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October 31, 2012

via RESS e-filing – signed original to follow by courier

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
PO Box 2319
2300 Yonge Street, 27th floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: Toronto Hydro-Electric System Limited ("THESL")
OEB File No. EB-2012-0064 (the "Application")
Evidentiary update and deferred interrogatory responses

THESL writes in respect of the above-noted matter. Further to the letter of Aird & Berlis LLP circulated earlier today (attached here), please find enclosed THESL's evidence update. Also enclosed are THESL's responses to all interrogatories that were initially deferred, either in whole or in part, in anticipation of this update to THESL's evidence.

THESL will make available on its website a courtesy copy of the current version of its application and evidence, incorporating the updated materials.[1]

Please do not hesitate to contact me if you have any questions.

Yours truly,

[original signed by]

Amanda Klein
Director, Regulatory Affairs
Toronto Hydro-Electric System Limited
regulatoryaffairs@torontohydro.com

cc: Fred Cass of Aird & Berlis LLP, Counsel for THESL, by electronic mail only
Intervenors of Record for EB-2012-0064 by electronic mail only

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[1] http://www.torontohydro.com/sites/electricsystem/Pages/2012IRM.aspx

AIRD & BERLIS LLP
Barristers and Solicitors

Fred D. Cass
Direct: 416-865-7742
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October 31, 2012

Kirsten Walli
Board Secretary
Ontario Energy Board
PO Box 2319
2300 Yonge Street
Toronto, Ontario
M4P 1E4

Dear Ms. Walli:

Re: Application by Toronto Hydro-Electric System Limited; EB-2012-0064

We are writing to confirm that, today, Toronto Hydro-Electric System Limited (THESL) is filing with the OEB an update to its evidence in EB-2012-0064 (the "Update"). As stated in THESL's letters to the OEB dated September 13, 2012 and October 22, 2012, this Update reflects the results of THESL's review of the ICM jobs described in the application, to determine the extent to which the work plan must be updated to take account of the passage of time since the application was originally filed.

The Update represents a detailed, job-level review of the proposed capital expenditure program. THESL has applied this level of granularity to the Update for two reasons. First, the nature and circumstances of this incremental capital module ("ICM") application calls for an increased level of detail in the evidence. Second, the OEB has generally expressed a desire for more transparency and detail respecting THESL's evidence.

THESL sees the ICM as a regulatory instrument which allows for the funding of necessary capital expenditures in a context where there is no other mechanism available for funding those expenditures. These are the precise circumstances in which the utility finds itself – THESL presently has no other option to fund essential work. THESL believes that the work plan described in this update meets the requirements and intent of the incremental capital module as it has evolved over time, including the relevant ICM factors, such as need and prudence.

Content and Organization of the Update

The Update will provide the OEB and intervenors with new forecasts of job scheduling and cost estimates that THESL has developed over the past five months.[1] The updated evidence primarily addresses a shifting of jobs between ICM years, due to both the passage of time, and THESL's operational experience, since the application was filed in May of 2012.

To this end, the Update is effectively a "snapshot in time" which provides a more refined and fine-grained picture of THESL's work plan for 2012 and 2013. Since the filing of the application, time has passed and THESL has needed to complete certain essential work and plan for near-term execution of other essential work. As a result, THESL has been able to further refine the information in the application on the timing and sequencing of certain jobs, as well as the cost estimates associated with that work. This new information is reflected throughout the updated evidence.

All of the activity funded as a result of the OEB's decision in this case will be subject to a true-up process. THESL is committed to developing a true-up mechanism satisfactory to the OEB and is open to working with Board staff and intervenors to that end. In this way, ratepayers can have the full benefit of needed capital works, while being protected against under-spend or imprudent over-spend.

THESL has also taken the opportunity that the updating of the evidence presents to include in the Update:

(a) Removal of the Grid Solutions project;[2] and
(b) Corrections to original evidence.[3]

Finally, THESL has included with the Update responses to the interrogatories it deferred on October 5, 2012. For convenience, THESL's responses in this regard include an index of deferred interrogatories.

THESL will file its update through RESS, deliver hard copies to the OEB and provide an electronic copy to intervenors. As soon as is possible, THESL also intends to provide to parties an electronic convenience copy, including the updated pages, of the sections of its evidence affected by the Update.

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[1] In some cases, THESL has been able to replace estimates with actuals.
[2] Pursuant to THESL's letter dated October 5, 2012.
[3] Discovered in the course of preparing interrogatory responses and the evidence update.

In order to assist readers of the evidence, THESL's presentation of the Update is as follows:

(a) an Addendum to the Manager's Summary explains the evidence update;

(b) a Segment Update Narrative is placed at the beginning of each updated segment business case, which in a separate text box summarizes the key elements of the evidence update for that segment;

(c) marginal notations appear within each business case at the locations where changes have been made; and

(d) Appendix "A" to the Addendum includes a Revision Summary which documents each substantive change to THESL's pre-filed evidence, and provides the fundamental reason for each change (this includes a key for the marginal notations in the business cases).

THESL's evidence, as updated, demonstrates the critical need for its work plan. The Update has been developed by knowledgeable operation-level employees who have the responsibility for identifying and implementing the work described in the evidence. In due course, these employees will be presented as the witnesses who will testify in support of THESL's evidence.

Phasing Request and Proposal

THESL respectfully requests that the Board proceed to hear the application in two phases. THESL proposes that its work program for 2012 and 2013 be considered in the current phase of the proceeding and, with the exception of the Bremner Station project and associated capital contributions[4], it proposes that consideration of 2014 projects be deferred to a second phase.

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[4] With respect to the Bremner Station project, and the associated capital contributions from THESL to HONI, THESL believes that it is necessary to treat that project as an integrated, three-year undertaking. Furthermore, THESL believes that its updated evidence supports both the updated timelines for the project and the associated expenditures through to the end of 2014, at which time Bremner is forecasted to be complete, subject to OEB approval. OEB approval for the whole of the first phase of the Bremner Station project is required at this time to enable THESL to enter into the construction and equipment supply commitments that are necessary to achieve completion by the end of 2014.

THESL makes this phasing proposal to facilitate an efficient and expeditious review of the ICM application for 2012/2013. There are a number of reasons why an expeditious hearing of THESL's application in respect of 2012 and 2013 is critical – these include the following.

For one, the capital work proposed in this application is essential to maintain the reliability of the distribution system for customers and the safety of employees and the public. For this reason, THESL has undertaken certain capital work in 2012 without the certainty of rates funding for that work. THESL forecasts that it will have spent a considerable amount of money beyond depreciation[5] on projects in 2012 – for a total of $275 million by year-end – money that has been spent without any assurance of recovery. This is not a sustainable course for THESL.

Further, in order to provide ratepayers with certainty concerning rates to be effective in 2013, and to address critically needed capital work, THESL respectfully submits that there is an urgent need for OEB guidance regarding THESL's capital projects in 2012 and 2013.

As stated, THESL anticipates that the proposed phasing of its application will facilitate an expeditious consideration of 2012/2013 projects. THESL requests that a procedure be established to allow for a hearing of the current phase of the case before the end of 2012.

This procedure could include a Technical Conference, held as soon as possible after parties have reviewed the evidence update, where parties would be able to ask questions about, and seek clarification of, the updated evidence.

A phased approach to this proceeding would mean that evidence regarding 2014 could effectively be put "on hold" until the second phase of the proceeding. THESL has marked the evidence that is specific to 2014 using a "strikethrough" format, so that the Board and parties will be able to identify evidence that need not be addressed in the current phase of the proceeding. While this evidence is not being withdrawn, THESL would update it prior to the second phase of the proceeding. The update of the 2014 evidence would reflect the Board's decision in the current phase, the then most current forecast of the 2014 work plan, and THESL's progress on 2012 and 2013 projects at the time of the 2014 evidence update.

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[5] THESL estimates depreciation funding to be between $140 and $145 million, depending on the approach taken.

If the OEB would like any additional information with respect to the contents of this letter or the Update, please do not hesitate to contact us in that regard.

Yours truly,

AIRD & BERLIS LLP

Fred D. Cass

FDC/

c.c. All EB-2012-0064 Intervenors
Amanda Klein, THESL

I N D E X				original filing date = 2012 May 10
				/N = new document filed 2012 Oct 31
				/U = update to original filing
				/C = correction to original filing
Tab	Schedule	Appendix	Content	
1 - Application				
1			Application	
2 - Manager's Summary				
2			Addendum to Manager's Summary	/N
2		A	Revision Summary Narrative	/N
2		B	Revision Summary Listing	/N
2			Manager's Summary	/U
2		1	Unfunded CAPEX	/U
2		2	ICM Threshold Calculation	
2		3	Derivation of Foregone Deadband Revenue Requirement	
2		4	THESL's Feeder Investment Model and its use in Developing ICM Projects	
3 - IRM Schedules and Models				
3	A		Current Tariff of Rates and Charges	
3	B1		Proposed Tariff of Rates and Charges - 2012	
3	B2		Proposed Tariff of Rates and Charges - 2013	/U
3	B3		Proposed Tariff of Rates and Charges - 2014	/U
3	C1.1		OEB IRM3 Rate Generator - 2012 Model	
3	C1.2		OEB IRM3 Rate Generator - 2012 Bill Impacts with Deadband	
3	C2.1		OEB IRM3 Rate Generator - 2013 Model	/U
3	C2.2		OEB IRM3 Rate Generator - 2013 Bill Impacts with Deadband	/U
3	C3.1		OEB IRM3 Rate Generator - 2014 Model	/U
3	C3.2		OEB IRM3 Rate Generator - 2014 Bill Impacts with Deadband	/U
3	D		OEB RTSR Adjustment Workform	
3	E1		OEB IRM3 Shared Tax Savings Workform - 2012 Workform	
3	E2		OEB IRM3 Shared Tax Savings Workform - Days of Service	
3	F		2012 Lost Revenue Rate Rider	/N
4 - Incremental Capital Module				
4			Incremental Capital Module	/U
4	A		Summary of Capital Program	/U
			ICM Business Cases	
4	B1		Underground Infrastructure and Cable - Underground Infrastructure	/U
4	B2		Underground Infrastructure and Cable - PILC	/U
4	B3		Underground Infrastructure and Cable - Handwell Replacement	/U
4	B4		Overhead Instructure and Equipment - Overhead Infrastructure	/U
4	B5		Overhead Instructure and Equipment - Box Construction	/U
4	B6		Overhead Instructure and Equipment - Rear Lot Construction	/U
4	B7		Overhead Instructure and Equipment - Polymer SMD-20 Switches	/U
4	B8		Overhead Instructure and Equipment - SCADAMate R1 Switches	/U
4	B9		Network Infrastructure and Equipment - Network Vault and Roofs	/U
4	B10		Network Infrastructure and Equipment - Fibertop Network Units	/U

Tab	Schedule	Appendix	Content	
4	B11		Network Infrastructure and Equipment - Automatic Transfer Switches and Reverse Power Breakers	/U
4	B12		Station Infrastructure and Equipment - Station Power Transformers	/U
4	B13.1		Station Infrastructure and Equipment - Municipal Substation Switchgear	/U
4	B13.2		Station Infrastructure and Equipment - Transformer Station Switchgear	/U
4	B14		Station Infrastructure and Equipment - Station Circuit Breakers	/U
4	B15		Station Infrastructure and Equipment - Station Control and Communications	/U
4	B16		Station Infrastructure and Equipment - Downtown Station Load Transfer	/U
4	B17		Bremner TS	/U
4	B18		Hydro One Contributions	/U
4	B19		Feeder Automation	/U
4	B20		Metering	/U
4	B21		Externally-Initiated Plant Relocations and Expansions	/U
			ICM Business Cases for Projects Within Materiality Threshold	
4	C1		Operations	/U
4	C2		Information Technology	/U
4	C3		Fleet	/U
4	C4		Buildings and Facilities	/U
			Consultant Reports	
4	D1		Toronto Hydro-Electric System Limited 2012 Asset Condition Assessment Audit, by Kinectrics Inc.	
4	D2		Review of Aging Infrastructure Practices, by BIS Consulting	
4	D3		THESL Distribution Design Standards: Independent Survey and Review, by Navigant Consulting Ltd.	
4	D4		Rider to ICM Business Cases - Summary Report, by Power System Engineering, Inc.	/N
4	D4		ICM Business Cases - Summary Report, by Power System Engineering, Inc.	
4	D5		Rider to Independent Assessment of Toronto Hydro Busines Cases: High Level Review of Proposed Programs to be filed before the Ontario Energy Board under	/N
4	D5		Independent Assessment of Toronto Hydro Busines Cases: High Level Review of Proposed Programs to be filed before the Ontario Energy Board under its	
4	D6		Project Specific Designated Substances and Hazardous Materials Survey: 14 Carlton Street Toronto, by Genivar Inc.	
4	E1.1		Incremental Capital Workform - 2012	/U
4	E1.2		Threshold - 2012	/U
4	E1.3		Days of Service - 2012	/U
4	E1.4		ICM Lost Revenue Rate Adder	/N
4	E2.1		Incremental Capital Workform - 2013	/U
4	E2.2		Threshold - 2013	/U
4	E2.3		Days of Service - 2013	/U
4	E3.1		Incremental Capital Workform - 2014	/U
4	E3.2		Threshold - 2014	/U
4	E3.3		Days of Service - 2014	/U
4			**ICM Project Worksheets**	
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4	F1.2		Underground Infrastructure and Cable - 2013 Underground Infrastructure	/U

Tab	Schedule	Appendix	Content	
4	F1.3		Underground Infrastructure and Cable - 2014 Underground Infrastructure	/U
4	F2.1		Underground Infrastructure and Cable - 2012 PILC	/U
4	F2.2		Underground Infrastructure and Cable - 2013 PILC	/U
4	F2.3		Underground Infrastructure and Cable - 2014 PILC	/U
4	F3.1		Underground Infrastructure and Cable - 2012 Handwell Replacement	/U
4	F3.2		Underground Infrastructure and Cable - 2013 Handwell Replacement	/U
4	F3.3		Underground Infrastructure and Cable - 2014 Handwell Replacement	/U
4	F4.1		Overhead Instructure and Equipment - 2012 Overhead Infrastructure	/U
4	F4.2		Overhead Instructure and Equipment - 2013 Overhead Infrastructure	/U
4	F4.3		Overhead Instructure and Equipment - 2014 Overhead Infrastructure	/U
4	F5.1		Overhead Instructure and Equipment - 2012 Box Construction	/U
4	F5.2		Overhead Instructure and Equipment - 2013 Box Construction	/U
4	F5.3		Overhead Instructure and Equipment - 2014 Box Construction	/U
4	F6.1		Overhead Instructure and Equipment - 2012 Rear Lot Construction	/U
4	F6.2		Overhead Instructure and Equipment - 2013 Rear Lot Construction	/U
4	F6.3		Overhead Instructure and Equipment - 2014 Rear Lot Construction	/U
4	F7.1		Overhead Instructure and Equipment - 2012 Polymer SMD-20 Switches	/U
4	F7.2		Overhead Instructure and Equipment - 2013 Polymer SMD-20 Switches	/U
4	F7.3		Overhead Instructure and Equipment - 2014 Polymer SMD-20 Switches	/U
4	F8.1		Overhead Instructure and Equipment - 2012 SCADAMate R1 Switches	/U
4	F8.2		Overhead Instructure and Equipment - 2013 SCADAMate R1 Switches	/U
4	F8.3		Overhead Instructure and Equipment - 2014 SCADAMate R1 Switches	/U
4	F9.1		Network Infrastructure and Equipment - 2012 Network Vault and Roofs	/U
4	F9.2		Network Infrastructure and Equipment - 2013 Network Vault and Roofs	/U
4	F9.3		Network Infrastructure and Equipment - 2014 Network Vault and Roofs	/U
4	F10.1		Network Infrastructure and Equipment - 2012 Fibertop Network Units	/U
4	F10.2		Network Infrastructure and Equipment - 2013 Fibertop Network Units	/U
4	F10.3		Network Infrastructure and Equipment - 2014 Fibertop Network Units	/U
4	F11.1		Network Infrastructure and Equipment - 2012 Automatic Transfer Switches and Reverse Power Breakers	/U
4	F11.2		Network Infrastructure and Equipment - 2013 Automatic Transfer Switches and Reverse Power Breakers	/U
4	F11.3		Network Infrastructure and Equipment - 2014 Automatic Transfer Switches and Reverse Power Breakers	/U
4	F12.1		Station Infrastructure and Equipment - 2012 Station Power Transformers	/U
4	F12.2		Station Infrastructure and Equipment - 2013 Station Power Transformers	/U
4	F12.3		Station Infrastructure and Equipment - 2014 Station Power Transformers	/U
4	F13.1		Station Infrastructure and Equipment - 2012 Stations Switchgear Replacement	/U
4	F13.2		Station Infrastructure and Equipment - 2013 Stations Switchgear Replacement	/U
4	F13.3		Station Infrastructure and Equipment - 2014 Stations Switchgear Replacement	/U
4	F14.1		Station Infrastructure and Equipment - 2012 Station Circuit Breakers	/U
4	F14.2		Station Infrastructure and Equipment - 2013 Station Circuit Breakers	/U
4	F14.3		Station Infrastructure and Equipment - 2014 Station Circuit Breakers	/U
4	F15.1		Station Infrastructure and Equipment - 2012 Station Control and Communications	/U
4	F15.2		Station Infrastructure and Equipment - 2013 Station Control and Communications	/U

Tab	Schedule	Appendix	Content	
4	F15.3		Station Infrastructure and Equipment - 2014 Station Control and Communications	/U
4	F16.1		Station Infrastructure and Equipment - 2012 Downtown Station Load Transfer	/U
4	F16.2		Station Infrastructure and Equipment - 2013 Downtown Station Load Transfer	/U
4	F16.3		Station Infrastructure and Equipment - 2014 Downtown Station Load Transfer	/U
4	F17.1		Bremner TS - 2012	/U
4	F17.2		Bremner TS - 2013	/U
4	F17.3		Bremner TS - 2014	/U
4	F18.1		Hydro One Contributions - 2012	/U
4	F18.2		Hydro One Contributions - 2013	/U
4	F18.3		Hydro One Contributions - 2014	/U
4	F19.1		Feeder Automation - 2012	/U
4	F19.2		Feeder Automation - 2013	/U
4	F19.3		Feeder Automation - 2014	/U
4	F20.1		Metering - 2012	/U
4	F20.2		Metering - 2013	/U
4	F20.3		Metering - 2014	/U
4	F21.1		Externally-Initiated Plant Relocations and Expansions - 2012	/U
4	F21.2		Externally-Initiated Plant Relocations and Expansions - 2013	/U
4	F21.3		Externally-Initiated Plant Relocations and Expansions - 2014	/U
5 - Final Disposition of the PILs Deferral Accounts 1562 and 1563				
5			Final Disposition of the PILs Deferral Accounts 1562 and 1563	/U
5	A		Summary Continuity Schedules for Account 1562	
5	B		Detailed Continuity Schedules for Account 1562	
5	C		2001 SIMPIL Model	
5	D		2002 SIMPIL Model	
5	E		2003 SIMPIL Model	
5	F		2004 SIMPIL Model	
5	G		2005 SIMPIL Model	
			Tax Information	
5	H1		2001 Board-Approved PILs proxy model	
5	H2		2001 T2 Tax Return	
5	H3		2001 CT23 Tax Return	
5	H4		2001 Amended T2 and CT23 Schedules	
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5	H6		2001 Statement of Adjustments	
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5	I1		2002 Board-Approved PILs proxy model	
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5	I4		2002 CT23 Tax Return	
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Tab	Schedule	Appendix	Content	
5	J1		2003 T2 Tax Return	
5	J2		2003 CT23 Tax Return	
5	J3		2003 Notice of Assessment	
5	J4		2003 Notice of Reassessment	
5	J5		2003 Statement of Adjustments	
5	J6		2003 Financial Statements submitted with tax return	
5	K1		2004 RAM model	
5	K2		2004 T2 Tax Return	
5	K3		2004 CT23 Tax Return	
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5	K5		2004 Notice of Reassessment	
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5	L2		2005 RAM Model	
5	L3		2005 T2 Tax Return	
5	L4		2005 CT23 Tax Return	
5	L5		2005 Notice of Assessment	
5	L6		2005 Notice of Reassessment	
5	L7		2005 Statement of Adjustments	
5	L8		2005 Financial Statements submitted with tax return	
5	M		PILs Recoveries from 2002 to 2006 showing PILs rate slivers from RAM multiplied by billing	
5	N1		2002 Signed Board Decision	
5	N2		2004 Signed Board Decision	
5	N3		2005 Signed Board Decision	

Addendum to Manager's Summary – Summary of Updated Evidence

1. Introduction

This evidence update is filed pursuant to section 11.02 of the OEB's Rules of Practice and Procedure.

On September 13 and October 22, 2012, THESL advised the OEB and parties by letter that since much of 2012 has passed, THESL had undertaken a process to update its evidence to reflect the necessary rescheduling of the jobs constituting its proposed capital program, together with other consequential changes.

This summary describes the nature and underlying rationale for THESL's evidentiary update in respect of 2012 and 2013. THESL's proposal for 2014 is described in further detail below.

As described in its October 22, 2012 letter, THESL's update is fundamentally administrative in nature, representing a shifting of certain jobs between ICM years in order to reflect the reality of the passage of time in 2012 and THESL's operational experience since this application was filed in May. The movement of jobs from 2012 to 2013 is also partially a result of the limited funds available for 2012 capital expenditures as well as other factors discussed in greater detail later in this summary. THESL has also taken the opportunity to update certain forecast information that has recently become available. THESL provides this update to assist in providing the OEB and intervenors a more precise picture of its capital needs, and where possible for 2012, THESL has replaced forecasts with actuals.

THESL sees the Incremental Capital Module as a regulatory instrument which allows for the funding of necessary capital expenditures in a context where there is no other mechanism available for funding those expenditures. These are the precise circumstances in which THESL finds itself – THESL presently has no other option to fund this essential work.

THESL believes that the workplan described in this update conforms to the requirements and intent of the incremental capital module as it has evolved over time, including the relevant ICM factors, such as need and prudence.

All of THESL's work under an approved ICM will be subject to a true-up mechanism to be applied at the time of rebasing. THESL is committed to developing a true-up protocol which meets all of the Board's requirements. As discussed below, if the Board considers it advisable, THESL will work with Board Staff and Intervenors to develop such a protocol.

