and CDD for 2015 and show how these numbers were generated.

	HDD	CDD
1994	4,109.8	247.7
1995	4,042.0	251.1
1996	4,176.8	220.7
1997	4,033.9	237.5
1998	3,220.3	375.0
1999	3,534.4	439.9
2000	3,826.1	265.5
2001	3,420.4	391.9
2002	3,629.8	518.8
2003	3,981.5	325.6
2004	3,797.9	228.9
2005	3,796.8	536.2
2006	3,378.5	382.5
2007	3,719.4	436.0
2008	3,836.0	275.7
2009	3,835.8	197.9
2010	3,501.0	439.6
2011	3,647.5	428.1
2012	3,214.8	482.7
2013	3,797.6	336.9
2015	3,500.1	405.8

RESPONSE

The trend function yields the following forecast for 2015. The numbers were calculated by applying the Trend function in Excel. Please note that there is a difference in EP's and HOBNI's total CDD for 1995 – EP 251.1 and HOBNI 351.1.

By month:

20 Year Average - 1994 to 2013		
Month	**HDD**	**CDD**
Jan	658.0	0.0
Feb	607.3	0.0
Mar	493.5	0.0
Apr	291.0	0.4
May	117.0	25.0
Jun	26.0	71.2
Jul	-0.7	159.6
Aug	1.6	121.4
Sep	54.2	38.4
Oct	239.0	3.4
Nov	398.0	0.0
Dec	615.2	0.0
Total	**3500.1**	**419.4**

By year:

20 Year Average - 1994 to 2013		
Year	HDD	CDD
1994	4,109.8	247.7
1995	4,042.0	351.1
1996	4,176.8	220.7
1997	4,033.9	237.5
1998	3,220.3	375.0
1999	3,534.4	439.9
2000	3,826.1	265.5
2001	3,420.4	391.9
2002	3,629.8	518.8
2003	3,981.5	325.6
2004	3,797.9	228.9
2005	3,796.8	536.2
2006	3,378.5	382.5
2007	3,719.4	436.0
2008	3,836.0	275.7
2009	3,835.8	197.9
2010	3,501.0	439.6
2011	3,501.0	428.1
2012	3,647.5	482.7
2013	3,214.8	336.9
2014	3,519.6	413.9
2015	3,500.1	419.4

c) Based on the 20 year TREND of HDD and CDD, please update the response to part (b).

RESPONSE

The table below shows the updated response to part (b) of *3-EP-15*.

Description	Revenues at Existing Rates	Revenue Deficiency
Energy Probe Requested Adjustment	65,453,723	4,159,134
Original Application	65,287,595	4,325,262
Impact on Revenues	**166,128**	**(166,128)**

d) Please confirm that in the response to part (b), HOBNI has not made any adjustment to the cost of power component of the WCA portion of rate base and the associated impact on the revenue requirement.

RESPONSE

No changes were made in relation to the scenario presented in part (b) above.

temperature below the average temperature of 18 degrees will increase purchased kWh by only 53,035.

As expected, the number of days in a month positively impacted purchased kWh. The results show a 5,981,256 increase in purchased kWh for each additional day in a month. For example, kWh usage in July, which has thirty-one days, should be higher than usage in June which has thirty days.

Spring/Fall Flag attempts to capture and compare kWh consumption between the months in which demand is lower - March, April, May, September, October and November to the months where demand is higher – December, January, February, June, July and August. As expected, the demand during the spring/fall months is lower than the demand during the winter/summer months.

Finally, the number of peak hours in a month is expected to increase purchased kWh. The results show that as the number of peak hours in a month increases, purchased kWh is expected to increase by 158,718 kWh.

Weather Normalized Forecast Purchased kWh

The weather normalized forecast purchased kWh for the 2014 Bridge and 2015 Test Years were calculated by multiplying the monthly values for the independent variables for 2014 and 2015 by the respective coefficients from Model # Two above then sum the results.

The 2014 and 2015 monthly values for HDD and CDD are based on the average monthly values over a ten-year period, that is, January 2004 to December 2013. Analysis done by HOBNI reveals that over time, the average temperature during summer and winter is increasing. HOBNI compared the average monthly HDD and CDD between 2004 to 2013 and 1994 to 2003. This information is presented in **Table 4** below. For more details on the results presented in **Table 4** below refer to the "*HDD-CDD"* tab in the HOBNI Multivariate Regression Model in *Exhibit 3 Tab 4 Schedule 1.*

The results show an average monthly decline in HDD which would suggest that the weather during colder months is becoming warmer. In such case, consumers are expected to demand less electricity since they would not be compelled to run their furnaces longer than normal or even at higher temperature.

A similar argument can be raised for CDD. The results indicate that the average monthly temperature is rising which would suggest consumers are running their air conditioning units for longer periods.

Given the above, Hydro One Brampton submits that the ten-year average for HDD and CDD being proposed for weather normalization calculation reasonably reflects the current trend in weather pattern. Further, this approach is consistent with submissions by other LDCs to the Board.

Table 4: Ten Year Monthly Averages for HDD and CDD (2004 to 2013 and 1994 to 2003)

10 Year Average						
	2004 to 2013		1994 to 2003		Difference	
Month	HDD	CDD	HDD	CDD	HDD	CDD
Jan	700.25	-	730.15	-	(29.90)	-
Feb	628.93	-	622.71	-	6.22	-
Mar	520.30	0.02	548.00	-	(27.70)	0.02
Apr	308.54	0.12	342.65	1.26	(34.11)	(1.14)
May	140.57	18.57	162.83	11.20	(22.26)	7.37
Jun	25.84	72.82	32.07	67.92	(6.23)	4.90
Jul	1.72	139.54	5.25	118.59	(3.53)	20.95
Aug	5.36	106.42	7.41	102.32	(2.05)	4.10
Sep	58.56	33.61	70.74	34.16	(12.18)	(0.55)
Oct	238.27	3.35	250.81	1.92	(12.54)	1.43
Nov	408.47	-	423.04	-	(14.57)	-
Dec	615.72	-	601.84	-	13.88	-
Totals	**3,652.53**	**374.45**	**3,797.50**	**337.37**	**(144.97)**	**37.08**

Real GDP for Ontario in 2013, 2014 and 2015 were derived by adjusting the 2012 actual real GDP by the forecasted growth rates provided by the Government of Ontario in its *2013 Ontario Economic Outlook and Fiscal Review*, released November 7, 2013. The Government of Ontario forecasted growth of 1.30%, 2.10% and 2.50% for 2013, 2014 and 2015, respectively. HOBNI has submitted the Load Forecast model which shows the calculations.

The calendar provided information related to the number of days in the month; the spring fall flag applies to the months of March, April, May, September, October and November.