2. Phasing Request, Urgency and Proceeding Timelines

As requested through its counsel in the covering letter accompanying this update, while THESL maintains its three year request for ICM funding, it is proposing, with one exception, that 2014 be bifurcated from the 2012 and 2013 portions of the application and considered by the OEB in a second phase to be heard after a decision for 2012 and 2013.

The sole exception to THESL's bifurcation request is the Bremner project together with the Bremner-related capital contributions to Hydro One.

In order to provide THESL ratepayers with certainty concerning rates to be effective in 2013, and to address critically needed capital work on its distribution system, THESL believes that phase 1 of the application must be heard as expeditiously as possible and in 2012. THESL proposes that bifurcating and phasing this application will assist the OEB and all parties in addressing the 2012 and 2013 issues more effectively and expeditiously.

THESL believes that the suite of capital work proposed is essential for maintaining the reliability of the distribution system for customers and the safety of employees and the public. To this end, THESL has undertaken the difficult task of balancing the need to undertake certain capital work in 2012 with the present lack of rates funding to do that work. THESL forecasts that it will have spent a considerable amount of money beyond depreciation[1] on projects in 2012 – for a total of $275 million by year-end - money which has been spent without certainty respecting recovery. This is not a sustainable course for THESL.

As the Board will see, there are a number of factors which impact the scheduling of work with competing priorities.

All of these factors emphasize the need for an expeditious decision on THESL's application.

To the extent that the OEB grants THESL's phasing request, THESL anticipates that the OEB and intervenors will find it convenient to be readily able to distinguish evidence that would be effectively on hold until the second phase of this proceeding. To this end, THESL has presented the 2014-specific evidence in the application in "strikethrough format" to indicate that the 2014 evidence is subject to a future update. It is important to highlight that this approach should not be construed in any way as a withdrawal of the 2014-specific evidence or any diminution of THESL's commitment to it. Experience has shown that the 2014 work will be much more effectively dealt with after THESL's overall work program has progressed. The same factors that justify and drive the update itself suggest that an examination of the 2014 work is most effectively conducted closer to the implementation date, and with the accumulated experience of the totality of the ICM work available. Subject to OEB approval, THESL proposes to file updated evidence to support 2014 expenditures in advance of phase two of this proceeding. Accordingly, THESL has not provided an update to the originally filed 2014 figures at this time.[2]

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[1] THESL estimates depreciation funding to be between $140 and $145 million, depending on the approach taken.

[2] THESL estimates that based on its updated forecast for 2012 and 2013, its total capital program for 2014 would be approximately $500 million (excluding Bremner Station). However, this estimate has not yet been validated by factors including the necessary executability analysis as described throughout this document.

3. Forecasts and True-Up

THESL's update is effectively a "snapshot in time" which provides a more refined and fine-grained picture of THESL's work plan for 2012 and 2013, in particular. Since filing this application, time has passed and THESL has needed to execute certain essential work and plan for near-term execution of other essential work. As a result, THESL has been able to further refine the picture it presents in this application in respect of the timing and sequencing of carrying out certain jobs, as well as the cost estimates associated with that work, and this new information is reflected here and throughout the updated evidence.

THESL's update does not represent a correction to its previously-filed job sequencing and cost estimates. Rather, this update reflects the reality of project planning for a utility that operates in a mature, congested urban environment. In undertaking jobs, THESL must contend with complexities including the intensification of development (like condominium complexes, the Pan-Am Games, and waterfront redevelopment), limited space for utility equipment installation, over a century of previous construction by various agencies often with missing or inaccurate historical records, and coordination with other City and utility reconstruction programs. These complexities lead to a continual evolution of job scope, and hence anticipated job costs throughout a job's lifecycle, from planning through design to execution.

By necessity, the closer the utility gets to job execution, the more refined its forecasts will be. It is not until very close to the execution point of a job (and even sometimes well into project construction) that it is possible, or prudent, for a utility such as THESL to produce a detailed and fine-grained workplan in respect of job timing and cost estimates.

These factors have become especially salient for THESL in 2012 given the passage of time, and the uncertainty with respect to rates funding for 2012 capital work. THESL has had to postpone certain jobs originally forecasted in its 2012 workplan. Accordingly, while THESL believes that the information in this update constitutes an appropriate snapshot in time, the forecasts provided are still directional in nature, and actuals may differ from those forecasts.

In short, given THESL's present circumstances - needing to execute certain essential work and plan for near-term execution of other essential work – the utility has found itself in the position of being able to further refine the picture for its 2012 and 2013 workplan. In an effort to provide the OEB and intervenors visibility into this refined picture, THESL is updating its application on this basis.

THESL believes that the OEB's true-up process offers valuable protection to ratepayers in this regard. Any ICM rate adders that THESL is granted will, at the time of THESL's rebasing, be reconciled to reflect actual, prudent spending – ratepayers are fully protected against any under-spending or imprudent over-spending. To this end, THESL is committed to implementing the true-up mechanism the OEB approves in an efficient and cooperative manner, and is receptive to working with OEB staff and intervenors to develop a detailed proposal in this regard.

Further details of THESL's updated workplan are provided below.

4. THESL's Updated Workplan in General

THESL's updated evidence provides a detailed representation of the refined workplan forming the basis of this ICM application. All of the work represented by this plan is necessary to ensure an appropriate level of service and reliability for ratepayers, and safety for employees and the public. Every job identified in this update plays an important role in delivering those outcomes.

The job-shifting presented in this update has been occasioned by the passage of time since THESL filed its application in May of 2012 and the real-world experience that the utility has gained since that time. By the very nature of THESL's circumstances, it must implement a complex series of capital jobs in a dense, diverse and multi-party urban environment. Prioritization and planning often must recognize real-time obstacles and opportunities. While a given job may be assigned a high priority, THESL may have to wait for the best opportunity to execute it. That opportunity may depend on a wide variety of factors, many of which are beyond THESL's control and involve numerous parties.

This kind of contingency also drives an important element of THESL's workplan, which is to maximize the effect of work at a given job site in light of the fact that THESL may not be able to return to that site whenever it chooses. In some instances this means that the most economical way of performing work which must be performed in due course may be to advance a portion of it.

Accordingly and as described in further detail below, the update documents movement of jobs between ICM years, and primarily from 2012 to 2013, with certain work being moved to 2014. Certain jobs necessarily span multiple years. Sometimes this is occasioned because execution of a complex capital work program such as THESL's necessitates sequencing execution of jobs throughout the year (i.e. not all jobs are begun on January 1 and completed on December 31 of a given year). In other instances, THESL must complete certain pre-construction design work late in one calendar year in order to execute the job in the following calendar year.

THESL is confident that the jobs identified for the 2012 and 2013 workplan are directionally accurate and can be effectively and substantially implemented in the manner described, subject to the constraints and needs for ongoing adjustments detailed in THESL's evidence. With the exception of the Bremner project and associated capital contributions, THESL believes that its request for funding for projects in 2014 should await a further update of the application at a time when its progress with the work can be properly incorporated.

With respect to the Bremner Station project, and the associated capital contributions from THESL to HONI, THESL believes that it is necessary to treat that project as an integrated, three-year undertaking. Furthermore, THESL believes that its updated evidence supports both the updated timelines for the project and the associated expenditures through to the end of 2014, at which time Bremner is forecasted to be complete, subject to OEB approval.

OEB approval for the whole of the first phase of the Bremner Station project is required at this time to enable THESL to enter into the construction and equipment supply commitments that are necessary to achieve completion by the end of 2014. As a result, the Bremner Station project, together with the associated capital contributions to Hydro One for that project, form the only exceptions to THESL's request that the OEB determine matters related to 2014 in Phase 2 of this application, after a further evidence update from THESL.

5. Specific Details of THESL's Updated Workplan

THESL's evidentiary update effectively takes the form of an administrative shifting of certain portions of its three year workplan between the ICM years, and presents refined cost estimates that are now available given the passage of time.

Updates to Timing – Postponement of Jobs

The primary driver for THESL's update to its evidence is the need to postpone some jobs from their original scheduling in 2012, and to move those jobs to 2013. This is a result of the passage of time since filing this application in May 2012. As described above, THESL undertook the difficult task of balancing the need to undertake certain capital work in 2012 with the prevailing contingencies which are outlined below, which include the present lack of rates funding to do that work. THESL's revised 2012 workplan represents an effort to put that limited funding, comprised of depreciation and a further commitment by THESL - for a total of $275 million[3] - to the best use.

THESL has established sophisticated techniques to determine which needs of the distribution system have the highest priority from an electricity distribution perspective. Generally, these techniques identify which assets or conditions on the distribution system present the greatest risks to reliability and/or safety. In theory, THESL would execute the identified jobs starting from the highest electrical distribution priority and proceeding through each successive job on the priority list until it had exhausted its available resources.

[3] THESL estimates depreciation funding to be between $140 and $145 million, depending on the approach taken.

However, in practice there are a number of factors that restrict THESL's ability to execute jobs in strict priority sequence. As THESL noted in its original evidence (for example, at page 7 of the Manager's Summary) the fact is that in the execution of a large scale construction program, events occur which cause the actual cost and timing of certain jobs to vary from what was initially forecast. These variances can be caused by a number of external factors which are uncertain or unforeseeable at the time the forecast was prepared. THESL further noted that in order to maintain the efficiency of its overall program, as described above, it would be necessary to adjust job timing to accommodate unforeseen delays in some jobs and to advance others so as to maintain efficient resource utilization.

Specific factors in this regard include:

- ***Specialized resource availability***: For certain types of specialized skilled labour, there is a limited resource pool to draw from. For example, Paper Insulated Lead Covered cable jointing, network installation or replacement, and overhead box-construction are specialized skills that are largely unique to THESL, and few workers are trained or experienced in this type of work. THESL can only undertake a limited number of jobs in these categories, even if further work of high priority is called for. In addition, the availability of contractor electrical construction resources is limited, compared to those for civil work.
- ***Feeder loading restrictions***: High system loading, especially during hotter weather, can prevent the transfer of load from a given feeder to an adjacent heavily-loaded feeder. These transfers are necessary to de-energize and isolate a feeder or portions of a feeder to allow a capital job to proceed. Feeder loading restrictions can thus impact the timing of specific jobs.
- ***Material lead-times***: For some of the major assets like switchgear and breakers, the manufacturing lead-time can be up to a year. Even for relatively smaller assets, lead-times can be significant. THESL's work is subject to the variability of the supply chain, and supplier's inventories of parts.

When THESL prepares medium and long-term workplans for rate filings and other business purposes, it considers the above-noted factors. As noted above, the reality of project planning, especially for a large urban utility that operates in a dynamic environment, is that it is not until very close to the execution point of a job (and even sometimes well into project construction) that it is possible, or prudent, for THESL to produce a detailed and fine-grained workplan in respect of job timing and cost estimates. By necessity, the closer the utility gets to job execution, the more refined its forecasts will be.

Given THESL's present circumstances - needing to execute certain essential work in 2012 and plan for near-term execution of other essential work in 2013 – the utility has found itself in the position of being able to further refine the picture for its 2012 and 2013 workplan. However, the required postponement of certain jobs occasioned by the passage of time and a more refined executability analysis, does not detract from the necessity of executing these jobs as soon as possible. The high priority ranking of this work persists and THESL still has no other choice but to do the work as soon as it can.

Updates to Timing – Advancement of Jobs

In a limited number of cases, THESL's updated evidence reflects the advancement of some jobs from their original scheduling in 2013 to their updated scheduling in 2012. This is a result of the factors noted above as well as labour and design considerations.

First, in order to maximize the efficient utilization of THESL's labour force, it is necessary to have work execution flowing continuously throughout the year. To achieve this, it is THESL's standard practice to advance some of the civil construction (of duct banks, pole installations, etc.) for jobs in a planned year into the prior year. This ensures that there is work available in the early months of the planned year for the electrical labour force to undertake. It also avoids constructing civil structures in those months when the ground is frozen and frost premiums apply to civil work.

Also, given the long timeframes associated with capital construction jobs, it is necessary to design these jobs months in advance of their actual construction. This allows time not only for the design itself, but also for material procurement (especially for long lead-time equipment like breakers, switches, and underground cable), circulation of designs drawings for review by other utilities, applying for and obtaining City permits, and utility plant locates. This often results in designs being advanced into the year prior to the planned construction year.

Updates to Costs of Jobs, Segments, and Projects

THESL's evidence update reflects the latest available information regarding job costs (and consequently, Segment and Project costs). Where actual information has become available through the course of executing jobs in 2012, it is reflected, and is accompanied by updated information on projected job costs.

In addition, some cost estimates have been revised to reflect the transition from high level estimates used for planning purposes to detailed estimates used for execution purposes. For purposes of planning and budgeting, THESL follows a two-stage process for cost estimation. The first stage is the production of a high level estimate that is usually prepared using a cost per unit of work approach. For example, when producing the initial estimate for an underground direct buried job, THESL uses a cost per unit length parameter that reflects the cost of installing civil and electrical infrastructure based on a selected standard of construction. This approach is used for initial screening of jobs and avoids the significant cost involved to produce a detailed estimate for a job that may not go forward.

As accepted jobs proceed toward the construction phase, THESL produces a detailed estimate based on the particular features of a specific job. A number of factors may cause the cost of a specific job to change from the average used for the initial estimate, and these factors are accounted for in the detailed estimate. (Additional factors, such as season, use of overtime labour, system loading, and real-time switching options may also affect actual costs versus detailed estimate costs.)

Over a large number of jobs, and through the rigourous application of structured project management techniques, the pluses and minuses of individual jobs may cancel out such that in aggregate the initial estimates form a reliable indication of the total cost of the jobs in the category. However, in the natural course of job progression, more specific information about individual jobs becomes available and this has been reflected in THESL's evidence update.

The updated cost information is reflected throughout the updated evidence for each Business Case and is summarized further below in Table 2. Please note that while THESL has confined the narrative Business Case evidence updates to cost changes greater than $100,000, THESL has included all cost changes in its calculation of the revised costs for 2012 and 2013. Due to time constraints, THESL has not updated its Feeder Investment Model calculations to reflect the revised costs and timing. However, THESL has no reason to believe that the FIM calculations contained within its application do not continue to be directionally accurate, and is not aware at this time of any case in which the conclusion for a particular job is affected.

Additions of Jobs

Through the course of executing jobs in 2012 and through ongoing evaluation, THESL has identified 10 jobs in 3 project segments (Underground Infrastructure, Feeder Automation, and HONI Contributions) which it proposes to add to those segments. The total cost of the additional jobs is $5.5 million in 2012 and $2.8 million in 2013. Explanations for the added jobs are provided in the corresponding business cases.

Corrections to Original Evidence

Through the course of preparing interrogatory responses and the evidence update, THESL has become aware of various errors contained in the evidence originally filed. In certain cases these errors are minor and relate only to presentation, rather than underlying calculations; in other cases, underlying calculations were affected. Several corrections were noted in interrogatory responses. These corrections are shown in the updated evidence.

Summary Report on Year-to-Date Spending

THESL has prepared a summary report on spending to August 31, 2012, the latest date for which information is available. In addition, THESL has prepared an estimate of spending to year end, 2012. In Table 1 below, THESL presents this information by project segment.

Table 1: Summary Report of Total 2012 Actual and Estimated Capital Spending $Millions

Schedule Number	Projects	Segments	2012 Actuals (Aug/12)	2012 Forecast
B1	Underground Infrastructure and Cable	Underground Infrastructure	14.63	28.75
B2		Paper Insulated Lead Covered Cable - Piece Outs and Leakers	-	0.08
B3		Handwell Replacement	6.37	13.65
B4	Overhead Infrastructure and Equipment	Overhead Infrastructure	1.63	9.07
B5		Box Construction	0.02	0.58
B6		Rear Lot Construction	9.36	16.36
B7		Polymer SMD-20 Switches		
B8		SCADA-Mate R1 Switches		
B9	Network Infrastructure and Equipment	Network Vault & Roofs	0.65	2.84
B10		Fibertop Network Units	0.00	1.48
B11		Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)		
B12	Station Infrastructure and Equipment	Stations Power Transformers	-	0.38
B13.1 & 13.2		Stations Switchgear - Muncipal and Transformer Stations	1.05	1.73
B14		Stations Circuit Breakers	0.11	0.76
B15		Stations Control & Communicaton Systems	0.03	0.14
B16		Downtown Station Load Transfers	0.03	0.68
B17	Bremner TS	Bremner Transformer Station	3.38	8.50
B18	Hydro One Capital Contributions	Hydro One Capital Contributions	18.21	22.98
B19	Feeder Automation	Feeder Automation	-	2.30
B20	Metering	Metering	2.41	4.74
B21	Plant Relocations	Externally-Initiated Plant Relocations and Expansions	2.23	10.16
C1	Operations Portfolio Capital		71.92	120.51
C2	Information Technology Capital		13.53	22.00
C3	Fleet Capital		0.73	0.80
C4	Buildings and Facilities Capital		3.01	5.00
	Allowance for Funds Used During Construction			1.20
Total			**149.30**	**274.68**

Note: Updated amount for 2012 Hydro One Capital Contributions reflects a credit amount from a prior period, unrelated to proposed ICM projects.

Overall Cost Impacts

The overall cost impacts of ICM job cost changes, job additions, and job timing changes is summarized below in Table 2, by segment. With the exception of the Bremner project and Bremner-related HONI contributions, the variances below are computed with respect to 2012 and 2013 only.

Table 2: Overall Cost Impacts by ICM Segment

$Millions

Projects	Segments	2012 Original Cost	2012 Update Cost	Update - Original Variance	2013 Original Cost	2013 Update Cost	Update - Original Variance	2014 Original Cost	2014 Update Cost	Update - Original Variance	Total Original Cost	Total Update Cost	Update - Original Variance
Underground Infrastructure and Cable	Underground Infrastructure	46.9	28.8	(18.2)	53.0	58.9	5.9			-	100.0	87.7	(12.3)
	Paper Insulated Lead Covered Cable - Piece Outs and Leakers	17.3	0.1	(17.2)	5.2	5.4	0.2			-	22.5	5.5	(17.0)
	Handwell Replacement	12.0	13.7	1.6	14.5	16.7	2.2			-	26.5	30.3	3.8
Overhead Infrastructure and Equipment	Overhead Infrastructure	29.4	9.1	(20.4)	53.0	55.9	2.9			-	82.4	64.9	(17.5)
	Box Construction	10.2	0.6	(9.6)	20.5	23.0	2.5			-	30.7	23.6	(7.1)
	Rear Lot Construction	34.4	16.4	(18.0)	20.7	29.4	8.7			-	55.1	45.8	(9.3)
	Polymer SMD-20 Switches	3.1	-	(3.1)	2.9	1.5	(1.4)			-	6.0	1.5	(4.5)
	Scadamate R1 Switches	2.9	-	(2.9)	2.8	1.4	(1.4)			-	5.7	1.4	(4.2)
Network Infrastructure and Equipment	Network Vault and Roofs	13.6	2.8	(10.7)	12.3	18.8	6.5			-	25.9	21.6	(4.3)
	Fibertop Network Units	8.6	1.5	(7.1)	8.8	7.7	(1.1)			-	17.4	9.2	(8.2)
	Automatic Transfer Switches and Reverse Power Breakers	3.3	-	(3.3)	3.3	3.3	(0.0)			-	6.6	3.3	(3.3)
Station Infrastructure and Equipment	Stations Power Transformers	1.3	0.4	(0.9)	2.6	3.5	0.9			-	3.9	3.9	-
	Stations Switchgear - Municipal and Transformer Stations	19.3	1.7	(17.6)	18.8	21.8	3.1			-	38.1	23.5	(14.6)
	Stations Circuit Breakers	1.4	0.8	(0.6)	1.1	0.6	(0.5)			-	2.4	1.3	(1.1)
	Stations Control and Communication Systems	1.1	0.1	(1.0)	2.2	1.0	(1.2)			-	3.3	1.1	(2.2)
	Downtown Station Load Transfers	1.8	0.7	(1.1)	1.6	2.1	0.6			-	3.3	2.8	(0.5)
Bremner Transformer Station	Bremner Transformer Station	31.7	8.5	(23.2)	69.4	81.0	11.6	23.0	34.6	11.6	124.1	124.1	(0.0)
Hydro One Capital Contributions	Hydro One Capital Contributions	25.3	23.0	(2.3)	52.1	48.1	(4.0)	27.0	37.0	10.0	104.4	108.1	3.7
Feeder Automation	Feeder Automation	7.8	2.3	(5.5)	16.3	20.7	4.4			-	24.1	23.0	(1.2)
Metering	Wholesale and Smart Metering	5.6	4.7	(0.9)	7.2	8.4	1.2			-	12.8	13.1	0.3
Plant Relocations	Externally-Initiated Plant Relocations and Expansions	24.3	10.2	(14.1)	17.7	24.8	7.2			-	41.9	35.0	(6.9)
Grid Solutions	Grid Solutions	2.4	-	(2.4)	3.6	-	(3.6)			-	6.0	-	(6.0)
Total ICM		303.6	125.2	(178.5)	389.5	434.1	44.6	50.0	71.6	21.6	743.1	630.8	(112.3)

Note: Hydro One Capital Contribution figures for 2014 reflect Bremner-related amounts only. Updated amount for 2012 Hydro One Capital Contributions reflects a credit amount from a prior period, unrelated to proposed ICM projects.

For clarity regarding the total costs of jobs, segments, and projects, THESL has classified jobs according to the year of their commencement, recognizing that in many cases 2012 jobs will now be carried over into 2013. Costs stated in the business cases follow this protocol.

However, for purposes of computing the ICM rate adders, THESL has entered the calendar expenditure for each year. This is illustrated in Figure 1 below.

	2012	2013	2014	Project Cost	
2012					
Job 1	20	4		Job 1	24
Job 2	13			Job 2	13
Job 3	19	13		Job 3	32
Job 4	51	17	11	Job 4	79
Job 5	4		19	Job 5	23
				2012 Job subtotal	171
2013					
Job 6		27	9	Job 6	36
Job 7		33	5	Job 7	38
Job 8		16		Job 8	16
Job 9		49	21	Job 9	70
Job 10		17	8	Job 10	25
				2013 Job subtotal	185
Total Spend by Year	107	176	73	Total Project Cost	356
			Total Spend 356		

Figure 1: Illustrative Schematic of Cost Categorization

In Figure 1, five hypothetical jobs are categorized as 2012 jobs because they commence in that year. The total cost of those jobs is $171. However, the capital spend in 2012 in this illustrative example is $107, which figure would be input to the ICM model in order to derive the ICM rate adders. For 2013, the total of jobs 6 through 10 is $185, but 2013 capital spending is $176, consisting of spending on three 2012 jobs plus five 2013 jobs. In this generalized example, some spending for both 2012 and 2013 jobs occurs in 2014, although no 2014 jobs are depicted. Overall, total cumulative expenditures equal total project costs.

Presentation of Updated Evidence

To assist the OEB and parties, THESL presents its updated evidence by the following means:

A. Segment Update Narratives. A separate text box at the beginning of each updated segment business case summarizes the key elements of the evidence update for that segment.

B. Marginal Notations. Marginal notations (/c for corrections, /u for updates, etc.) appear within each business case at locations where changes have been made.

C. Summary Table of Revisions. A summary table of revisions is presented as Appendix A to this Addendum to the Manager's Summary.

6. Rate Implementation

As was discussed in Board Staff IR Tab 6B 1-11, VECC IR Tab 6L 11-120, and VECC IR Tab 6L 11-121, the timing of the hearing of this application will affect the implementation of rates. Based on the current expected timelines, THESL requests that proposed Rate Adders and Rate Riders be implemented beginning May 1, 2013. Accordingly, the Adders and Riders have been recalculated assuming that implementation date, as discussed below. The new proposed and updated rate adders and riders are reflected in the updated 2013 Tariff Sheets (Tab 3, Schedule B2), and 2013 Bill Impact schedules (Tab 3, Schedule C2.2).

As THESL has noted in VECC IR Tab 6L 11-121, THESL expects to update both the 2013 IRM rates and 2013 ICM rate adders using the Board's updated PCI index and associated change in the ICM threshold calculation, for implementation of 2013 rates once these values become available.

<u>2012 ICM Rate Adders</u>

As a result of the current timing of this proceeding, THESL proposes that the revenue requirement associated with approved 2012 ICM capital projects be collected over the two year, May 1 2013 to April 30 2015 period. The annual revenue requirement associated with the updated 2012 capital projects is shown in updated Exhibit E1.1, page 12 (or Tab E4.1 of the Excel model) and would normally be recoverable in each year of the three year IRM period, 2012-14. The calculation of the rate adder is shown in the updated and corrected Exhibit E1.3.

2012 IRM Foregone Revenue Rate Riders

THESL proposes a new rate rider to collect the 2012 IRM component of rates which would have taken effect June 1, 2012, the date the Board has previously declared distribution rates interim. THESL has calculated the foregone revenue for the 11-month period June 1, 2012 through April 30, 2013, using the difference between 2011 Board Approved distribution rates and a 0.68% increase in both the 2011 Board Approved fixed and variable components of distribution rates, applied to the 2011 Board Approved loads and customers.
THESL proposes to clear this amount over the remaining two rate years (2013-14) of the ICM period. The calculation of the 2012 IRM Foregone Revenue and proposed rate riders is shown in Tab 3, Exhibit F1. Any variance between the amount collected through this rate rider and the approved amount would be cleared in the next rebasing filing.

2011 Year-End Rate Base Foregone Revenue Rate Riders

As described on pages 4-6 of the Managers Summary, and calculated in Appendix 1 to the Manager's Summary, the unrecognized 2011 Rate Base results in a foregone revenue requirement over the 2012-14 period of $38 million.

As a result of the timing of this proceeding, THESL now proposes to clear this amount through a two-year rate rider to be implemented May 1, 2013. The calculation of the revised rate rider is included as an update to Appendix 1 of the Managers summary.

Appendix A – Revision Summary

The Revision Summary provided in this appendix documents each substantive change to THESL's prefiled evidence, and provides the fundamental reason for each change. The reasons behind these are briefly summarized below:

- Corrections (/C)
  - Corrections to errors in the prefiled evidence (e.g. numbers transposed, typographical errors, incorrect references, etc)

- Cost Estimate Updates (/UF)
  - Costs were updated based on the availability of more accurate estimates, as well as partial actual data for 2012.

- Additions of Jobs (/UF)
  - In a few instances, a more refined project assessment identified the need for new jobs not included in the original scope.

- Data Updates (/UF)
  - More accurate and updated data was provided where available (e.g. rates information, load forecasts, etc)

- Schedule Updates (/US)
  - Jobs were shifted from 2012 to 2013 or 2014 due to the amount of work that could be undertaken in 2012, which was limited by one or more of the following:
    i. Labour: availability of specialized labour and the need to use available civil and electrical contractors efficiently
    ii. Availability of materials

    iii. Seasonal operational constraints – including weather (construction limitations during winter) and system loading (difficulty in shifting load during summer peak periods and limits on the number of scheduled outages that can be imposed on an area)
    iv. Permitting delays
    v. Uncertainty of funding
- Jobs were advanced from 2013 to 2012 due to:
    i. The need to complete civil work before electrical work can commence and the greater availability of external civil resources
    ii. "Executability" of certain jobs because they could be designed/permitted in the near-term

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 93, 95	E10112	E10112 Purple Sageway 51M3 UG replacement NY51M3 electrical	Schedule Update (job deferred to 2014)	Civil work proposed to proceed in 2013
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 104	E11087	E11087 Grand Marshall Cable Repl SCNT47M1	Cost Estimate Update	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 89	E11301	E11301 FESI-12 Hupfield UG rebuild Phase 1 (SC47M3)	Cost Estimate Update	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 81	E11421	E11421 Glamorgan/Dundalk UG Rebuild (SC51M29) Electical	Cost Estimate and Schedule Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 89	E11438	E11438 Old Finch UG Rebuild Phase 1 - Civil (47M3)	Cost Estimate Update	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 89	E11439	E11439 Old Finch UG Rebuild Phase 1 - Electrical (47M3)	Cost Estimate and Schedule Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 74	E11483	E11483 Rebuild Ingleton 63M12 - Ph 1 - Civil	Cost Estimate Update	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 72	E11484	E11484 Rebuild Ingleton SCNT63M12 Ph 2 (Civil)	Schedule Update (job deferred to 2014)	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 27	E11592	E11592 FESI-12 NY51M6 Leslie/Nymark UG Cable Rehab Prt2	Cost Estimate and Schedule Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 27	E11593	E11593 FESI-12 NY51M6 Leslie/Nymark UG Cable Rehab Ph1	Cost Estimate Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E11616	E11616 Meadowvale/Heatherbank 47M17 Cabling Civil	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 74	E12081	E12081 Rebuild Ingleton Main Ph A - Elect	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 74	E12094	E12094 Rebuild Ingleton Ph 1 Elect	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 74	E12096	E12096 Rebuild Ingleton Ph 3 Elect	Cost Estimate and Schedule Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 88-90	E12126	E12126 Morningview UG Rebuild Phase 1 - Civil (47M3) & Elec (47M3)	Cost Estimate and Schedule Update	Civil work and electrical design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 88-90	E12127	E12127 Morningview UG Rebuild Phase 2 - Civil (47M3)	Cost Estimate and Schedule Update	Civil work and electrical design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 89	E12157	E12157 Morningside/OldFinch UG Rehab - Civil (26M23 / 47M3)	Cost Estimate Update	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 43	E12188	E12188 H9M30 435 Markam Rd TH UG Rehab	Cost Estimate and Schedule Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 69	E12202	E12202 Rehab of Feeder NAE5-2M3 in McCowan and Kingston area (Electrical)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 47-48	E12209	E12209 Dalmatian/Choiceland 47M13 UG Rebuild-Civil SCNA47M13	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 104	E12212	E12212 Venture Drive UG Rebuild Civil SCNT47M1	Cost Estimate and Schedule Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 9-12	E12226	E12226 NY80M27/29 Yorkminster UG Tie Elec	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 9-12	E12227	E12227 NY80M29 Fenn/Foursome UG DB Rebuild Elect	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 48	E12228	E12228 Dalmatian/Choiceland 47M13 Rebuild -Electrical SCNA47M13	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 69	E12230	E12230 Rehab of Feeder NAE5-2M3 in McCowan and Kingston area (Civil)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 90	E12234	E12234 Neilson Industrial Ph3 UGDB Rebuild Civil (47M3)	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 90	E12235	E12235 Neilson Industrial Ph3 UGDB Rebuild Elec (47M3)	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 82-83	E12237	E12237 Cassandra NY53M25 UG Cable Rebuild (Electrical)	Schedule Update (job deferred to 2014)	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E12239	E12239 Royal Rouge Trail UG Rebuild 47M17-Civil SCNA47M17	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E12240	E12240 Durnford/Rylander/Tideswell 47M17 3-Ph Loop-Civil SCNA47M17	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E12241	E12241 Rebuild Tallpine Subd and Durnford TH 47M17- Civil SCNA47M17	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E12242	E12242 Royal Rouge Trail UG Rebuild 47M17-Electrical SCNA47M17	Cost Estimate and Schedule Update	Design work advanced to 2012

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E12243	E12243 Durnford/Rylander/Tideswell 47M17 3-Ph Loop-Electrical SCNA47M17	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E12244	E12244 Rebuild Talpine Subd and Durnford TH 47M17- Electrical SCNA47M17	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 40	E12256	E12256 Bridletowne Cable Replacement SCNA502M22 - Electrical	Cost Estimate and Schedule Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 40	E12259	E12259 Bridletowne Cable Replacement SCNA502M22 - Civil	Cost Estimate and Schedule Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 48	E12275	E12275 Muirbank 47M13 UG Rebuild - Ph 2 - Civil	Cost Estimate Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E12281	E12281 Meadowvale/Heatherbank 47M17 Cabling Elec	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 104	E12288	E12288 NT47M1 - UG Rebuild in the Hutcherson Sq area Electrical Work SCNT47M1	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 104	E12300	E12300 NT47M1 - UG Rebuild in the Hutcherson Sq area Civil Work SCNT47M1	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 74	E12317	E12317 Rebuild Ingleton Main Ph B - Elect	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 89	E12319	E12319 26M23 New Feeder to Morningside - Old Finch (Electrical) SCNT47M3	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E12335	E12335 47M17 Blue Anchor UG Rebuild Electrical SCNA47M17	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 98	E12336	E12336 47M17 Blue Anchor UG Rebuild Civil SCNA47M17	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 43	E12348	E12348 H9M30 UG Rebuild Muir Dr - Golf Club - Civil SCNAH9M30	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 89	E12357	E12357 Morningview UG Extension (26M23)	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 95	E12393	E12393 James Gray Drive UG Rebild Elec NY51M3	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 95	E12394	E12394 James Gray Drive UG Rebild Civil NY51M3	Cost Estimate and Schedule Update	Design work advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 78	E12493	E12493 FESI UG Rebuild NT63M8 Revlis Sub Part 1- Civil SCNT63M8	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 78	E12494	E12494 FESI UG Rebuild NT63M8 Revlis Sub Part 2-Civil SCNT63M8	Cost Estimate Update	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 78	E12495	E12495 FESI UG Rebuild NT63M8 Revlis Sub Part 3-Civil SCNT63M8	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 104	E12520	E12520 FESI Conlins Milner NT47M1 - Civil	Cost Estimate Update	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 48	E13014	E13014 Holmcrest 47M13 UG Rebuild - Civil SCNA47M13	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 40	E13037	E13037 2501-61 Bridletowne UG 502M22 Rebuild Electrical SCNA502M22	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 52	E13074	E13074 UG Rehab of NY51M7 - Electrical	Schedule Update (job deferred to 2014)	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 56-58	E13098	E13098 NY51M24 UG Rebuild in Subdivision by Don Mills & Sheppard Part 1 - Electrical NY51M24	Schedule Update (job deferred to 2014)	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 56-58	E13101	E13101 NY51M24 UG Rebuild in Subdivision by Don Mills & Sheppard Part 2 - Electrical NY51M24	Schedule Update (job deferred to 2014)	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 53, 55	E13103	E13103 UG rebuild of NY51M24 Buchan Crt by Sheppard Ave E. - Electrical NY51M24	Schedule Update (job deferred to 2014)	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 15	E13289	E13289 UG Rebuild R26M34 Melford Customer Vaults	Schedule Update (job deferred to 2014)	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 101	E14026	E14026 Rebuild UG Trunk 502M21-28 Warden -Electrical	Schedule Update (job deferred to 2014)	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B01 - Underground Infrastructure	Tab 4, Schedule B1, Figures 1, 43A; Pages 4, 114-116-A	N/A	N/A	Correction	Figure and related narrative corrected to include only sustained interruptions atrributed to direct buried cable failures. Original figure included both momentary and sustained interruptions
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 130, Table 1	N/A	N/A	Correction	Some of the information previously listed in this table was included in error; the revised table reflects the corrected information
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 134-136	N/A	N/A	Correction	Table and related narrative revised to more accurately reflect cost of options for correcting problems with direct buried cables
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 140, 197	N/A	N/A	Correction	Revised estimated avoided risk cost to reflect correct application of annual discount rate
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 2-3	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 4, 110	N/A	N/A	Correction	"Circuit kilometers" corrected to "conductor kilometers"
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 17	W11385	W11385 FESI-12 Northwoods Subd UG Rebuild (55M8)	Cost Estimate and Schedule Update	Job deferred to 2013
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 60	W12077	W12077 Hoggs Hollow Electric and Civil	Cost Estimate Update	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 50-51	W12449	FESI - Lateral Cable & Tx Rehab Bathurst & Rockford	Cost Estimate and Schedule Update	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 51	W12451	FESI - UG Lat cable and transformer Rehab Cedarcroft, Patricia, etc.	Schedule Update (job deferred to 2014)	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 109	W12490	FESI-UG DB Cable Rehab Bombardier Supply	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 104A-104C	W13193	Arrow Rd. - Lateral UG Loop Replacement	Addition of Job	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 44-46	W13239	Northview Heights Electrical Rebuild	Schedule Update (job deferred to 2014)	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Pages 98A-98C	W13474, W13475	UG Cable Replacement on 85M31 at Lodestar Road, Toronto (Electrical) NY85M31	Addition of Job	
B01 - Underground Infrastructure	Tab 4, Schedule B1, Page 19	X11444	Tichester and surrounding civil electrical enhancement 35M10/35M9	Cost Estimate Update	
B02 - PILC	Tab 4, Schedule B2, Page 31	N/A		Correction	Error with intermediate calculation (does not affect end result).
B02 - PILC	Tab 4, Schedule B2, Page 15	X11532	Terauley Station Piece Out and Leakers	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B02 - PILC	Tab 4, Schedule B2, Page 15	X12512	Carlaw Station Piece Out and Leakers	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B02 - PILC	Tab 4, Schedule B2, Page 15	X12513	Leaside Station Piece Out and Leakers	Cost Estimate and Schedule Update	Job deferred to 2013
B02 - PILC	Tab 4, Schedule B2, Page 15	X12514	Esplanade Station Piece Out and Leakers	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B02 - PILC	Tab 4, Schedule B2, Page 2; Page 9, 10 ,11 ,12 ,13, 14	X12779	Bridgeman to High Level PILC Feeder Replacement	Cost Estimate and Schedule Update	Job divided into phases, with necessary civil work proposed to proceed in 2013.
B02 - PILC	Tab 4, Schedule B2, Page 15	X13396	Windsor Station Piece Out and Leakers	Schedule Update (job deferred to 2014)	
B02 - PILC	Tab 4, Schedule B2, Page 15	X13397	Strachan Station Piece Out and Leakers	Schedule Update (job deferred to 2014)	
B02 - PILC	Tab 4, Schedule B2, Page 15	X13399	Dufferin Station Piece Out and Leakers	Schedule Update (job deferred to 2014)	
B03 - Handwell Replacements	Tab 4, Schedule B3, Page 2, Table 1; Page 14, Table 3	A12236	A12236 Handwell Standardization Remediation Continue	Cost Estimate Update	

Project Segment / Category	Reference	Job / Scope #	Job Title	Type of Change	Comments
B03 - Handwell Replacements	Tab 4, Schedule B3, Pages 2, 13, 14	N/A	N/A	Cost Estimate Update	Project Segment Cost Estimate Update
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	E11088	E11088 North York SCADA (East) NY53M10 - Area A & D	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 108	E11243	E11243 Repl of Failing OH Assets on Feeder NY80M6 - Ph 2A	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	E11374	E11374 Scada Installations (8 switches) (NY34M6)	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 172	E11805	Fibreglass Secondary Insulation Replacement	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 158	E12104	E12104 Chipping Crossburn 53M10 OH Rebuild	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 112	E12358	51M21 Rebuild OH Sections Part 1	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 112	E12361	51M21 Rebuild OH Sections Part 2	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 113	E12433	E12433 Voltage Conversion KHF2	Cost Estimate and Schedule Update	Job advanced to 2012
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 108	E12436	NY80M6 Feeder OH Enhancement Phase 3 NY80M6	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 174	E12457	E12457 CSP Transformer and Pole replacement NY80M5	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 112	E12459	Banbury/Post Rd OH Rehab: NY34M6, NY53M24, NY51M21	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 101	E12884	E12884 Rebuild Broadlands MS NYSS59 VC - Ph 2	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 101	E12892	E12892 Rebuild Broadlands MS NYSS59 VC - Ph 2	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 101	E12893	E12893 Rebuild Broadlands MS NYSS59 VC - Ph 2	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 172	E13110	NYSS68-F9 OH Rebuild Pleasant View	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 16 Table 1, Page 83, Page 180 Table 1	N/A	N/A	Correction	FIM Values
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 94	N/A	N/A	Correction	Transposition Error
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 4, 42	N/A	N/A	Correction	Transposition Error
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 37-39	N/A	N/A	Correction	Table 3 and Figures 24, 25, 26 Corrected
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Pages 2, 5, 8, 9, 11, 13, 30, 31, 42, 55, 77, 82, 83, 86, 91	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 103	W10275	Manby TS_load Transfer to Horner TS_Ele_2010	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 163	W11289	W11289 FESI 55M22 ROWNTREE CONTINGENCY (PH-6)	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	W12089	W12089 Remote Switch Install - Finch 85M31 & M2	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	W12253	W12253 11M7 Switch Replacement Jane/Woolner	Schedule Update (job deferred to 2014)	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 158	W12284	CSP and Conductor Replacement	Cost Estimate and Schedule Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 98	W12292	W12292 FESI - Lomar OH Rebuild 55M25	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 97	W12309	W12309 FESI Spenvalley Rebuild	Schedule Update (job shifted between 2012/2013)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 158	W12339	W12339 FESI CSP and Conductor Replacement 11M1 and 11M4	Schedule Update (job shifted between 2012/2013)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 158	W12351	W12351 FESI CSP and Conductor Replacement NY35M24	Schedule Update (job shifted between 2012/2013)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 118	W12491	FESI Rebuid and CSP replacement Ph#3	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 110	W12669	FESI 5 - Martin Ross & Flint Rebuild	Cost Estimate and Schedule Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 119	W13054	FESI Refurbish OH feeder ph#1	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 119	W13055	FESI Refurbish OH feeder ph#2	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 119	W13056	FESI Refurbish OH feeder ph#3	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 119	W13057	FESI Refurbish OH feeder ph#4	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 122	W13130	Refurbish OH Feeder - Epsom Downs	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 167	W13169	Weston Railway - OH Rebuild	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 124	W13206	Refurbish Feeder Laterals - Phase 2 of 2	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 95	WXXXXX	Danger and Caution pole replacement	Cost Estimate and Schedule Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	X12156	Replacement of manual switch with SCADA NY53-M8	Cost Estimate and Schedule Update	Job deferred to 2013
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	X12163	Replacement of manual switch with SCADA switch NY53-M6	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 159	X12179	Replacement of CSP transformers	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 116	X12204	Replacement of CSP transformer	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 95	X12461	X12461 35M12 O/H Rebuild Flamborough Dr	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 158	X12501	35M12 - O/H Rebuild – Keele St and Milford Ave NY35M12	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 147	X13004	Convert Dupont B71DU to 13.8 kV and remove B51DU	Schedule Update (job deferred to 2014)	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	E10387	E10387 Bermondsey SCADA	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 101	E12133	E12133 Rebuild Broadlands MS NYSS59 VC - Ph 2	Cost Estimate and Schedule Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 106	E13111	Overhead Rebuild R43M28	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	X12158	Replacement of manual switch with SCADA switch on Feeder NY53-M7	Cost Estimate Update	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 109	X12175	Replacement of CSP transformer, YK35M1	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	X12176	Replacement of manual switch with SCADA switch on Feeder NY53M5	Cost Estimate Update	
B04 - Overhead Infrastructure	Tab 4, Schedule B4, Page 84-91, 161	X12182	Replacement of manual switch with SCADA switch on Feeder NY34-M5,NY34-M6,NY34-M7	Cost Estimate Update	
B05 - Box Construction	Tab 4, Schedule B5, Pages 1, 3, 7, 9, 10, 15, 18, 19	N/A	N/A	Cost Estimate and Schedule Update	
B05 - Box Construction	Tab 4, Schedule B5 Appendix J, Page 9, Table 2	N/A	N/A	Correction	FIM correction
B05 - Box Construction	Tab 4, Schedule B5, Page 4, Table 1; Page 153, Table 2	N/A	N/A	Correction	FIM correction
B05 - Box Construction	Tab 4, Schedule B5, Page 6, Table 2; Page 20, Table 5; Page 22, Table 6; Page 54, Table 31	X11452	Millwood MS: B2MD, Merton MS:B1MR, Partial Voltage Conversion	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B05 - Box Construction	Tab 4, Schedule B5, Page 6, Table 2; Page 20, Table 5; Page 23, Table 6; Page 57, Table 35	X12054	Voltage Conversation from 4kV to 13.8kV System TOB5DN	Cost Estimate Update	
B05 - Box Construction	Tab 4, Schedule B5, Page 6, Table 2; Page 21, Table 5; Page 23, Table 6; Page 59, Table 39	X12055	Voltage Conversation from 4kV to 13.8kV System TOB2DU	Cost Estimate and Schedule Update	Job advanced to 2012
B05 - Box Construction	Tab 4, Schedule B5, Page 6, Table 2; Page 20, Table 5; Page 22, Table 6, Page 34, Table 12	X12352	4.16kV B-7-CD OH Feeder Voltage Conversion to 13.kV System	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B05 - Box Construction	Tab 4, Schedule B5, Page 6, Table 2; Page 20, Table 5; Page 22, Table 6; Page 43, Table 17	X12445	B5HW and B3HW conversion/transfer to A200E	Cost Estimate and Schedule Update	Job deferred to 2013
B05 - Box Construction	Tab 4, Schedule B5, Page 7, Table 2; Page 22, Table 5; Page 23, Table 6; Page 59, Table 39	X13003	X13003 Convert 4kV Dupont B6DU to 13.8kV	Cost Estimate and Schedule Update	
B06 - Rear Lot	Tab 4, Schedule B6, Page 6	N/A	N/A	Correction	Figure should have compared "Real Lot" Overhead Outages
B06 - Rear Lot	Tab 4, Schedule B6, Page 14, Figure 3	N/A	N/A	Correction	As indicated in response to EP IR#41, Figure 3 is being withdrawn because of errors uncovered in the data underlying it
B06 - Rear Lot	Tab 4, Schedule B6, Page 4, 30-31, 39-42, 50	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B06 - Rear Lot	Tab 4, Schedule B6, Page 10, Table 1; Page 37; Page 38. Table 7; Page 71-72, Tables A1-A4; Page 73, Figure A4	N/A	N/A	Correction	FIM Values
B06 - Rear Lot	Tab 4, Schedule B6, Pages 43, 51, 59	N/A	N/A	Correction	Unit Counts

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B06 - Rear Lot	Tab 4, Schedule B6,Pages 39-41, 55	W11168	W11168-Albion F1 Silverstone - Elec	Cost Estimate Update	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 53	W11219	W11219 RATHBURN SAFI CONVERSION (Part-3) U/G (2011 CARRYOVER)	Cost Estimate Update	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41 Table titled "Listing of All Jobs" and page 47 Table in section 3.5 titled "Required Capital Costs"	W12561	Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 1	Cost Estimate Update	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41 Table titled "Listing of All Jobs" and page 47 Table in section 3.5 titled "Required Capital Costs"	W12562	Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 2	Cost Estimate Update	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 47	W12563	Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 3	Cost Estimate Update	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 47	W12564	Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 4	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B06 - Rear Lot	Tab 4, Schedule B6,Pages 39-41, 47	W12565	Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 5	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 47	W12566	Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 6	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 47	W12567	Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 7	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 60	W13017	Rear Lot #011 Ph#1 Electrical VC	Schedule Update (job deferred to 2014)	
B06 - Rear Lot	Tab 4, Schedule B6,Pages 39-41, 60	W13019	Rear Lot #011 Ph#2 Electrical VC	Schedule Update (job deferred to 2014)	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 60	W13020	Thorncrest (#011) RL VC Ph#5 Electrical	Schedule Update (job deferred to 2014)	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 60	W13142	Thorncrest (#011) RL VC Ph#5 Civil	Cost Estimate Update	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 47	W13195	Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 8	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 43	X11293	Forest Hill Rear Lot Civil PH#5	Cost Estimate Update	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 43	X12113	Forest Hill Electrical PH#4 HL UG ELECTRICAL	Cost Estimate Update	
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 43	X12114	Forest Hill Electrical PH#5	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41 Table titled "Listing of All Jobs" and page 57 Table in section 8.4 titled "Required Capital Costs"	X12184	Rear lot VC S/E Lawrence/Leslie P1 Electrical NYSS37F2	Cost Estimate and Schedule Update	Job deferred to 2013
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 57	X12185	Rear lot VC S/E Lawrence/Leslie P 2 Electrical NYSS37F2	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B06 - Rear Lot	Tab 4, Schedule B6, Pages 39-41, 57		Rear lot VC S/E Lawrence/Leslie P 3 Electrical NYSS37F2	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B07 - Polymer SMD-20 Switches	Tab 4, Schedule B7, Page 3, Table 1; Page 12, Table 3; Page 14, Table 4	N/A	N/A	Cost Estimate Update	Project Segment Cost Estimate and Schedule Update
B07 - Polymer SMD-20 Switches	Tab 4, Schedule B7, Page 2, Table 1; Page 13, Table 4	X12827	SMD-20 Replacement 2012	Cost Estimate and Schedule Update	
B07 - Polymer SMD-20 Switches	Tab 4, Schedule B7, Page 2, Table 1; Page 13, Table 4	X13419	SMD-20 Replacement 2013	Schedule Update (job deferred to 2014)	
B08 - SCADAMATE R1	Tab 4, Schedule B8, Pages 2, 16, 17, 18 Table 2	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B08 - SCADAMATE R1	Tab 4, Schedule B8, Page 18, Page 30 Table 1	N/A	N/A	Correction	Corrected FIM estimates
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 11-12, Table 3	X11362	X11362 -Loc# 4111 -Augusta and College	Cost Estimate Update	
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 11-12, Table 3	X11441	X11441 -Loc# 4512 -Eglinton Ave E./Holly St	Cost Estimate Update	
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 11-12, Table 3	X11529	X11529 Loc# 4790 Easy + West Vault Wellington St. W/ Emily St	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 8, Table 2	X12208	X12208 Loc#4485, 105 Adelaide St. West - Rebuild Vault Roof	Cost Estimate Update	
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 11-12, Table 3	X12289	X12289 Vault Loc#4412, Build a new Vault Adelaide St. West/Grand Opera Lane	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 8, Table 2	X12321	X12321 Loc#4931, Rebuild Vault Roof Front St. East and Jarvis St. A40GD	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 11-12, Table 3	X12371	X12371 -Loc# 4431 -Blue Jays Way and King St. West	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 11-12, Table 3	X12830	X12830 Loc# 4432 vault rebuild project	Cost Estimate and Schedule Update	Job deferred to 2013
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 11-12, Table 3	X12834	X12834 Vault Rebuild Project	Cost Estimate Update	
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 11-12, Table 3	X12835	X12835 Vault Rebuild Project	Schedule Update (job deferred to 2014)	
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 6, Table 1	X12844	X12844 Abandon Network Vaults	Schedule Update (job deferred to 2014)	
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 6, Table 1	X12858	X12858 Abandon 2 Network Vaults	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Page 8, Table 2	X12438	X12438 Vault Roof Rebuild Project	Schedule Update (job deferred to 2014)	
B09 - Network Vaults & Roofs	Tab 4, Schedule B9, Pages 2, 5, 6, 7, 8, 9, 13, 25	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B10 - Fibertop Network Units	Tab 4, Schedule B10, Page 19	N/A	N/A	Correction	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Page 33, Table 1	N/A	N/A	Correction	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X11840	4540_A66DX	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12685	4517_A91A	Schedule Update (job shifted between 2012/2013)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12686	4517_A92A	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12733	4794_A48CE	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12736	4286_A53WR	Schedule Update (job shifted between 2012/2013)	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12738	4499WV_A66H	Schedule Update (job shifted between 2012/2013)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12739	4219EV_A54WR	Schedule Update (job shifted between 2012/2013)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12741	N1034_A65H	Schedule Update (job shifted between 2012/2013)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12743	N1107_A53CS	Schedule Update (job shifted between 2012/2013)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12751	4219WV_A51WR	Schedule Update (job shifted between 2012/2013)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12780	4099_A66H	Schedule Update (job shifted between 2012/2013)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12781	4131_A67WR	Schedule Update (job shifted between 2012/2013)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12782	4131_A68WR	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12783	4160_A69WR	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12784	4336_A44GD	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12785	4336_A48GD	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12786	4523_A20T	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12787	4553_A56H	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12788	4625_A50DX	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12789	4651_A53H	Cost Estimate and Schedule Update	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12790	4651_A54H	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12791	4745_A55H	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12792	4897NV_A43CE	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12793	N1010_A41CE	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12794	N1102_A71CE	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12795	N1102_A72CE	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4003_A68H	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4068SV_A62H	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4106_A91A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4123_A70H	Schedule Update (job deferred to 2014)	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4164_A84A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4176_A5K	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4177_A65WR	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4198_A64H	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4210_A34A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4210_A36A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4243_A12K	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4254WV_A75CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4274_A25W	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4274_A38W	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4317_A91A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4325_A50CE	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4339WV_A92CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4394_A52CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4394_A53CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4412EV_A40GD	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4426_A72CE	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4438_A65WR	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4499EV_A65H	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4509_A62A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4518_A70A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4518_A71A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4518_A72A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4543EV_A7GL	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4555_A70CE	Schedule Update (job deferred to 2014)	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4562_A54WR	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4614_A42CE	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4619_A94B	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4627_A60CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4627_A61CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4630_A31DN	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4657_A43GD	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4667_A30DN	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4710SV_A60CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4726_A23T	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4736_A64H	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4752_A75CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4753_A48H	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4753_A49H	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4760_A10MN	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4769_A92B	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4777_A44CE	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4789_A91B	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4851_A5GL	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4883_A78CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	4940_A41GD	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1005_A77CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1033_A62H	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1051_A13K	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1051_A15K	Schedule Update (job deferred to 2014)	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1053_A71CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1071_A78E	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1072_A92A	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1083_A43GD	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1083_A49GD	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	N1115_A94CS	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12825	V4476_A16L	Schedule Update (job deferred to 2014)	
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4205_A41GD	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4340_A49GD	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4376_A63H	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4378_A43CE	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4478_A66WR	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4521_A54WR	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4529WV_A49GD	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4653SV_A65CS	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4709_A39DN	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4710NV_A62CS	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4768NV_A12DX	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	4776SV_A44CE	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	N1011_A63WR	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	N1011_A66WR	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	N1029_A43GD	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	N1045_A77CS	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	N1087_A67WR	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	N1090_A37X	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	V4511_A16L	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	V4511_A17L	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Appendix A, Page 21 - 27	X12843	V4733_A16L	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B10 - Fibertop Network Units	Tab 4, Schedule B10, Page 1, 3, 4	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate Update
B11 - ATS & RPB	Tab 4, Schedule B11, Page 22	N/A	N/A	Correction	Incorrect units were used for the presented outage cost values
B11 - ATS & RPB	Tab 4, Schedule B11, Page 1, 5	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X11505	D9012 - Near 654 Castlefield, Toronto	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X12658	D3031 - 2108 Queen St East, Toronto	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X12798	4862 - 77 Ryerson Ave, Toronto	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X12799	4023 - Near 142 Pears Ave, Toronto	Cost Estimate and Schedule Update	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X12800	D9010 - 205 Richmond St W, Toronto	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X12801	D3022 – 75 Dowling Ave, Toronto	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X12802	4064 – 295 College St, Toronto	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X12822	4368 – 300 Dufferin St, Toronto	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X12822	4063 - 645 Adelaide St W, Toronto	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X00000	D3039 - 186 Cowan, Toronto	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 3	X12829	4515 - 25 Lascelles Blvd, Toronto;	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X13420	4086 – 499 St Clair Ave W, Toronto	Schedule Update (job deferred to 2014)	
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X13420	4081 – 700 St Clair Ave W, Toronto	Schedule Update (job deferred to 2014)	
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X13420	4321 – 245 Eglinton Ave W, Toronto	Schedule Update (job deferred to 2014)	
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X13420	4694 – 1669 Bloor St W, Toronto	Schedule Update (job deferred to 2014)	
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X13420	D3012 – 439 Sherbourne Ave, Toronto	Schedule Update (job deferred to 2014)	
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X13420	4109 – 100 Shaftesbury Ave, Toronto	Schedule Update (job deferred to 2014)	
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X13420	N1164 – 35 Jackes Ave, Toronto	Schedule Update (job deferred to 2014)	
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X13420	N1173 – 130 Merton St, Toronto	Schedule Update (job deferred to 2014)	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B11 - ATS & RPB	Tab 4, Schedule B11, Page 6-7, Table 2	X13420	D9008 – 40 Scollard Rd, Toronto	Schedule Update (job deferred to 2014)	
B12 - Station Power Transformers	Tab 4, Schedule B12, Page 1, Table 1	20675	S12389 Scarborough Golf Club Replace Transformer TR1 - 3/4 MVA	Schedule Update (Job shifted between 2012/2013)	Job deferred to 2013
B12 - Station Power Transformers	Tab 4, Schedule B12, Page 1, Table 1	20685	S12391 Thistletown MS replace transformer TR2 - 3/4 MVA. N/A	Schedule Update (Job shifted between 2012/2013)	Job deferred to 2013
B12 - Station Power Transformers	Tab 4, Schedule B12, Page 4; Page 34; Page 53, Table 1	N/A	N/A	Correction	
B12 - Station Power Transformers	Tab 4, Schedule B12, Pages 1,2	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B13.1 - Municipal Substation Switchgear Replacement	Tab 4, Schedule B13.1, Page 1; Page 7	N/A	N/A	Correction	
B13.1 - Municipal Substation Switchgear Replacement	Tab 4, Schedule B13.1, Page 2, Table 1	20427	S12320 Leslie MS Switchgear Replacement	Schedule Update (Job shifted between 2012/2013)	Job deferred to 2013
B13.1 - Municipal Substation Switchgear Replacement	Tab 4, Schedule B13.1, Page 2, Table 1	20750	S12416 Porterfield MS Replace Switchgear	Schedule Update (Job shifted between 2012/2013)	Job deferred to 2013
B13.1 - Municipal Substation Switchgear Replacement	Tab 4, Schedule B13.1, Page 2, Table 1	21338	S13090 Greencedar Lawrence MS Replace Switchgear	Cost Estimate Update	
B13.1 - Municipal Substation Switchgear Replacement	Tab 4, Schedule B13.1, Page 2, Table 1	21581	S13126 Neilson Dr MS Replace Switchgear	Cost Estimate Update	
B13.1 - Municipal Substation Switchgear Replacement	Tab 4, Schedule B13.1, Page 3, Table 1	22805	S14070 Thornton MS Replace Switchgear (pre-work)	Schedule Update (Job shifted between 2012/2013)	Job deferred to 2013
B13.1 - Municipal Substation Switchgear Replacement	Tab 4, Schedule B13.1, Page 5; Page 16; Page 22, Table 1	N/A	N/A	Correction	
B13.1 - Municipal Substation Switchgear Replacement	Tab 4, Schedule B13.1, Pages 1,3	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B13.2 - Transformer Stations Switchgear	Tab 4, Schedule B13.2, Page 1, Table 1, Page 8	25425	Strachan TS A7-8 switchgear replacement	Cost Estimate Update	
B13.2 - Transformer Stations Switchgear	Tab 4, Schedule B13.2, Page 1, Table 1, Page 10	22025	Carlaw TS A6-7E switchgear replacement	Cost Estimate and Schedule Update	
B13.2 - Transformer Stations Switchgear	Tab 4, Schedule B13.2, Page 1, Table 1, Page 13	20877	Wiltshire TS A3-4W switchgear replacement	Cost Estimate and Schedule Update	
B13.2 - Transformer Stations Switchgear	Tab 4, Schedule B13.2, Page 1, Table 1, Page 16	20492	Duplex TS A5-6DX switchgear replacement	Cost Estimate Update	
B13.2 - Transformer Stations Switchgear	Tab 4, Schedule B13.2, Page 20	N/A	N/A	Correction	Classification of HI for Carlaw A6-7E was incorrect
B13.2 - Transformer Stations Switchgear	Tab 4, Schedule B13.2, Page 34, Table 1	N/A	N/A	Correction	
B13.2 - Transformer Stations Switchgear	Tab 4, Schedule B13.2, Page 6; Page 28; Page 34, Table 1	N/A	N/A	Correction	
B13.2 - Transformer Stations Switchgear	Tab 4, Schedule B13.2, Pages 1, 2	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B14 - Stations Circuit Breakers	Tab 4, Schedule B14, Page 1, Table 1; Page 7	S13125	S13125 Leslie TS:Replace 51M7 and 51M8 KSO Oil CB	Schedule Update (Job deferred to 2014)	
B14 - Stations Circuit Breakers	Tab 4, Schedule B14, Page 1, Table 1; Page 7	S13146	S13146 Bermondsey TS: Repl. KSO OCB's (53M1, 53M9 & 53M11)	Schedule Update (Job deferred to 2014)	
B14 - Stations Circuit Breakers	Tab 4, Schedule B14, Page 3	N/A	N/A	Correction	Number of outdoor-mounted oil breakers was inaccurate
B14 - Stations Circuit Breakers	Tab 4, Schedule B14, Page 5	N/A	N/A	Correction	Graph was reflecting incorrect data

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B14 - Stations Circuit Breakers	Tab 4, Schedule B14, Page 5; Page 36; Page 43	N/A	N/A	Correction	
B14 - Stations Circuit Breakers	Tab 4, Schedule B14, Page 7	N/A	N/A	Correction	
B14 - Stations Circuit Breakers	Tab 4, Schedule B14, Page 2	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B15 - Station Control and Communication Systems	Tab 4, Schedule B15, Page 1, Table 1; Page 7	S12033	S12033 Improve SONET Redundancy: Split Toronto SONET Ring N/A	Schedule Update (Job shifted between 2012/2013)	Job deferred to 2013
B15 - Station Control and Communication Systems	Tab 4, Schedule B15, Page 1, Table 1	S13095	S13095 Improve SONET Redundancy: Sheppard TS to Ellesmere TS	Schedule Update (Job deferred to 2014)	
B15 - Station Control and Communication Systems	Tab 4, Schedule B15, Page 1, Table 1	S13096	S13096 SONET: Upgrade OC3 to OC12	Schedule Update (Job deferred to 2014)	
B15 - Station Control and Communication Systems	Tab 4, Schedule B15, Page 1, Table 1 cascaded throughout the document	S13292	S13292 Replacements of 14 MOSCAD RTUs in Etobicoke	Schedule Update (Job deferred to 2014)	
B15 - Station Control and Communication Systems	Tab 4, Schedule B15, Page 19	N/A	N/A	Correction	kW should be kVA
B15 - Station Control and Communication Systems	Tab 4, Schedule B15, Page 2, Table 2; Page 13+B786	S12554	S12554 Etobicoke replace 15 MOSCAD RTUs (Est 21881)	Cost Estimate Update	Project Segment Cost Estimate Update
B15 - Station Control and Communication Systems	Tab 4, Schedule B15, Page 2	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B16 - Downtown Contingency	Tab 4, Schedule B16 Pages 11, 21	N/A		Correction	Incorrect units were used for the presented outage cost values
B16 - Downtown Contingency	Tab 4, Schedule B16, Pages 1, 3, 6-8, 13-14, 18, 19, 20-21	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B16 - Downtown Contingency	Tab 4, Schedule B16, Page 1, Table 1; Page 7, Table 3	X11424	Feeder Tie A203BN to A240GD	Schedule Update (job shifted between 2012/2013)	
B16 - Downtown Contingency	Tab 4, Schedule B16, Page 1, Table 1; Page 6, Table 2	X11620	X11620 Dufferin - Bridgman Feeder Ties (4) - Electrical Dufferin(13.8	Cost Estimate Update	
B16 - Downtown Contingency	Tab 4, Schedule B16, Page 1, Table 1; Page 7, Table 3	X12131	Feeder Tie A34W to A256DN	Schedule Update (job deferred to 2014)	
B16 - Downtown Contingency	Tab 4, Schedule B16, Page 1, Table 1; Page 7, Table 3	X12132	Feeder Tie A57W to A273DN	Schedule Update (job deferred to 2014)	
B17 - Bremner TS	Tab 4, Schedule B17: Page 4; Page 5; Page 6; Page 6, Table 1; Page 30; Page 31, Figure 10; Page 32; Page 35; Page 35, Table 11; Page 36, Table 12; Page 41; Page 42; Page 42, Table 15; Appendix 5, Table 2, Page 12	N/A	N/A	Cost Estimate Update	
B17 - Bremner TS	Tab 4, Schedule B17: Page 2 footnote 2; Page 9; Page 10; Page 10 Table 2; Page 10, footnote 6; page 11, Figure 5; Appendix 2, Table 1, Page 3	N/A	N/A	Data Update	Updated based on 2012 load forecast
B18 - HONI Contributions	Tab 4, Schedule B18, Page 17	S12807	Strachan TS A7-8 switchgear replacement HONI Engineering Study	Correction	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B18 - HONI Contributions	Tab 4, Schedule B18, Page 1			Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B18 - HONI Contributions	Tab 4, Schedule B18, Pages 1, 2, 8, 30, 34	S12812	Bremner TS Capital Contribution	Schedule Update (job shifted between 2012/2013)	Job shifted to 2013 and 2014
B18 - HONI Contributions	Tab 4, Schedule B18, Pages 2, 16, 17, 31, 39	S12981	Strachan TS A3-4 capital contribution	Addition of Job	
B18 - HONI Contributions	Tab 4, Schedule B18, Pages 2, 4, 5, 6, 19-A, 19-B, 31, 33, 41-A, 41-B	S12982	Glengrove TS A5-6 capital contribution	Addition of Job	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 33	E12595	E12595 - PPEast 2012 FA Project - Radio Coordination Study & Repeater Radio Installation	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Page 33	E12596	E12596 - PPEast 2012 Feeder Automation Project - Site Acceptance Tests	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Page 60	E12679	E12679 - East 2014 Repeater Radio Installation for Scarborough East	Addition of Job	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13314	E13314 PPEast 2013 Feeder Automation Project on SCNT63M3	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13315	E13315 PPEast 2013 Feeder Automation Project on SCNA502M28	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13318	E13318 PPEast 2013 Feeder Automation Project on SCNA502M21	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13331	E13331 Feeder Automation of SCNAH9M25	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13341	E13341 PPEast 2013 Feeder Automation Site Acceptance Test	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13348	E13348 Feeder Automation of SCNAR26M22	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13349	E13349 Feeder Automation of SCNAR26M21	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13350	E13350 Feeder Automation of SCNAR26M36	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13352	E13352 Feeder Automation of SCNAR26M34	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13353	E13353 Feeder Automation of SCNAR26M31	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13354	E13354 Feeder Automation of SCNAR26M32	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13355	E13355 Feeder Automation of SCNAH9M31	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13356	E13356 Feeder Automation of SCNAH9M32	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13357	E13357 Feeder Automation of SCNAH9M26	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 45	E13358	E13358 Feeder Automation of SCNAH9M23	Schedule Update (job deferred to 2014)	
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 56, 60	E14387	E14387-P03 PPEast Feeder Automation SCNAE5M2	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 56, 60	E14388	E14388-P03 PPEast Feeder Automation SCNAE5M4	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 56, 60	E14389	E14389-P03 PPEast Feeder Automation SCNAE5M6	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 57, 60	E14390	E14390-P03 PPEast Feeder Automation SCNAE5M8	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 57, 60	E14391	E14391-P03 PPEast Feeder Automation SCNAE5M10	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 57, 60	E14392	E14392-P03 PPEast Feeder Automation SCNAE5M21	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 57, 60	E14393	E14393-P03 PPEast Feeder Automation SCNAE5M22	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 58, 60	E14394	E14394-P03 PPEast Feeder Automation SCNAE5M23	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 58, 60	E14395	E14395-P03 PPEast Feeder Automation SCNAE5M24	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 58, 60	E14396	E14396-P03 PPEast Feeder Automation SCNAE5M25	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 58, 60	E14397	E14397-P03 PPEast Feeder Automation SCNAE5M26	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 59, 60	E14398	E14398-P03 PPEast Feeder Automation SCNAE5M27	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 59, 60	E14399	E14399-P03 PPEast Feeder Automation SCNAE5M29	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 59, 60	E14400	E14400-P03 PPEast Feeder Automation SCNAE5M30	Schedule Update (job shifted between 2012/2013)	Job advanced to 2013
B19 - Feeder Automation	Tab 4, Schedule B19, Page 60	E12679	E12679-East 2013 FA Repeater Radio Installation for Scarborough TS	Addition of Job	
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 2, 25-26, 33, 39, 43-44, 61, 123-124	N/A	General	Correction	Corrected non-asset risk and updated number of switching points in FIM analyses
B19 - Feeder Automation	Tab 4, Schedule B19, Page 24	N/A	General	Schedule Update (job shifted between 2012/2013)	Project Segment Scheduling Update
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 42-43	W13366	W13366 - 2013 FA - North York - Fairchild TS (80M1)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 42-43	W13367	W13367 - 2013 FA - North York - Fairchild TS (80M2)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 42-43	W13368	W13368 - 2013 FA - North York - Fairchild TS (80M4)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 42-43	W13369	W13369 - 2013 FA - North York - Fairchild TS (80M6)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 42-43	W13370	W13370 - 2013 FA - North York - Fairchild TS (80M8)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 37-38	W13371	W13371 - 2013 FA - Etobicoke - Horner TS (30M1)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 42-A, 43	W13372	W13372 - 2013 FA - North York - Fairchild TS (80M10)	Cost Estimate and Schedule Update	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 42, 43	W13373	W13373 - 2013 FA - North York - Fairchild TS (80M21)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 42-A, 43	W13374	W13374 - 2013 FA - North York - Fairchild TS (80M29)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 37, 38	W13375	W13375 - 2013 FA - Etobicoke - Horner TS (30M2)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 37, 38	W13377	W13377 - 2013 FA - Etobicoke - Horner TS (30M4)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 37, 38	W13378	W13378 - 2013 FA - Etobicoke - Horner TS (30M8)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 37, 38	W13379	W13379 - 2013 FA - Etobicoke - Horner TS (30M9)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 37, 38	W13380	W13380 - 2013 FA - Etobicoke - 38M12	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 37-A, 38	W13381	W13381 - 2013 FA - Etobicoke - 38M8	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 37-A, 38	W13383	W13383 - 2013 FA - Etobicoke - Manby TS (38M5)	Cost Estimate and Schedule Update	Job advanced to 2012

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
B19 - Feeder Automation	Tab 4, Schedule B19, Pages 37-A, 38	W13384	W13384 - 2013 FA - Etobicoke - Manby TS (38M4)	Schedule Update (job shifted between 2012/2013)	Job advanced to 2012
B19 - Feeder Automation	Tab 4, Schedule B19, Page 38	W13483	W13483 - FA 2013 - P3 - Etobicoke Repeater Radio Survey/Install	Addition of Job	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 43	W13484	W13484 - FA 2013 - P3 - Fairchild Survey/Repeater Radio Installation	Addition of Job	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 38	W13485	W13485 - FA 2013 - P3 - Etobicoke SAT	Addition of Job	
B19 - Feeder Automation	Tab 4, Schedule B19, Page 43	W13486	W13486 - FA 2013 - P3 - Fairchild SAT	Addition of Job	
B20 - Metering	Tab 4, Schedule B20, Pages 3, 11, 18, 20		Wholesale Metering Market Settlement Compliance	Cost Estimate Update	
B20 - Metering	Tab 4, Schedule B20, Pages 3, 18, 38		Seal Expiring Meters	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 5-7 Table 1, Page 17-20, 22-24, Page 29 Table 5, Page 31-32 Table 6, Page 33-34	N/A	N/A	Cost Estimate and Schedule Update	Project Segment Cost Estimate and Schedule Update
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 5, Table 1, Page 24, Table 4	W10498	Weston Tunnel	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 6, Table 1; Page 29, Table 5	W12545	Keele St & hwy 401-PH2- Tunnelling under Hwy 401	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 7, Table 1; Page 32, Table 6	W12663	W12663 OH Reconfiguration- Beecroft Rd Extension Area NY80M22	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 5, Table 1; Page 24, Table 4	W12828	W12828 Metrolinx pole relocation at MartinGrove	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 7, Table 1; Page 32, Table 6	W12909	Lawrence and Allen Pole Relocation	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 6, Table 1; Page 24, Table 4	X11602	Strachan Electrical Relocation Part 1	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 6, Table 1; Page 24, Table 4	X11603	Strachan Electrical Relocation Part 1	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 6, Table 1; Page 24, Table 4	X11604	Strachan Electrical Relocation Part 1	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 6, Table 1; Page 24, Table 4	X11605	Strachan Electrical Relocation Part 1	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 6, Table 1; Page 31, Table 6	X11763	Dunn Ave Directional Drilling	Cost Estimate and Schedule Update	Job deferred to 2013
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 5, Table 1, Page 19, Table 2	X12635	Queens Quay Rebuild Phase 1	Cost Estimate Update	
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 5, Table 1, Page 19, Table 2	X12636	Queens Quay Rebuild Phase 2	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 5, Table 1, Page 19, Table 2	X12637	Queens Quay Rebuild Phase 3	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 7, Table 1; Page 32, Table 6	X12873	NW PATH Addition Ph1	Cost Estimate and Schedule Update	Job deferred to 2013
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 7, Table 1; Page 32, Table 6	X	North West PATH Addition Phase 2	Schedule Update (job shifted between 2012/2013)	Job deferred to 2013
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 7, Table 1; Page 32, Table 6	X	Dundas Street Overhead to Underground Phase 1	Cost Estimate and Schedule Update	Job deferred to 2013
B21 - Externally Initiated Relocation and Expansion	Tab 4, Schedule B21, Page 7, Table 1; Page 32, Table 6	X	Dundas Street Overhead to Underground Phase 2	Cost Estimate Update	

Project Segment / Category	Reference	Job/Scope #	Job Title	Type of Change	Comments
Manager's Summary	Manager's Summary, Page 11	N/A	N/A	Correction	Correction of typographical error; missing "not"
Manager's Summary	Manager's Summary, Page 6	N/A	N/A	Correction	Updates to half-year rule calculation
Manager's Summary	Manager's Summary, Page 13	N/A	N/A	Data Update	Updates to alternative revenue requirement calculation
Manager's Summary	Manager's Summary, Page 14, 21	N/A	N/A	Data Update	Updates to rates recovery proposal
Manager's Summary	Manager's Summary, Page 23-24	N/A	N/A	Data Update	Total capital request updated
C1- Building and Facilities Capital	Tab 4, Schedule C4, Page 2, Table 1	N/A	N/A	Schedule Update (job shifted between 2012/2013)	
C2 - Information Technology Capital	Tab 4, Schedule C2, Page 1, Table 1	N/A	N/A	Cost Estimate Update	
C3 - Fleet Capital	Tab 4, Schedule C3, Page 1-2	N/A	N/A	Cost Estimate Update	
C4 - Operations Portfolio Capital	Tab 4, Schedule C1, Page 1, 6, 7, 10	N/A	N/A	Cost Estimate and Schedule Update	
Rates	Tab 2, Appendix 1, Page 2	N/A	N/A	Data Update	Revised 2011 Unfunded Capex Rate Rider
Rates	Tab 3, Schedule B2	N/A	N/A	Data Update	Revised 2013 Rate schedules
Rates	Tab 3, Schedule C2.1	N/A	N/A	Data Update	Updated 2013 IRM Model
Rates	Tab 3, Schedule C2.2	N/A	N/A	Data Update	Updated 2013 Bill Impacts
Rates	Tab 3, Schedule D	N/A	N/A	Correction	Corrected RTSR rates
Rates	Tab 3, Schedule F	N/A	N/A	Data Update	Calculation of Lost 2012 IRM revenue rate riders
Rates	Tab 4, Schedule E1.1	N/A	N/A	Correction	Updated and corrected 2012 ICM workbook
Rates	Tab 4, Schedule E1.2	N/A	N/A	Data Update	Updated Threshold Spreadsheet
Rates	Tab 4, Schedule E1.3	N/A	N/A	Data Update	Updated 2012 ICM Rate Rider with Days of Service
Rates	Tab 4, Schedule E1.4	N/A	N/A	Data Update	Updated and corrected 2012 ICM workbook DOS rates
Rates	Tab 4, Schedule E2.1	N/A	N/A	Data Update	Updated and corrected 2013 ICM workbook
Rates	Tab 4, Schedule E2.2	N/A	N/A	Data Update	Updated and corrected 2013 ICM workbook input
Rates	Tab 4, Schedule E2.3	N/A	N/A	Data Update	Updated 2012 ICM Rate Rider with Days of Service
Rates	Tab 4, Schedules F1.1 and F1.2 through F22.1 and F22.2	N/A	N/A	Data Update	Updated 2012 and 2013 ICM worksheets
Incremental Capital Module	Tab 4, Schedule A, Page 1	N/A	N/A	Data Update	Updated revenue requirement and rate impact
Summary of Capital Program	Tab 4, Schedule A, Appendix 1	N/A	N/A	Data Update	Updated the amounts and schedules for capital requirements

By the operation of the half-year rule, this produces approved and actual, but unrecognized, ratebase in the amount of $120 million. Because this amount is unrecognized in ratebase and rates for 2012 through to the time of rebasing, THESL experiences an effective disallowance of $120 million of *approved* ratebase in rates for 2012, 2013 and 2014 under IRM (less corresponding depreciation over that period), even though those assets were installed and are being used to provide distribution services to customers at the end of 2011 (the "Approved-But-Forgone Ratebase").

THESL's foregone capital-related revenue requirement corresponding to this amount of Approved-But-Forgone Ratebase is approximately $12.7 million annually or $38.0 million over /c the IRM period. Upon rebasing and subject to acceptance by the Board, the depreciated amount corresponding to the Approved-But-Forgone ratebase would enter ratebase, but under that rebasing there would be no recovery of the foregone capital-related revenue requirement incurred during the interim PCI years.

In summary, the operation of the half-year rule in THESL's circumstances would result in a permanent loss of approximately $38.0 million dollars over the balance of the IRM term, unless /c remedied by the Board.

Three-Year Period

THESL's Proposal[3] /u

The projects and annual amount of ICM funding sought in THESL's Application represent the level of capital funding that THESL requires in order to conduct a capital program that is expected to maintain the current levels of safety and reliability of its distribution system in a predictable and cost-effective manner. Predictability of THESL's capital program over a reasonable multi-year horizon is strongly conducive to the cost-effectiveness of that program.

In this application THESL proposes a period of three years overall, with each distinct year (2012 through 2014) being severable, and with each year having distinct distribution rates. THESL

[3] Please also refer to THESL's correspondence accompanying its filing of updated evidence on October 31, 2012

To demonstrate the significant differences in the ICM rate adders that would result from the modified approach relative to the standard approach, THESL has filed the standard ICM models at Tab 4, Schedules E1 to E3, together with the calculated adders from the alternative approach. A summary of the comparative single year ICM revenue requirements and corresponding rate adders for the Residential and General Service <50kW classes appears below in Table 1. In total /u across 2012 and 2013, the proposed revenue requirement is lower by $22.32 million, under the /u alternate approach. THESL considers this to be significant from the perspective of rate /u mitigation.

Table 1: Comparative Revenue Requirements and Rate Adders /u

Revenue Requirements $ Millions		2012	2013	Total
Standard Methodology		$ 10.08	$ 39.87	$ 49.95
Alternative Methodology		$ 6.35	$ 21.28	$ 27.63
Difference		$ 3.73	$ 18.59	$ 22.32
Residential Rate Adders				
Standard Methodolgy				
	Fixed Portion ($/30days)	$ 0.34	$ 1.36	
	Variable Portion ($/kWh)	$ 0.00029	$ 0.00114	
Alternative Methodology				
	Fixed Portion ($/30days)	$ 0.22	$ 0.73	
	Variable Portion ($/kWh)	$ 0.00018	$ 0.00061	
Difference	Fixed Portion ($/30days)	$ 0.12	$ 0.63	
	Variable Portion ($/kWh)	$ 0.00011	$ 0.00053	
GS < 50 kW Rate Adders				
Standard Methodolgy				
	Fixed Portion ($/30days)	$ 0.46	$ 1.81	
	Variable Portion ($/kWh)	$ 0.00043	$ 0.00170	
Alternative Methodology				
	Fixed Portion ($/30days)	$ 0.29	$ 0.97	
	Variable Portion ($/kWh)	$ 0.00027	$ 0.00091	
Difference	Fixed Portion ($/30days)	$ 0.17	$ 0.84	
	Variable Portion ($/kWh)	$ 0.00016	$ 0.00079	

There are two further issues that relate to the multi-year features of THESL's ICM application. First, THESL is aware that most of 2012 may have elapsed by the time that the Board issues its

Decision in this proceeding. The earliest date for rate implementation is unknown at this time. /u
In these circumstances, THESL proposes that the OEB permit THESL to recover the approved /u
2012 ICM adder amounts over the period from May 1, 2013 until April 30, 2015. THESL remains /u
prepared to report to the Board on the progress of its capital program as of the end of 2012 when that information becomes available in 2013.

Second, the Board's Renewed Regulatory Framework for Electricity ("RRFE") is underway and may produce a revised framework early enough to be available for 2014 applications. While the implementation of the new framework remains to be determined, it is THESL's view that nothing in this application would constrain the adoption of a new framework for THESL, even prior to 2015. The Board's requirements for reporting and true-up reconciliation would remain applicable to THESL's ICM capital programs, and these ensure that no undue variances are borne by ratepayers or THESL.

Application of ICM Criteria

As noted by the Board in the January 5, 2012 Decision with Reasons and Order on the Preliminary Issue in EB-2011-0144, the Board's thinking in respect of the ICM eligibility criteria has evolved. THESL has carefully reviewed the ICM Material and has sought to address and meet the Board's criteria for consideration and acceptability of ICM projects. THESL addresses each of these criteria below, beginning with those cited specifically by the Board in reference to a potential ICM application by THESL.

Discrete

THESL's ICM portfolio consists of ten discrete programs, some of which are divided into segments and each of which is composed of numerous jobs to be completed across the three year period. For purposes of severability the programs, segments, and jobs are grouped into yearly categories. The ICM portfolio structure for each year is illustrated in Table 2 below.

Table 2: ICM Portfolio Structure /u

Projects	Segments
Underground Infrastructure and Cable	Underground Infrastructure
	Paper Insulated Lead Covered Cable - Piece Outs and Leakers
	Handwell Replacement
Overhead Infrastructure and Equipment	Overhead Infrastructure
	Box Construction
	Rear Lot Construction
	Polymer SMD-20 Switches
	Scadamate R1 Switches
Network Infrastructure and Equipment	Network Vault and Roofs
	Fibertop Network Units
	Automatic Transfer Switches and Reverse Power Breakers
Station Infrastructure and Equipment	Stations Power Transformers
	Stations Switchgear - Municipal and Transformer Stations
	Stations Circuit Breakers
	Stations Control and Communication Systems
	Downtown Station Load Transfers
Bremner Transformer Station	Bremner Transformer Station
Hydro One Capital Contributions	Hydro One Capital Contributions
Feeder Automation	Feeder Automation
Metering	Wholesale and Smart Metering
Plant Relocations	Externally-Initiated Plant Relocations and Expansions

Each project may contain jobs that are geographically dispersed across Toronto, but the projects are nevertheless unified by one or more defining characteristics pertaining to the nature of the work to be done. For example, the Overhead Infrastructure and Equipment Project addresses the need to restore overhead distribution, and the jobs constituting this project are unified by the fact that all of them address various forms of overhead plant in need of remediation.

Detailed descriptions of the scope and nature of the jobs contained within each project are provided at Tab 4, Schedules B1 to B21. Each project is clearly identifiable, coherent, and **/u** distinguishable from other projects, and THESL's evidence contains detailed descriptions of the work to be undertaken within each project (i.e., the jobs).

global perspective, the 'baby boom' phenomenon is unusual and is analogous to the demographic features of THESL's infrastructure.

Interim Rates, Implementation of Rates, And True-Up Upon Rebasing[6]

As a result of the events leading to THESL's IRM/ICM application for 2012 rates, the timing of the Application does not permit rates to be implemented for May 1, 2012 or for existing rates to be declared interim as of that date. Therefore THESL requests that the Board issue an Order making rates in effect as of May 31, 2012 interim as of June 1, 2012.

Such an order would not presuppose in any way the outcome of this proceeding, nor would it in any way bind the Board. Rather, it would provide the Board with additional flexibility with respect to the implementation of rates resulting from the Board's ultimate decision with respect to THESL's application, and it would afford THESL a reasonable opportunity to recover the costs approved by the Board for the 2012 rate year.

Given the uncertainty about when the proceeding will conclude, THESL proposes that the Board continue with the practice it followed in 2011 for THESL's rates, under which rates were implemented upon the conclusion of the proceeding but were effective as of an earlier date when rates became interim. In that case, the Board approved 'foregone revenue' rate riders which were designed to permit THESL an opportunity to recover the incremental revenue approved by the Board for the period between when rates became interim and when new rates were implemented.

For the purpose of avoiding a large terminal revenue variance with respect to the 2012 ICM rate adder, and for the purpose of rate smoothing, THESL proposes that the OEB permit THESL to /u
recover the allowed 2012 ICM revenue requirement through ICM rate adders effective from /u
May 1, 2013 to April 30, 2015. /u

[6] Please also see the Addendum to the Manager's Summary

Under this approach, the duration of the respective rate adders over the ICM period is illustrated below in Figure 1.

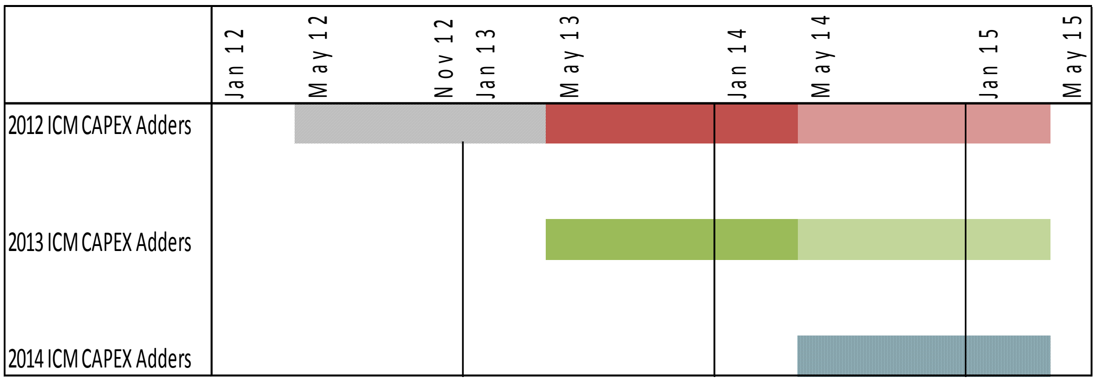

Figure 1: Duration of Rate Adders /u

THESL makes these proposals on the basis of its understanding that upon rebasing, a final determination of the allowed revenue requirement attracted by the actual ICM expenditures will be made by the Board, and that actual revenue received under the ICM rate adders will be reconciled to the ultimately approved amount, with any variance refunded to or collected from customers in the 2015 rate year. The reconciliation between allowed and actual revenue would be conducted regardless of the amount of the variance (unless it is immaterial) and regardless of the date and manner in which rates were implemented throughout the period. THESL also understands that the true-up process will account for the actual timing of jobs, and that a variance in job timing would not, by itself, cause any job to become ineligible for inclusion in the calculation of the actual revenue requirements associated with the ICM. On this basis both ratepayers and THESL would be kept whole with respect to the approved ICM expenditures actually made by THESL, and THESL would not be subject to a revenue deficit as a result of the ICM rate adders being implemented later than May 1, 2012.

THESL cannot undertake the obligation to make the corresponding capital expenditures without the opportunity to recover the associated costs through approved ICM rate adders.

<u>Comparison Between THESL's Cost Of Service And IRM/ICM Applications</u>

Capital Projects Not Included in This Application

THESL's former long-term capital plan, which was directed to stable and programmatic renewal of distribution and general assets, and which was substantially approved by the Board in THESL's last three rate cases over the previous four years, cannot be conducted within the IRM/ICM framework due to the restriction on capital spending that exists within that framework given the non-discretionary criterion.

The capital plan outlined in this ICM application has been significantly curtailed relative to the early rebasing application that THESL presented to the Board under file EB-2011-0144. The total capital requested by year under each application framework is shown in Table 3 below.

Table 3: Total Capital Requests – Rebasing vs ICM ($ millions) /u

	2012	2013	2014	Total
REBASING	$ 590.0	$ 615.0	~~$ 640.0~~	~~$ 1,845.0~~
ICM	$ 274.7	$ 579.1	~~$ 439.5~~	~~$ 1,422.7~~
Difference	($315.3)	($35.9)	~~($200.5)~~	~~$ (422.3)~~

THESL does not plan to execute projects such as Paper Insulated Lead Covered Cable Replacement, Asbestos Insulated Lead Covered Cable Replacement, Stations Infrastructure, Nomenclature, Grounding Compliance, Electric Vehicles and Modernization Initiatives in the next three years. In addition, for continuing project areas such as underground infrastructure, THESL now proposes further reductions in capital spending for the purposes of the submitted ICM projects relative to previous proposals.

Table 4: Distribution Plant Percentages of CAPEX – Rebasing vs ICM /u

REBASING		2012		2013		2014
Total Capital	$	590.0	$	615.0	$	640.0
Less Fleet, Facilities, Other	$	(38.6)	$	(37.8)	$	(39.4)
Less IT	$	(42.1)	$	(48.2)	$	(53.1)
Distribution Plant	$	509.3	$	529.0	$	547.5
Distribution Plant % of Total		86.3%		86.0%		85.5%
ICM						
Total Capital	$	274.7	$	579.1	~~$~~	~~439.5~~
Less Fleet, Facilities, Other	$	(7.0)	$	(8.4)	~~$~~	~~(8.0)~~
Less IT	$	(22.0)	$	(15.0)	~~$~~	~~(15.0)~~
Distribution Plant	$	245.7	$	555.7	~~$~~	~~416.5~~
Distribution Plant % of Total		89.4%		96.0%		~~94.8%~~

Implementation of New Suite Meter Rate

In its Corrected Decision and Order on Suite Metering Issues dated March 9, 2012 in EB-2010-0142, the Board determined that a separate rate class should be created for multi-residential customers that at the present time are served utilizing Quadlogic technology. In its Decision, the Board directed THESL "to implement the new rate in conjunction with its rate setting process for 2012" and "file a revised cost allocation model and related rates and other material, reflecting the Board's findings in this Decision".

In its Final Order Regarding Suite Metering Issues dated April 26, 2012, the Board directed THESL to:

(a) incorporate the rates of $17.00 for the Quadlogic class fixed charge and $0.02565 for the Quadlogic class variable charge, and $18.25 for the remaining Residential class fixed charge and $0.01507 for the remaining Residential class variable charge into its 2012 rate application in conformity with the Corrected Suite Metering Decision and subsequent Board directives arising from this application;

APPENDIX 1 TO MANAGER'S SUMMARY

($ millions)

CapEx Approved 2011	378.8
Funded through Depreciation	-138.8
Fixed Assets Impact	240.0
Closing Rate Base in 2011	120.0
Opening Rate Base in 2012	120.0

Rate Base	2012	2013	2014	Total
Opening Rate Base	120.0	116.3	112.5	
Depreciation for the year	-3.8	-3.8	-3.8	
Closing Balance	116.3	112.5	108.8	
Average Balance	118.1	114.4	110.6	
Revenue Requirement				
Depreciation	3.8	3.8	3.8	11.3
Cost of capital (6.94%)				
Interest (	3.7	3.6	3.4	10.7
Return oı	4.5	4.4	4.2	13.1
PILs	1.0	1.0	0.9	3.0
Total Revenue Requirement	**13.0**	**12.7**	**12.4**	**38.0**
PILs Calculation				
Target Net Inc	4.5	4.4	4.2	13.1
Add: Deprecia	3.8	3.8	3.8	11.3
Less: CCA	-5.4	-5.4	-5.4	-16.1
Income for PIL	2.9	2.8	2.6	8.3
PILs	0.8	0.7	0.7	2.2
Gross-up PILs	1.0	1.0	0.9	3.0
Assumptions				
Depreciation ν	1.43	1.43	1.43	
Average life of	32 years	32 years	32 years	
Tax rate	26.40%	26.40%	26.40%	

2011 Unfunded Capex Rate Rider

Rate Class	Service Charge % Revenue A	Distribution Volumetric Rate % Revenue kWh B	Distribution Volumetric Rate % Revenue kW C	Service Charge Revenue D = $N * A	Distribution Volumetric Rate Revenue kWh E = $N * B	Distribution Volumetric Rate Revenue kVA F = $N * C	Total Revenue by Rate Class G = D + E + F	Billed Customers or Connections H	Billed kWh I	Billed kVA J	Service Charge Rate Adder K = D / H / 12	Distribution Volumetric Rate kWh Rate Adder L = E / I	Distribution Volumetric Rate kVA Rate Adder M = F / J	Service Charge Rate Adder (DOS)	Distribution Volumetric Rate kWh Adder Rider	Distribution Volumetric Rate kVA Rate Adder (DOS)
Residential	24.8%	13.9%	0.0%	$ 4,721,947.34	$ 2,653,142.98	$ -	$ 7,375,090.32	598,508	4,886,977,489	0	$0.657461	$0.000543		**$0.65**	**$0.00054**	
Residential Urban	1.0%	0.5%	0.0%	$ 182,979.19	$ 92,211.82	$ -	$ 275,191.01	24,898	99,791,184	0	$0.612429	$0.000924		**$0.60**	**$0.00092**	
General Service Less Than 50 kW	3.6%	9.1%	0.0%	$ 691,144.25	$ 1,731,751.20	$ -	$ 2,422,895.45	65,792	2,139,318,076	0	$0.875414	$0.000809		**$0.86**	**$0.00081**	
General Service 50 to 999 kW	1.1%	0.0%	28.5%	$ 200,868.10	$ -	$ 5,429,674.43	$ 5,630,542.53	13,067	10,116,374,153	26,935,191	$1.281058		$0.201583	**$1.26**		**$0.1988**
General Service 1,000 to 4,999 kW	0.8%	0.0%	8.9%	$ 152,534.00	$ -	$ 1,697,131.92	$ 1,849,665.92	514	4,626,928,262	10,587,119	$24.729897		$0.160302	**$24.39**		**$0.1581**
Large Use	0.3%	0.0%	4.5%	$ 61,139.83	$ -	$ 852,836.39	$ 913,976.22	47	2,376,778,323	4,993,733	$108.403955		$0.170781	**$106.92**		**$0.1684**
Street Lighting	0.5%	0.0%	1.8%	$ 91,479.71	$ -	$ 333,235.13	$ 424,714.84	162,777	110,165,016	322,023	$0.046833		$1.034818	**$0.05**		**$1.0206**
Unmetered Scattered Load	0.0%	0.6%	0.0%	$ 2,363.65	$ 122,963.46	$ -	$ 125,327.11	1,130	56,231,585	0	$0.174362	$0.002187		**$0.17**	**$0.00219**	
Unmetered Scattered Load	0.0%	0.0%	0.0%	$ 4,602.84	$ -	$ -	$ 4,602.84	21,729	0	0	$0.017652			**$0.02**		
				$ 6,109,058.91	$ 4,600,069.47	$ 8,312,877.87	$ 19,022,006.25									

Incremental Revenue Requirement for 2012		$ 12,993,132.07
Incremental Revenue Requirement for 2013		$ 12,681,337.50
Incremental Revenue Requirement for 2014		$ 12,369,542.93
Total Revenue Requirement 2012-2014	A	$ 38,044,012.50
Annual Recovery over 2013-2014	B = A / 2	$ 19,022,006.25

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2012-0064

RESIDENTIAL SERVICE CLASSIFICATION

This classification is applicable to accounts where electricity is used exclusively for residential purposes in separately metered living accommodations, where the Competitive Sector Multi-Unit Residential classification is not applicable. Eligibility is restricted to dwelling units that consist of a detached house or one unit of a semi-detached, duplex, triplex or quadruplex building, with a residential zoning; separately metered dwellings within a town house complex or apartment building; and bulk metered residential buildings with six or fewer units. Further details concerning the terms of service are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable

It should be noted that this schedule does not list any charges, assessments, or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, charges for the Ministry of Energy Conservation and Renewable Energy Program, the Global Adjustment, the Ontario Clean Energy Benefit and the HST

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	18.50	(per 30 days)
Smart Meter Funding Adder	$	0.68	(per 30 days)
2011 Unfunded Capex Rate Rider - MFC - Effective Until April 30, 2015	$	0.65	(per 30 days)
2012 IRM Rate Rider - MFC - Effective Until April 30, 2015	$	0.06	(per 30 days)
2012 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	0.52	(per 30 days)
2013 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	1.36	(per 30 days)
Distribution Volumetric Rate	$/kWh	0.01527	
2011 Unfunded Capex Rate Rider - DVR - Effective Until April 30, 2015	$/kWh	0.00054	
2012 IRM Rate Rider - DVR - Effective Until April 30, 2015	$/kWh	0.00005	
2012 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kWh	0.00043	
2013 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kWh	0.00114	
Rate Rider for Deferral/Variance Account Disposition (2012)	$/kWh	-0.00043	
Retail Transmission Rate – Network Service Rate	$/kWh	0.00807	
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00561	

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

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EB-2012-0064

COMPETITIVE SECTOR MULTI-UNIT RESIDENTIAL

This classification is applicable to accounts where electricity is used exclusively for residential purposes in a multi-unit residential building, where unit metering is provided using technology that is substantially similar to that employed by competitive sector sub-metering providers. Use of electricity in non-residential units of multi-unit buildings does not qualify for this classification and will instead be subject to the applicable commercial classification. Further details concerning the terms of service are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

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MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	17.23	(per 30 days)
Smart Meter Funding Adder	$	0.68	(per 30 days)
2011 Unfunded Capex Rate Rider - MFC - Effective Until April 30, 2015	$	0.60	(per 30 days)
2012 IRM Rate Rider - MFC - Effective Until April 30, 2015	$	0.05	(per 30 days)
2012 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	0.48	(per 30 days)
2013 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	1.27	(per 30 days)
Distribution Volumetric Rate	$/kWh	0.02600	
2011 Unfunded Capex Rate Rider - DVR - Effective Until April 30, 2015	$/kWh	0.00092	
2012 IRM Rate Rider - DVR - Effective Until April 30, 2015	$/kWh	0.00008	
2012 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kWh	0.00073	
2013 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kWh	0.00194	
Rate Rider for Deferral/Variance Account Disposition (2012)	$/kWh	-0.00047	
Shared Tax Savings Rate Riders - DVR - Effective Until April 30 2014	$/kWh	-0.00010	
Retail Transmission Rate – Network Service Rate	$/kWh	0.00807	
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00561	

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited

TARIFF OF RATES AND CHARGES

Effective Date May 1, 2013

Implementation Date May 1, 2013

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2012-0064

GENERAL SERVICE LESS THAN 50 KW SERVICE CLASSIFICATION

This classification refers to a non-residential account whose monthly average peak demand is less than, or is forecast to be less than 50 kW. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable

It should be noted that this schedule does not list any charges, assessments, or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, charges for the Ministry of Energy Conservation and Renewable Energy Program, the Global Adjustment, the Ontario Clean Energy Benefit and the HST

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	24.63	(per 30 days)
Smart Meter Funding Adder	$	0.68	(per 30 days)
2011 Unfunded Capex Rate Rider - MFC - Effective Until April 30, 2015	$	0.86	(per 30 days)
2012 IRM Rate Rider - MFC - Effective Until April 30, 2015	$	0.07	(per 30 days)
2012 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	0.69	(per 30 days)
2013 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	1.81	(per 30 days)
Distribution Volumetric Rate	$/kWh	0.02277	
2011 Unfunded Capex Rate Rider - DVR - Effective Until April 30, 2015	$/kWh	0.00081	
2012 IRM Rate Rider - DVR - Effective Until April 30, 2015	$/kWh	0.00007	
2012 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kWh	0.00064	
2013 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kWh	0.00170	
Rate Rider for Deferral/Variance Account Disposition (2012)	$/kWh	-0.00032	
Retail Transmission Rate – Network Service Rate	$/kWh	0.00780	
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00506	

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2012-0064

GENERAL SERVICE 50 TO 999 KW SERVICE CLASSIFICATION

This classification refers to a non-residential account whose monthly average peak demand is equal to or greater than 50 kW but less than 1,000 kW, or is forecast to be equal to or greater than 50 kW but less than 1,000 kW. This rate also applies to bulk metered residential apartment buildings or the house service of a residential apartment building with more than 6 units. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable

It should be noted that this schedule does not list any charges, assessments, or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, charges for the Ministry of Energy Conservation and Renewable Energy Program, the Global Adjustment, the Ontario Clean Energy Benefit and the HST

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	36.05	(per 30 days)
Smart Meter Funding Adder	$	0.68	(per 30 days)
2011 Unfunded Capex Rate Rider - MFC - Effective Until April 30, 2015	$	1.26	(per 30 days)
2012 IRM Rate Rider - MFC - Effective Until April 30, 2015	$	0.11	(per 30 days)
2012 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	1.00	(per 30 days)
2013 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	2.65	(per 30 days)
Distribution Volumetric Rate	$/kVA	5.6720	(per 30 days)
2011 Unfunded Capex Rate Rider - DVR - Effective Until April 30, 2015	$/kVA	0.1988	(per 30 days)
2012 IRM Rate Rider - DVR - Effective Until April 30, 2015	$/kVA	0.0172	(per 30 days)
2012 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kVA	0.1580	(per 30 days)
2013 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kVA	0.4168	(per 30 days)
Rate Rider for Deferral/Variance Account Disposition (2012)	$/kVA	-0.0539	(per 30 days)
Shared Tax Savings Rate Riders - DVR - Effective Until April 30 2014	$/kVA	-0.0067	(per 30 days)
Retail Transmission Rate – Network Service Rate	$/kW	2.7947	(per 30 days)
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	1.9286	(per 30 days)

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2012-0064

GENERAL SERVICE 1,000 TO 4,999 KW SERVICE CLASSIFICATION

This classification refers to a non-residential account whose monthly average peak demand is equal to or greater than 1,000 kW but less than 5,000 kW, or is forecast to be equal to or greater than 1,000 kW but less than 5,000 kW. This rate also applies to bulk metered residential apartment buildings or the house service of a residential apartment building with more than 6 units. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein

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It should be noted that this schedule does not list any charges, assessments, or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, charges for the Ministry of Energy Conservation and Renewable Energy Program, the Global Adjustment, the Ontario Clean Energy Benefit and the HST

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	695.83	(per 30 days)
Smart Meter Funding Adder	$	0.68	(per 30 days)
2011 Unfunded Capex Rate Rider - MFC - Effective Until April 30, 2015	$	24.39	(per 30 days)
2012 IRM Rate Rider - MFC - Effective Until April 30, 2015	$	2.11	(per 30 days)
2012 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	19.38	(per 30 days)
2013 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	51.13	(per 30 days)
Distribution Volumetric Rate	$/kVA	4.5105	(per 30 days)
2011 Unfunded Capex Rate Rider - DVR - Effective Until April 30, 2015	$/kVA	0.1581	(per 30 days)
2012 IRM Rate Rider - DVR - Effective Until April 30, 2015	$/kVA	0.0137	(per 30 days)
2012 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kVA	0.1256	(per 30 days)
2013 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kVA	0.3314	(per 30 days)
Rate Rider for Deferral/Variance Account Disposition (2012)	$/kVA	-0.0421	(per 30 days)
Shared Tax Savings Rate Riders - DVR - Effective Until April 30 2014	$/kVA	-0.0056	(per 30 days)
Retail Transmission Rate – Network Service Rate	$/kW	2.7002	(per 30 days)
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	1.9268	(per 30 days)

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

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EB-2012-0064

LARGE USE > 5000 KW SERVICE CLASSIFICATION

This classification applies to an account whose average monthly maximum demand used for billing purposes is equal to or greater than, or is forecast to be equal to or greater than, 5,000 kW. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

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MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	3050.17	(per 30 days)
Smart Meter Funding Adder	$	0.68	(per 30 days)
2011 Unfunded Capex Rate Rider - MFC - Effective Until April 30, 2015	$	106.92	(per 30 days)
2012 IRM Rate Rider - MFC - Effective Until April 30, 2015	$	9.25	(per 30 days)
2012 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	84.96	(per 30 days)
2013 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	224.12	(per 30 days)
Distribution Volumetric Rate	$/kVA	4.8053	(per 30 days)
2011 Unfunded Capex Rate Rider - DVR - Effective Until April 30, 2015	$/kVA	0.1684	(per 30 days)
2012 IRM Rate Rider - DVR - Effective Until April 30, 2015	$/kVA	0.0146	(per 30 days)
2012 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kVA	0.1338	(per 30 days)
2013 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kVA	0.3531	(per 30 days)
Rate Rider for Deferral/Variance Account Disposition (2012)	$/kVA	-0.0437	(per 30 days)
Shared Tax Savings Rate Riders - DVR - Effective Until April 30 2014	$/kVA	-0.0059	(per 30 days)
Retail Transmission Rate – Network Service Rate	$/kW	3.0781	(per 30 days)
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	2.1405	(per 30 days)

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited

TARIFF OF RATES AND CHARGES

Effective Date May 1, 2013

Implementation Date May 1, 2013

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2012-0064

STANDBY - GENERAL SERVICE 50 - 1,000 KW SERVICE CLASSIFICATION

These classifications refer to an account that has Load Displacement Generation and requires THESL to provide back-up service. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

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MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	200.61	(per 30 days)
Distribution Volumetric Rate	$/kVA	5.672	(per 30 days)

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

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EB-2012-0064

STANDBY - GENERAL SERVICE 1,000 - 5,000 KW SERVICE CLASSIFICATION

These classifications refer to an account that has Load Displacement Generation and requires THESL to provide back-up service. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

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MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	200.61	(per 30 days)
Distribution Volumetric Rate	$/kVA	4.5105	(per 30 days)

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

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EB-2012-0064

STANDBY - LARGE USE SERVICE CLASSIFICATION

These classifications refer to an account that has Load Displacement Generation and requires THESL to provide back-up service. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

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MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	200.61	(per 30 days)
Distribution Volumetric Rate	$/kVA	4.8053	(per 30 days)

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

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EB-2012-0064

UNMETERED SCATTERED LOAD SERVICE CLASSIFICATION

This classification applies to an account taking electricity at 750 volts or less whose average monthly maximum demand at each location is less than, or is forecast to be less than, 50 kW and the consumption is unmetered. Such connections include cable TV power packs, bus shelters, telephone booths, traffic lights, railway crossings, etc. The level of the consumption will be agreed to by THESL and the customer, based on detailed manufacturer information/ documentation with regard to electrical consumption of the unmetered load or periodic monitoring of actual consumption. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

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MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	4.91	(per 30 days)
Service Charge (per connection)	$	0.50	(per 30 days)
2011 Unfunded Capex Rate Rider - MFC - Effective Until April 30, 2015	$	0.17	(per 30 days)
2011 Unfunded Capex Rate Rider (per connection) - MFC - Effective Until April 30, 2015	$	0.02	(per 30 days)
2012 IRM Rate Rider - MFC - Effective Until April 30, 2015	$	0.01	(per 30 days)
2012 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	0.14	(per 30 days)
2012 ICM Rate Adder (per connection) - MFC - Effective Until April 30, 2015	$	0.01	(per 30 days)
2013 ICM Rate Adder - MFC - Effective Until April 30, 2015	$	0.36	(per 30 days)
2013 ICM Rate Adder (per connection) - MFC - Effective Until April 30, 2015	$	0.04	(per 30 days)
Distribution Volumetric Rate	$/kWh	0.06152	
2011 Unfunded Capex Rate Rider - DVR - Effective Until April 30, 2015	$/kWh	0.00219	
2012 IRM Rate Rider - DVR - Effective Until April 30, 2015	$/kWh	0.00019	
2012 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kWh	0.00174	
2013 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kWh	0.00458	
Rate Rider for Deferral/Variance Account Disposition (2012)	$/kWh	-0.00088	
Shared Tax Savings Rate Riders - DVR - Effective Until April 30 2014	$/kWh	-0.00010	
Retail Transmission Rate – Network Service Rate	$/kWh	0.00491	
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00354	

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2012-0064

STREET LIGHTING SERVICE CLASSIFICATION

This classification applies to an account for roadway lighting with a Municipality, Regional Municipality, Ministry of Transportation and private roadway lighting, controlled by photo cells. The consumption for these customers will be based on the calculated connected load times the required lighting times established in the approved OEB street lighting load shape template. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein

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MONTHLY RATES AND CHARGES - Delivery Component

Service Charge (per connection)	$	1.32	(per 30 days)
2011 Unfunded Capex Rate Rider (per connection) - MFC - Effective Until April 30, 2015	$	0.05	(per 30 days)
2012 ICM Rate Adder (per connection) - MFC - Effective Until April 30, 2015	$	0.04	(per 30 days)
2013 ICM Rate Adder (per connection) - MFC - Effective Until April 30, 2015	$	0.10	(per 30 days)
Distribution Volumetric Rate	$/kVA	29.1168	(per 30 days)
2011 Unfunded Capex Rate Rider - DVR - Effective Until April 30, 2015	$/kVA	1.0206	(per 30 days)
2012 IRM Rate Rider - DVR - Effective Until April 30, 2015	$/kVA	0.0883	(per 30 days)
2012 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kVA	0.8110	(per 30 days)
2013 ICM Rate Adder - DVR - Effective Until April 30, 2015	$/kVA	2.1395	(per 30 days)
Rate Rider for Deferral/Variance Account Disposition (2012)	$/kVA	-0.3877	(per 30 days)
Shared Tax Savings Rate Riders - DVR - Effective Until April 30 2014	$/kVA	-0.0425	(per 30 days)
Retail Transmission Rate – Network Service Rate	$/kW	2.4857	(per 30 days)
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	2.2997	(per 30 days)

MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0052	
Rural Rate Protection Charge	$/kWh	0.0011	
Standard Supply Service – Administrative Charge (if applicable)	$	0.25	(per 30 days)

Toronto Hydro-Electric System Limited

TARIFF OF RATES AND CHARGES

Effective Date May 1, 2013

Implementation Date May 1, 2013

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2012-0064

microFIT GENERATOR SERVICE CLASSIFICATION

This classification applies to an electricity generation facility contracted under the Ontario Power Authority's micoFIT program and connected to the distribuor's distribution system. Further servicing details are available in the distributor's Condition of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

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MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	5.33	(per 30 days)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
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EB-2012-0064

ALLOWANCES

Transformer Allowance for Ownership - per kVA of billing demand	$/kVA	(0.62)	(per 30 days)
Primary Metering Allowance for transformer losses – applied to measured demand and energy	%	(1.00)	

SPECIFIC SERVICE CHARGES

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

No charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

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Customer Administration		
Duplicate invoices for previous billing	$	15.00
Easement letter	$	15.00
Income tax letter	$	15.00
Request for other billing information	$	15.00
Account set up charge/change of occupancy charge (plus credit agency costs if applicable)	$	30.00
Returned cheque charge (plus bank charges)	$	15.00
Special meter reads	$	30.00
Meter dispute charge plus Measurement Canada fees (if meter found correct)	$	30.00
Non-Payment of Account		
Late Payment - per month	%	1.50
Late Payment - per annum	%	19.56
Collection of account charge - no disconnection	$	30.00
Disconnect/Reconnect at meter - during regular hours	$	65.00
Disconnect/Reconnect at meter - after regular hours	$	185.00
Disconnect/Reconnect at pole - during regular hours	$	185.00
Disconnect/Reconnect at pole - after regular hours	$	415.00
Install/Remove load control device - during regular hours	$	65.00
Install/Remove load control device - after regular hours	$	185.00
Specific Charge for Access to the Power Poles $/pole/year	$	22.35
Specific Charge for Access to the Power Poles $/pole/year	$	18.55
Specific Charge for Access to the Power Poles $/pole/year (Hydro Attachments on Third Party Poles)	$	(22.75)

Toronto Hydro-Electric System Limited
TARIFF OF RATES AND CHARGES
Effective Date May 1, 2013
Implementation Date May 1, 2013

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EB-2012-0064

RETAIL SERVICE CHARGES (if applicable)

APPLICATION

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Retail Service Charges refer to services provided by a distributor to retailers or customers related to the supply of competitive electricity

One-time charge, per retailer, to establish the service agreement between the distributor and the retailer	$	100.00
Monthly Fixed Charge, per retailer	$	20.00
Monthly Variable Charge, per customer, per retailer	$/cust.	0.50
Distributor-consolidated billing charge, per customer, per retailer	$/cust.	0.30
Retailer-consolidated billing credit, per customer, per retailer	$/cust.	(0.30)
Service Transaction Requests (STR)		
Request fee, per request, applied to the requesting party	$	0.25
Processing fee, per request, applied to the requesting party	$	0.50
Request for customer information as outlined in Section 10.6.3 and Chapter 11 of the Retail Settlement Code directly to retailers and customers, if not delivered electronically through the Electronic Business Transaction (EBT) system, applied to the requesting party		
Up to twice a year	$	no charge
More than twice a year, per request (plus incremental delivery costs)	$	2.00

LOSS FACTORS

If the distributor is not capable of prorating changed loss factors jointly with distribution rates, the revised loss factor will be implemented upon the first subsequent billing for each billing cycle.

Total Loss Factor – Secondary Metered Customer < 5,000 kW	1.0376
Total Loss Factor – Secondary Metered Customer > 5,000 kW	1.1087
Distribution Loss Factor - Primary Metered Customer < 5,000 kW	1.0272
Distribution Loss Factor - Primary Metered Customer > 5,000 kW	1.0085

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

V1.4

Ontario Energy Board

3RD Generation Incentive Regulation Model

Choose Your Utility:

Toronto Hydro-Electric System Limited
Wasaga Distribution Inc.

Application Type: IRM3
OEB Application #: EB-2011-0144
LDC Licence #: ED-2002-0497

Application Contact Information

Name:	Anthony Lam
Title:	Economist
Phone Number:	416 542 2876
Email Address:	alam@torontohydro.com
We are applying for rates effective:	May 1, 2013
Please indicate the version of Microsoft Excel that you are currently using:	Excel 2007

Legend

DROP-DOWN MENU

INPUT FIELD

CALCULATION FIELD

Copyright

While this model has been provided in Excel format and is required to be filed with the applications, the onus remains on the applicant to ensure the accuracy of the data and the results.

Ontario Energy Board

3RD Generation Incentive Regulation Model

Toronto Hydro-Electric System Limited - EB-2011-0144

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10. Deferral/Variance Accounts - Billing Determinants
11. Deferral/Variance Accounts - Cost Allocation
12. Deferral/Variance Accounts - Calculation of Rate Riders
13. Proposed Monthly Fixed Charges
14. Proposed Volumetric Rate Riders
15. Proposed RTSR-Network Rates
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17. Adjustments for Revenue/Cost Ratio and GDP-IPI - X
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Ontario Energy Board

3RD Generation Incentive Regulation Model

Toronto Hydro-Electric System Limited - EB-2011-0144

Select the appropriate rate classes as they appear on your most recent Board-Approved Tariff of Rates and Charges.
Note: The microFIT class does not exist in the drop-down menu below as it will automatically be inserted into your proposed Tariff Schedule.

Rate Class

Residential
Residential Urban
General Service Less Than 50 kW
General Service 50 to 999 kW
General Service 1,000 to 4,999 kW
Large Use > 5000 kW
Standby - General Service 50 - 1,000 kW
Standby - General Service 1,000 - 5,000 kW
Standby - Large Use
Unmetered Scattered Load
Street Lighting
Sentinel Lighting
Choose Rate Class
Choose Rate Class
Choose Rate Class
Choose Rate Class
Choose Rate Class
Choose Rate Class
Choose Rate Class
Choose Rate Class
Choose Rate Class
Choose Rate Class

Toronto Hydro-Electric System Limited - EB-2011-0144

Please note that unlike the Distribution Volumetric Rates, which will be entered in the following two tabs, all current Monthly Fixed Charges, including the base charges, must be entered on this tab. Please enter the descriptions of the current Monthly Fix Charges exactly as they appear on your most recent Board-Approved Tariff of Rates and Charges by using the drop-down menus under the column labeled "Rate Description". If the description is not found in the drop-down menu, please enter the description in the green cells under the correct class exactly as it appears on the tariff. Once a description is selected or entered into the green cells, the input cells for the "Unit", "Amount", and "Effective Date" will appear. Please note that the base Monthly Fixed Charge is identified in the drop-down list as a "Service Charge" to coincide with the description on the tariff. Please do not enter more than one "Service Charge" for each class for which a base monthly fixed charge applies. **Note: Do not enter Standard Supply Service Rate. The rate will appear automatically on the final Tariff of Rates and Charges.

Rate Description	Unit	Amount	Effective Until Date
Residential			
Service Charge (Based on 30 day month)	$	18.37	April 30, 2015
Smart Meter Funding Adder	$	0.68	April 30, 2014
Rate Rider for Recovery of Late Payment Penalty Litigation Costs (per customer)	$	0.24	April 30, 2013
Residential Urban			
Service Charge (Based on 30 day month)	$	17.12	April 30, 2015
Smart Meter Funding Adder	$	0.68	April 30, 2014
Rate Rider for Recovery of Late Payment Penalty Litigation Costs (per customer)	$	0.24	April 30, 2013
General Service Less Than 50 kW			
Service Charge (Based on 30 day month)	$	24.47	April 30, 2015
Smart Meter Funding Adder	$	0.68	April 30, 2014
Rate Rider for Recovery of Late Payment Penalty Litigation Costs	$	0.69	April 30, 2013
General Service 50 to 999 kW			
Service Charge (Based on 30 day month)	$	35.80	April 30, 2015
Smart Meter Funding Adder	$	0.68	April 30, 2014
Rate Rider for Recovery of Late Payment Penalty Litigation Costs	$	8.37	April 30, 2013
General Service 1,000 to 4,999 kW			
Service Charge (Based on 30 day month)	$	691.13	April 30, 2015
Smart Meter Funding Adder	$	0.68	April 30, 2014
Rate Rider for Recovery of Late Payment Penalty Litigation Costs	$	69.81	April 30, 2013
Large Use > 5000 kW			
Service Charge (Based on 30 day month)	$	3029.57	April 30, 2015
Smart Meter Funding Adder	$	0.68	April 30, 2014
Rate Rider for Recovery of Late Payment Penalty Litigation Costs	$	304.62	April 30, 2013

Unmetered Scattered Load

Service Charge (Based on 30 day month)	$	4.87	April 30, 2015
Rate Rider for Recovery of Late Payment Penalty Litigation Costs (per customer)	$	0.09	April 30, 2013

Sentinel Lighting

Service Charge (per connection)	$	0.49	April 30, 2015

Street Lighting

Service Charge (Based on 30 day month)	$	1.31	April 30, 2015
Rate Rider for Recovery of Late Payment Penalty Litigation Costs	$	0.04	April 30, 2013

Standby - General Service 50 - 1,000 kW

Service Charge (Based on 30 day month)	$	199.26	April 30, 2015

Standby - General Service 1,000 - 5,000 kW

Service Charge (Based on 30 day month)	$	199.26	April 30, 2015

Standby - Large Use

Service Charge (Based on 30 day month)	$	199.26	April 30, 2015

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For each class, please enter the base Distribution Volumetric Rates ("DVR") from your most recent Board-Approved Tariff of Rates and Charges by using the drop-down menus and input cells in columns labeled "Unit" and "Amount".

Rate Description	Unit	Amount
Residential	$/kWh	0.01517
Residential Urban	$/kWh	0.02582
General Service Less Than 50 kW	$/kWh	0.02262
General Service 50 to 999 kW	$/kVA	5.63370
General Service 1,000 to 4,999 kW	$/kVA	4.48000
Large Use > 5000 kW	$/kVA	4.77280
Unmetered Scattered Load	$/kWh	0.06110
Sentinel Lighting		
Street Lighting	$/kVA	28.92010
Standby - General Service 50 - 1,000 kW	$/kVA	5.63370
Standby - General Service 1,000 - 5,000 kW	$/kVA	4.48000
Standby - Large Use	$/kVA	4.77280

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Please enter the descriptions of all other current Variable Rates, including any applicable low voltage charges, rate riders, rate adders, etc. from your most recent Board-Approved Tariff of Rates and Charges by using the drop-down menus located under the column labeled "Rate Description". If the description is not found in the drop-down menu, please enter the description of the associated rate in the green cells exactly as it appears on the tariff. Once a description is selected or entered into the green cells, the input cells for the "Unit", "Amount", and "Effective Date" will appear. **Note: Do not enter the WMSR or RRRP Rate below. These rates will appear automatically on the final Tariff of Rates and Charges.

Rate Description	Unit	Amount	Effective Until Date
Residential			
Residential Urban			
General Service Less Than 50 kW			
General Service 50 to 999 kW			

General Service 1,000 to 4,999 kW

Large Use > 5000 kW

Unmetered Scattered Load

Sentinel Lighting

Street Lighting

Standby - General Service 50 - 1,000 kW

Standby - General Service 1,000 - 5,000 kW

Standby - Large Use

Ontario Energy Board

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Please enter your RTS-Network Rates from your most recent Board-Approved Tariff of Rates and Charges by using the drop-down menus under the column labeled "Rate Description". If the description is not found in the drop-down menu, please enter the description in the green cells under the correct classes exactly as it appears on the tariff.

Rate Description	Unit	Amount
Residential		
Retail Transmission Rate – Network Service Rate	$/kWh	0.00703
Residential Urban		
Retail Transmission Rate – Network Service Rate	$/kWh	0.00703
General Service Less Than 50 kW		
Retail Transmission Rate – Network Service Rate	$/kWh	0.00680
General Service 50 to 999 kW		
Retail Transmission Rate – Network Service Rate	$/kW	2.43510
General Service 1,000 to 4,999 kW		
Retail Transmission Rate – Network Service Rate	$/kW	2.35270
Large Use > 5000 kW		
Retail Transmission Rate – Network Service Rate	$/kW	2.68200
Unmetered Scattered Load		
Retail Transmission Rate – Network Service Rate	$/kWh	0.00428
Sentinel Lighting		
Street Lighting		
Retail Transmission Rate – Network Service Rate	$/kW	2.16580
Standby - General Service 50 - 1,000 kW		
Standby - General Service 1,000 - 5,000 kW		
Standby - Large Use		

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Please enter your RTS-Connection Rates from your most recent Board-Approved Tariff of Rates and Charges by using the drop-down menus under the column labeled "Rate Description". If the description is not found in the drop-down menu, please enter the description in the green cells under the correct classes exactly as it appears on the tariff.

Rate Description	Unit	Amount
Residential		
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00513
Residential Urban		
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00513
General Service Less Than 50 kW		
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00463
General Service 50 to 999 kW		
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	1.76300
General Service 1,000 to 4,999 kW		
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	1.76130
Large Use > 5000 kW		
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	1.95670
Unmetered Scattered Load		
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00324
Sentinel Lighting		
Street Lighting		
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	2.10220
Standby - General Service 50 - 1,000 kW		
Standby - General Service 1,000 - 5,000 kW		
Standby - Large Use		

Ontario Energy Board

3RD Generation Incentive Regulation Model

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Please complete the following continuity schedule for your Group 1 Deferral / Variance Accounts, Account 1521 and Account 1562. Enter information into green cells only. Lines 51-61 contain footnotes and further instructions.

If you have received approval to dispose of balances from prior years, the starting point for entries in the 2012 DVA schedule below will be the balance sheet date as per your G/L for which you received approval. For example, if in the 2011 EDR process (CoS or IRM) you received approval for the December 31, 2009 balances, the starting point for your entries below should be the adjustment column AV for principal and column BA for interest. This will allow for the correct starting point for the 2010 opening balance columns (for both principal and interest) without requiring entries dating back to the beginning of the continuity schedule ie: Jan 1, 2005.

		2005									
Account Descriptions	Account Number	Opening Principal Amounts as of Jan-1-05	Transactions Debit / (Credit) during 2005 excluding interest and adjustments [5]	Board-Approved Disposition during 2005	Adjustments during 2005 - other [3]	Closing Principal Balance as of Dec-31-05	Opening Interest Amounts as of Jan-1-05	Interest Jan-1 to Dec-31-05	Board-Approved Disposition during 2005	Adjustments during 2005 - other [3]	Closing Interest Amounts as of Dec-31-05
Group 1 Accounts											
LV Variance Account	1550					$ -					$ -
RSVA - Wholesale Market Service Charge	1580					$ -					$ -
RSVA - Retail Transmission Network Charge	1584					$ -					$ -
RSVA - Retail Transmission Connection Charge	1586					$ -					$ -
RSVA - Power (excluding Global Adjustment)	1588					$ -					$ -
RSVA - Power - Sub-Account - Global Adjustment	1588					$ -					$ -
Recovery of Regulatory Asset Balances	1590					$ -					$ -
Disposition and Recovery of Regulatory Balances (2008)[7]	1595					$ -					$ -
Disposition and Recovery of Regulatory Balances (2009)[7]	1595					$ -					$ -
Group 1 Sub-Total (including Account 1588 - Global Adjustment)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Group 1 Sub-Total (excluding Account 1588 - Global Adjustment)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RSVA - Power - Sub-Account - Global Adjustment	**1588**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Special Purpose Charge Assessment Variance Account	**1521**										
Deferred Payments in Lieu of Taxes	**1562**										
Group 1 Total + 1521 + 1562		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
The following is not included in the total claim but are included on a memo basis:											
Board-Approved CDM Variance Account	1567										
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Contra Account	1592					$ -					$ -
Disposition and Recovery of Regulatory Balances[7]	1595					$ -					$ -

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g: debit balances are to have a positive figure and credit balance are to have a negative figure) as per the related Board decision.

1 Applicants may wish to propose kWh as the allocator for account 1521 pending a final decision of the Board

2 Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs write-off, etc.

2A Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of the 2006 EDR and account 1595 during the 2008 EDR and subsequent years as ordered by the Board.

3 Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved disposed balances, please provide amounts for adjustments and include supporting documentations.

4 Although the Global Adjustment Account is not reported separately under 2.1.7, please provide a breakdown in rows 28 and 29.

5 For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the transactions during the year.

6 If the LDC's 2011 rate year started January 1, the projected interest is recorded from January 1, 2011 to December 31, 2011 on the December 31, 2010 balance adjusted for the disposed balances approved by the Board in the 2011 rate decision. If the LDC's 2011 rate year started May 1, the projected interest is recorded from January 1, 2011 to April 30, 11 on the December 31, 2010 balance. The projected interested is recorded from May 1, 2011 to April 30, 2012 on the December 31, 2010 balance adjusted for the disposed balances approved by the Board in the 2011 rate decision.

7 Include Account 1595 as part of Group 1 accounts (line 31) for review and disposition if the recovery (or refund) period has been completed, and the audited financial statements support the underlying residual balance in account 1595. If the recovery (or refund) period has not been completed, include the balances in Account 1595 on a memo basis only (line 49).

lease complete the following continuity schedule for your Group 1 Deferral / Variance Accounts, Account 1521 an
ootnotes and further instructions.

you have received approval to dispose of balances from prior years, the starting point for entries in the 2012 DVA
eceived approval. For example, if in the 2011 EDR process (CoS or IRM) you received approval for the December
olumn AV for principal and column BA for interest. This will allow for the correct starting point for the 2010 openi
ack to the beginning of the continuity schedule ie: Jan 1, 2005.

Account Descriptions	Account Number	Opening Principal Amounts as of Jan-1-06	Transactions Debit / (Credit) during 2006 excluding interest and adjustments [5]	Board-Approved Disposition during 2006 [2, 2A]	Adjustments during 2006 - other [3]	Closing Principal Balance as of Dec-31-06	Opening Interest Amounts as of Jan-1-06	Interest Jan-1 to Dec-31-06	Board-Approved Disposition during 2006 [2, 2A]	Adjustments during 2006 - other [3]	Closing Interest Amounts as of Dec-31-06
		2006									
Group 1 Accounts											
LV Variance Account	1550	$ -				$ -	$ -				$ -
RSVA - Wholesale Market Service Charge	1580	$ -				$ -	$ -				$ -
RSVA - Retail Transmission Network Charge	1584	$ -				$ -	$ -				$ -
RSVA - Retail Transmission Connection Charge	1586	$ -				$ -	$ -				$ -
RSVA - Power (excluding Global Adjustment)	1588	$ -				$ -	$ -				$ -
RSVA - Power - Sub-Account - Global Adjustment	1588	$ -				$ -	$ -				$ -
Recovery of Regulatory Asset Balances	1590	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances (2008)[7]	1595	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances (2009)[7]	1595	$ -				$ -	$ -				$ -
Group 1 Sub-Total (including Account 1588 - Global Adjustment)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Group 1 Sub-Total (excluding Account 1588 - Global Adjustment)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RSVA - Power - Sub-Account - Global Adjustment	**1588**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Special Purpose Charge Assessment Variance Account	**1521**										
Deferred Payments in Lieu of Taxes	**1562**					-$ 5,998,665	$ 1,354,812	-$ 287,268			$ 1,067,544
Group 1 Total + 1521 + 1562		$ -	$ -	$ -	$ -	-$ 5,998,665	$ 1,354,812	-$ 287,268	$ -	$ -	$ 1,067,544
The following is not included in the total claim but are included on a memo basis:											
Board-Approved CDM Variance Account	1567										
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Contra Account	1592	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances[7]	1595	$ -				$ -	$ -				$ -

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g negative figure) as per the related Board decision.

Applicants may wish to propose kWh as the allocator for account 1521 pending a final decision of the Board

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of t

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved d

Although the Global Adjustment Account is not reported separately under 2.1.7, please provide a breakdown in rows 28

For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the tran
If the LDC's 2011 rate year started January 1, the projected interest is recorded from January 1, 2011 to December 31,
Board in the 2011 rate decision. If the LDC's 2011 rate year started May 1, the projected interest is recorded from Janu
recorded from May 1, 2011 to April 30, 2012 on the December 31, 2010 balance adjusted for the disposed balances ap

Include Account 1595 as part of Group 1 accounts (line 31) for review and disposition if the recovery (or refund) period
support the underlying residual balance in account 1595. If the recovery (or refund) period has not been completed, inc

Toronto Hydro-Electric System Limited - EB-2011-0144

lease complete the following continuity schedule for your Group 1 Deferral / Variance Accounts, Account 1521 an
ootnotes and further instructions.

you have received approval to dispose of balances from prior years, the starting point for entries in the 2012 DVA
eceived approval. For example, if in the 2011 EDR process (CoS or IRM) you received approval for the December
olumn AV for principal and column BA for interest. This will allow for the correct starting point for the 2010 openi
ack to the beginning of the continuity schedule ie: Jan 1, 2005.

		2007									
Account Descriptions	Account Number	Opening Principal Amounts as of Jan-1-07	Transactions Debit / (Credit) during 2007 excluding interest and adjustments [5]	Board-Approved Disposition during 2007	Adjustments during 2007 - other [3]	Closing Principal Balance as of Dec-31-07	Opening Interest Amounts as of Jan-1-07	Interest Jan-1 to Dec-31-07	Board-Approved Disposition during 2007	Adjustments during 2007 - other [3]	Closing Interest Amounts as of Dec-31-07
Group 1 Accounts											
LV Variance Account	1550	$ -				$ -	$ -				$ -
RSVA - Wholesale Market Service Charge	1580	$ -				$ -	$ -				$ -
RSVA - Retail Transmission Network Charge	1584	$ -				$ -	$ -				$ -
RSVA - Retail Transmission Connection Charge	1586	$ -				$ -	$ -				$ -
RSVA - Power (excluding Global Adjustment)	1588	$ -				$ -	$ -				$ -
RSVA - Power - Sub-Account - Global Adjustment	1588	$ -				$ -	$ -				$ -
Recovery of Regulatory Asset Balances	1590	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances (2008)[7]	1595	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances (2009)[7]	1595	$ -				$ -	$ -				$ -
Group 1 Sub-Total (including Account 1588 - Global Adjustment)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Group 1 Sub-Total (excluding Account 1588 - Global Adjustment)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RSVA - Power - Sub-Account - Global Adjustment	**1588**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Special Purpose Charge Assessment Variance Account	**1521**										
Deferred Payments in Lieu of Taxes	**1562**	-$ 5,998,665				-$ 5,998,665	$ 1,067,544	-$ 283,587			$ 783,957
Group 1 Total + 1521 + 1562		-$ 5,998,665	$ -	$ -	$ -	-$ 5,998,665	$ 1,067,544	-$ 283,587	$ -	$ -	$ 783,957
The following is not included in the total claim but are included on a memo basis:											
Board-Approved CDM Variance Account	1567										
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Contra Account	1592	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances[7]	1595	$ -				$ -	$ -				$ -

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g
negative figure) as per the related Board decision.

Applicants may wish to propose kWh as the allocator for account 1521 pending a final decision of the Board

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of t

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved c

Although the Global Adjustment Account is not reported separately under 2.1.7, please provide a breakdown in rows 28

For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the tran
If the LDC's 2011 rate year started January 1, the projected interest is recorded from January 1, 2011 to December 31,
Board in the 2011 rate decision. If the LDC's 2011 rate year started May 1, the projected interest is recorded from Janu
recorded from May 1, 2011 to April 30, 2012 on the December 31, 2010 balance adjusted for the disposed balances ap

Include Account 1595 as part of Group 1 accounts (line 31) for review and disposition if the recovery (or refund) period
support the underlying residual balance in account 1595. If the recovery (or refund) period has not been completed, inc

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**lease complete the following continuity schedule for your Group 1 Deferral / Variance Accounts, Account 1521 an
ootnotes and further instructions.**

**you have received approval to dispose of balances from prior years, the starting point for entries in the 2012 DVA
eceived approval. For example, if in the 2011 EDR process (CoS or IRM) you received approval for the December
olumn AV for principal and column BA for interest. This will allow for the correct starting point for the 2010 openi
ack to the beginning of the continuity schedule ie: Jan 1, 2005.**

Account Descriptions	Account Number	2008 Opening Principal Amounts as of Jan-1-08	Transactions Debit / (Credit) during 2008 excluding interest and adjustments [5]	Board-Approved Disposition during 2008	Adjustments during 2008 - other [3]	Closing Principal Balance as of Dec-31-08	Opening Interest Amounts as of Jan-1-08	Interest Jan-1 to Dec-31-08	Board-Approved Disposition during 2008	Adjustments during 2008 - other [3]	Closing Interest Amounts as of Dec-31-08
Group 1 Accounts											
LV Variance Account	1550	$ -				$ -	$ -				$ -
RSVA - Wholesale Market Service Charge	1580	$ -				$ -	$ -				$ -
RSVA - Retail Transmission Network Charge	1584	$ -				$ -	$ -				$ -
RSVA - Retail Transmission Connection Charge	1586	$ -				$ -	$ -				$ -
RSVA - Power (excluding Global Adjustment)	1588	$ -				$ -	$ -				$ -
RSVA - Power - Sub-Account - Global Adjustment	1588	$ -				$ -	$ -				$ -
Recovery of Regulatory Asset Balances	1590	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances (2008)[7]	1595	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances (2009)[7]	1595	$ -				$ -	$ -				$ -
Group 1 Sub-Total (including Account 1588 - Global Adjustment)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Group 1 Sub-Total (excluding Account 1588 - Global Adjustment)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RSVA - Power - Sub-Account - Global Adjustment	**1588**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Special Purpose Charge Assessment Variance Account	**1521**										
Deferred Payments in Lieu of Taxes	**1562**	-$ 5,998,665				-$ 5,998,665	$ 783,957	-$ 238,747			$ 545,210
Group 1 Total + 1521 + 1562		-$ 5,998,665	$ -	$ -	$ -	-$ 5,998,665	$ 783,957	-$ 238,747	$ -	$ -	$ 545,210
The following is not included in the total claim but are included on a memo basis:											
Board-Approved CDM Variance Account	1567										
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Contra Account	1592	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances[7]	1595	$ -				$ -	$ -				$ -

**For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g
negative figure) as per the related Board decision.**

Applicants may wish to propose kWh as the allocator for account 1521 pending a final decision of the Board

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of t

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved d

Although the Global Adjustment Account is not reported separately under 2.1.7, please provide a breakdown in rows 28

For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the tran
If the LDC's 2011 rate year started January 1, the projected interest is recorded from January 1, 2011 to December 31,
Board in the 2011 rate decision. If the LDC's 2011 rate year started May 1, the projected interest is recorded from Janu
recorded from May 1, 2011 to April 30, 2012 on the December 31, 2010 balance adjusted for the disposed balances ap

Include Account 1595 as part of Group 1 accounts (line 31) for review and disposition if the recovery (or refund) period
support the underlying residual balance in account 1595. If the recovery (or refund) period has not been completed, inc

Toronto Hydro-Electric System Limited - EB-2011-0144

lease complete the following continuity schedule for your Group 1 Deferral / Variance Accounts, Account 1521 an
ootnotes and further instructions.

you have received approval to dispose of balances from prior years, the starting point for entries in the 2012 DVA
eceived approval. For example, if in the 2011 EDR process (CoS or IRM) you received approval for the December
olumn AV for principal and column BA for interest. This will allow for the correct starting point for the 2010 openi
ack to the beginning of the continuity schedule ie: Jan 1, 2005.

Account Descriptions	Account Number	2009 Opening Principal Amounts as of Jan-1-09	Transactions Debit / (Credit) during 2009 excluding interest and adjustments [5]	Board-Approved Disposition during 2009	Adjustments during 2009 - other [3]	Closing Principal Balance as of Dec-31-09	Opening Interest Amounts as of Jan-1-09	Interest Jan-1 to Dec-31-09	Board-Approved Disposition during 2009	Adjustments during 2009 - other [3]	Closing Interest Amounts as of Dec-31-09
Group 1 Accounts											
LV Variance Account	1550	$ -			$ 910,834	$ 910,834	$ -			$ 43,562	$ 43,562
RSVA - Wholesale Market Service Charge	1580	$ -			-$ 54,927,284	-$ 54,927,284	$ -			-$ 2,852,619	-$ 2,852,619
RSVA - Retail Transmission Network Charge	1584	$ -			-$ 15,203,484	-$ 15,203,484	$ -			-$ 738,236	-$ 738,236
RSVA - Retail Transmission Connection Charge	1586	$ -			-$ 10,736,969	-$ 10,736,969	$ -			-$ 1,364,052	-$ 1,364,052
RSVA - Power (excluding Global Adjustment)	1588	$ -			-$ 259,129	-$ 259,129	$ -			$ -	$ -
RSVA - Power - Sub-Account - Global Adjustment	1588	$ -			$ 44,599,726	$ 44,599,726	$ -			-$ 15,819	-$ 15,819
Recovery of Regulatory Asset Balances	1590	$ -			$ 2	$ 2	$ -			$ -	$ -
Disposition and Recovery of Regulatory Balances (2008)[7]	1595	$ -			-$ 491,772	-$ 491,772	$ -			-$ 276,556	-$ 276,556
Disposition and Recovery of Regulatory Balances (2009)[7]	1595	$ -			-$ 2,787,938	-$ 2,787,938	$ -			-$ 42,064	-$ 42,064
Group 1 Sub-Total (including Account 1588 - Global Adjustment)		$ -	$ -	$ -	-$ 38,896,013	-$ 38,896,013	$ -	$ -	$ -	-$ 5,245,783	-$ 5,245,783
Group 1 Sub-Total (excluding Account 1588 - Global Adjustment)		$ -	$ -	$ -	-$ 83,495,739	-$ 83,495,739	$ -	$ -	$ -	-$ 5,229,964	-$ 5,229,964
RSVA - Power - Sub-Account - Global Adjustment	**1588**	$ -	$ -	$ -	$ 44,599,726	$ 44,599,726	$ -	$ -	$ -	-$ 15,819	-$ 15,819
Special Purpose Charge Assessment Variance Account	**1521**										
Deferred Payments in Lieu of Taxes	**1562**	-$ 5,998,665				-$ 5,998,665	$ 545,210	-$ 68,235			$ 476,975
Group 1 Total + 1521 + 1562		-$ 5,998,665	$ -	$ -	-$ 38,896,013	-$ 44,894,678	$ 545,210	-$ 68,235	$ -	-$ 5,245,783	-$ 4,768,808
The following is not included in the total claim but are included on a memo basis:											
Board-Approved CDM Variance Account	1567										
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592										
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Contra Account	1592	$ -				$ -	$ -				$ -
Disposition and Recovery of Regulatory Balances[7]	1595	$ -				$ -	$ -				$ -

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g
negative figure) as per the related Board decision.

Applicants may wish to propose kWh as the allocator for account 1521 pending a final decision of the Board

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of t

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved c

Although the Global Adjustment Account is not reported separately under 2.1.7, please provide a breakdown in rows 28

For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the tran
If the LDC's 2011 rate year started January 1, the projected interest is recorded from January 1, 2011 to December 31,
Board in the 2011 rate decision. If the LDC's 2011 rate year started May 1, the projected interest is recorded from Janu
recorded from May 1, 2011 to April 30, 2012 on the December 31, 2010 balance adjusted for the disposed balances ap

Include Account 1595 as part of Group 1 accounts (line 31) for review and disposition if the recovery (or refund) period
support the underlying residual balance in account 1595. If the recovery (or refund) period has not been completed, inc

Toronto Hydro-Electric System Limited - EB-2011-0144

**lease complete the following continuity schedule for your Group 1 Deferral / Variance Accounts, Account 1521 an
otnotes and further instructions.**

**you have received approval to dispose of balances from prior years, the starting point for entries in the 2012 DV/
eceived approval. For example, if in the 2011 EDR process (CoS or IRM) you received approval for the December
olumn AV for principal and column BA for interest. This will allow for the correct starting point for the 2010 openi
ack to the beginning of the continuity schedule ie: Jan 1, 2005.**

2010

Account Descriptions	Account Number	Opening Principal Amounts as of Jan-1-10	Transactions Debit / (Credit) during 2010 excluding interest and adjustments [5]	Board-Approved Disposition during 2010	Other [3] Adjustments during Q1 2010	Other [3] Adjustments during Q2 2010	Other [3] Adjustments during Q3 2010	Other [3] Adjustments during Q4 2010	Closing Principal Balance as of Dec-31-10	Opening Interest Amounts as of Jan-1-10	Interest Jan-1 to Dec-31-10	Board-Approved Disposition during 2010	Adjustments during 2010 - other [3]
Group 1 Accounts													
LV Variance Account	1550	$ 910,834	$ 186,439	$ 713,449					$ 383,824	$ 43,562	$ 3,654	$ 44,084	
RSVA - Wholesale Market Service Charge	1580	-$ 54,927,284	-$ 26,238,240	-$ 47,563,346					-$ 33,602,178	-$ 2,852,619	-$ 249,451	-$ 2,924,115	
RSVA - Retail Transmission Network Charge	1584	-$ 15,203,484	$ 7,764,568	-$ 18,324,237					$ 10,885,321	-$ 738,236	$ 38,920	-$ 792,643	
RSVA - Retail Transmission Connection Charge	1586	-$ 10,736,969	$ 3,097,923	-$ 7,432,471					-$ 206,576	-$ 1,364,052	-$ 17,950	-$ 1,383,545	
RSVA - Power (excluding Global Adjustment)	1588	-$ 259,129	$ -	-$ 264,726					$ 5,597	$ -	$ -	$ -	
RSVA - Power - Sub-Account - Global Adjustment	1588	$ 44,599,726	-$ 8,632,018	$ 15,859,509					$ 20,108,199	-$ 15,819	$ 152,866	-$ 91,679	
Recovery of Regulatory Asset Balances	1590	$ 2	$ -	$ -					$ 2	$ -	$ -	$ -	
Disposition and Recovery of Regulatory Balances (2008)[7]	1595	-$ 491,772	$ -	$ -					-$ 491,772	-$ 276,556	-$ 9,743	$ -	
Disposition and Recovery of Regulatory Balances (2009)[7]	1595	-$ 2,787,938	$ 2,424,338	$ -					-$ 363,600	-$ 42,064	-$ 35,321	$ -	
Group 1 Sub-Total (including Account 1588 - Global Adjustment)		-$ 38,896,013	-$ 21,396,991	-$ 57,011,821	$ -	$ -	$ -	$ -	-$ 3,281,183	-$ 5,245,783	-$ 117,027	-$ 5,147,897	$ -
Group 1 Sub-Total (excluding Account 1588 - Global Adjustment)		-$ 83,495,739	-$ 12,764,973	-$ 72,871,331	$ -	$ -	$ -	$ -	-$ 23,389,381	-$ 5,229,964	-$ 269,892	-$ 5,056,218	$ -
RSVA - Power - Sub-Account - Global Adjustment	**1588**	$ 44,599,726	-$ 8,632,018	$ 15,859,509	$ -	$ -	$ -	$ -	$ 20,108,199	-$ 15,819	$ 152,866	-$ 91,679	$ -
Special Purpose Charge Assessment Variance Account	**1521**		-$ 6,123,220	-$ 9,697,579				-$ 3,050,473	$ 523,886		-$ 19,401		
Deferred Payments in Lieu of Taxes	**1562**	-$ 5,998,665							-$ 5,998,665	$ 476,975	-$ 47,839		
Group 1 Total + 1521 + 1562		-$ 44,894,678	-$ 27,520,211	-$ 66,709,400	$ -	$ -	$ -	-$ 3,050,473	-$ 8,755,962	-$ 4,768,808	-$ 184,266	-$ 5,147,897	$ -
The following is not included in the total claim but are included on a memo basis:													
Board-Approved CDM Variance Account	1567								$ -	$ -			
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592	-$ 14,427,499	-$ 2,314,616	-$ 11,109,564					-$ 5,632,551	$ -	-$ 62,633		
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592		$ 733,340					$ 366,600	$ 1,099,940	$ -	$ 2,932		
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Contra Account	1592	$ -	-$ 733,340	$ -				-$ 366,600	-$ 1,099,940	$ -	-$ 2,932		
Disposition and Recovery of Regulatory Balances[7]	1595	$ -	-$ 33,680,187						-$ 33,680,187	$ -	-$ 5,375,322		

**For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g
negative figure) as per the related Board decision.**

Applicants may wish to propose kWh as the allocator for account 1521 pending a final decision of the Board

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of t

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved c

Although the Global Adjustment Account is not reported separately under 2.1.7, please provide a breakdown in rows 28

For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the tran
If the LDC's 2011 rate year started January 1, the projected interest is recorded from January 1, 2011 to December 31,
Board in the 2011 rate decision. If the LDC's 2011 rate year started May 1, the projected interest is recorded from Janu
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Include Account 1595 as part of Group 1 accounts (line 31) for review and disposition if the recovery (or refund) period
support the underlying residual balance in account 1595. If the recovery (or refund) period has not been completed, inc

Toronto Hydro-Electric System Limited - EB-2011-0144

lease complete the following continuity schedule for your Group 1 Deferral / Variance Accounts, Account 1521 an
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you have received approval to dispose of balances from prior years, the starting point for entries in the 2012 DVA
eceived approval. For example, if in the 2011 EDR process (CoS or IRM) you received approval for the December
olumn AV for principal and column BA for interest. This will allow for the correct starting point for the 2010 openi
ack to the beginning of the continuity schedule ie: Jan 1, 2005.

			2011				Projected Interest on Dec-31-10 Balances			2.1.7 RRR	
Account Descriptions	Account Number	Closing Interest Amounts as of Dec-31-10	Principal Disposition during 2011 - instructed by Board	Interest Disposition during 2011 - instructed by Board	Closing Principal Balances as of Dec 31-10 Adjusted for Dispositions during 2011	Closing Interest Balances as of Dec 31-10 Adjusted during 2011 Disposition	Projected Interest from Jan 1, 2011 to December 31, 2011 on Dec 31 -10 balance adjusted for disposition during 2011 [5]	Projected Interest from January 1, 2012 to April 30, 2012 on Dec 31 -10 balance adjusted for disposition during 2011 [6, 7]	Total Claim	As of Dec 31-10 [4]	Variance RRR vs. 2010 Balance *(Principal + Interest)*
Group 1 Accounts											
LV Variance Account	1550	$ 3,133	$ 197,386	$ 4,053	$ 186,438	-$ 920	$ 2,754	$ 914	$ 189,185	$ 386,957	$ 0
RSVA - Wholesale Market Service Charge	1580	-$ 177,956	-$ 7,363,938	-$ 137,577	-$ 26,238,240	-$ 40,378	-$ 367,991	-$ 128,567	-$ 26,775,177	-$ 33,780,134	$ 0
RSVA - Retail Transmission Network Charge	1584	$ 93,327	$ 3,120,753	$ 72,499	$ 7,764,568	$ 20,828	$ 114,139	$ 38,046	$ 7,937,581	$ 10,978,648	$ 0
RSVA - Retail Transmission Connection Charge	1586	$ 1,543	-$ 3,304,499	-$ 48,830	$ 3,097,923	$ 50,373	$ 45,532	$ 15,180	$ 3,209,008	-$ 205,033	-$ 0
RSVA - Power (excluding Global Adjustment)	1588	$ -	$ -	$ -	$ 5,597	$ -	$ -	$ -	$ 5,597	$ 5,597	$ 0
RSVA - Power - Sub-Account - Global Adjustment	1588	$ 228,725	$ -	-$ 228,725	$ 20,108,199	$ 457,450	$ 66,966	$ 98,558	$ 20,731,172	$ 20,336,924	-$ 0
Recovery of Regulatory Asset Balances	1590	$ -	$ -	$ -	$ 2	$ -	$ -	$ -	$ 2	$ 2	$ -
Disposition and Recovery of Regulatory Balances (2008)[7]	1595	-$ 286,299	-$ 491,772	-$ 296,776	$ -	$ 10,477	-$ 10,477	$ -	$ 0	-$ 778,072	$ 0
Disposition and Recovery of Regulatory Balances (2009)[7]	1595	-$ 77,385	$ -	$ -	-$ 363,600	-$ 77,385	-$ 80,251	$ -	-$ 521,235	-$ 440,985	-$ 0
Group 1 Sub-Total (including Account 1588 - Global Adjustment)		-$ 214,913	-$ 7,842,070	-$ 635,356	$ 4,560,887	$ 420,443	-$ 229,327	$ 24,130	$ 4,776,133	-$ 3,496,096	$ 0
Group 1 Sub-Total (excluding Account 1588 - Global Adjustment)		-$ 443,638	-$ 7,842,070	-$ 406,631	-$ 15,547,312	-$ 37,007	-$ 296,293	-$ 74,428	-$ 15,955,039	-$ 23,833,019	$ 0
RSVA - Power - Sub-Account - Global Adjustment	**1588**	$ 228,725	$ -	-$ 228,725	$ 20,108,199	$ 457,450	$ 66,966	$ 98,558	$ 20,731,172	$ 20,336,924	-$ 0
Special Purpose Charge Assessment Variance Account	**1521**	-$ 19,401					$ 67,502	$ 2,590	$ 574,577	$ 3,554,958	$ 3,050,473
Deferred Payments in Lieu of Taxes	**1562**	$ 429,136			-$ 5,998,665	$ 429,136	-$ 88,180	-$ 29,393	-$ 5,687,102	$ 1,103,311	$ 6,672,840
Group 1 Total + 1521 + 1562		$ 194,823	-$ 7,842,070	-$ 635,356	-$ 1,437,778	$ 849,579	-$ 250,005	-$ 2,673	-$ 336,392	$ 1,162,173	$ 9,723,313
The following is not included in the total claim but are included on a memo basis:											
Board-Approved CDM Variance Account	1567	$ -							$ -		$ -
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592	-$ 62,633	-$ 3,317,935	-$ 55,042	-$ 2,314,616	$ 12,643	-$ 34,025	-$ 10,665	-$ 2,366,898	-$ 5,674,950	$ 20,234
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592	$ 2,932					-$ 15,046	$ 5,390	$ 1,093,216	$ 736,332	-$ 366,540
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Contra Account	1592	-$ 2,932					$ 15,046	-$ 5,390	-$ 1,093,216	-$ 736,332	$ 366,540
Disposition and Recovery of Regulatory Balances[7]	1595	-$ 5,375,322			-$ 33,680,187	-$ 5,375,322			-$ 39,055,509	-$ 39,055,509	$ -

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g
negative figure) as per the related Board decision.

Applicants may wish to propose kWh as the allocator for account 1521 pending a final decision of the Board

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of t

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved d

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support the underlying residual balance in account 1595. If the recovery (or refund) period has not been completed, inc

Ontario Energy Board

3RD Generation Incentive Regulation Model

Toronto Hydro-Electric System Limited - EB-2011-0144

In the green shaded cells, enter the most recent Board Approved volumetric forecast. If there is a material difference between the latest Board-approved volumetric forecast and the

Rate Class	Unit	Metered kWh	Metered kW	Billed kWh for Non-RPP Customers	Estimated kW for Non-RPP Customers	Distribution Revenue [1]	1590 Recovery Share Proportion*	1595 Recovery Share Proportion (2008) [2]	1595 Recovery Share Proportion (2009) [2]
Residential	$/kWh	4,886,977,489		559,659,628	-	204,720,003			18%
Residential Urban	$/kWh	99,791,184		11,421,625	-	4,600,284			2%
General Service Less Than 50 kW	$/kWh	2,139,318,076		437,628,634	-	67,255,470			10%
General Service 50 to 999 kW	$/kVA	10,116,374,153	26,935,191	6,900,756,638	-	156,294,314			37%
General Service 1,000 to 4,999 kW	$/kVA	4,626,928,262	10,587,119	4,177,096,302	-	51,343,590			19%
Large Use > 5000 kW	$/kVA	2,376,778,323	4,993,733	2,272,251,249	-	25,370,430			12%
Unmetered Scattered Load	$/kWh	56,231,585			-	4,681,925			0%
Sentinel Lighting					-				
Street Lighting	$/kVA	110,165,016	322,023	110,128,567	-	11,789,364			0%
Standby - General Service 50 - 1,000 kW					-				
Standby - General Service 1,000 - 5,000 kW					-				
Standby - Large Use					-				
Total		24,412,564,088	42,838,067	14,468,942,643	-	526,055,380	0%	0%	100%

Total Claim (including Accounts 1521 and 1562)	-$	336,392
Total Claim for Threshold Test (All Group 1 Accounts)	$	4,776,133
Threshold Test [3] (Total Claim per kWh)		0.00020

Claim does not meet the threshold test. If data has been entered on Sheet 9 for Accounts 1521 and 1562, the model will only dispose of Accounts 1521 and 1562.

[1] For Account 1562, the allocation to customer classes should be performed on the basis of the test year distribution revenue allocation to customer classes found in the Applicant's Cost of Service application that was most recently approved at the time of disposition of the 1562 account balance.
[2] Residual Account balance to be allocated to rate classes in proportion to the recovery share as established when rate riders were implemented.
[3] The Threshold Test does not include the amount in 1521 nor 1562.

Ontario Energy Board

Deferral / Variance Account Work Form

Toronto Hydro-Electric System Limited - EB-2011-0144

No input required. This worksheet allocates the deferral/variance account balances (Group 1, 1521, 1588 GA and 1562) to the appropriate classes.

Allocation of Group 1 Accounts (Excluding Account 1588 - Global Adjustment)

Rate Class	Units	Billed kWh	% kWh	1550	1580	1584	1586	1588*	1590	1595 (2008)	1595 (2009)	1521	Total
Residential	$/kWh	4,886,977,489	20.02%	0	0	0	0	0	0	0	0	115,021	115,021
Residential Urban	$/kWh	99,791,184	0.41%	0	0	0	0	0	0	0	0	2,349	2,349
General Service Less Than 50 kW	$/kWh	2,139,318,076	8.76%	0	0	0	0	0	0	0	0	50,351	50,351
General Service 50 to 999 kW	$/kVA	10,116,374,153	41.44%	0	0	0	0	0	0	0	0	238,100	238,100
General Service 1,000 to 4,999 kW	$/kVA	4,626,928,262	18.95%	0	0	0	0	0	0	0	0	108,900	108,900
Large Use > 5000 kW	$/kVA	2,376,778,323	9.74%	0	0	0	0	0	0	0	0	55,940	55,940
Unmetered Scattered Load	$/kWh	56,231,585	0.23%	0	0	0	0	0	0	0	0	1,323	1,323
Sentinel Lighting	-	-	0.00%	0	0	0	0	0	0	0	0	0	0
Street Lighting	$/kVA	110,165,016	0.45%	0	0	0	0	0	0	0	0	2,593	2,593
Standby - General Service 50 - 1,000 kW	-	-	0.00%	0	0	0	0	0	0	0	0	0	0
Standby - General Service 1,000 - 5,000 kW	-	-	0.00%	0	0	0	0	0	0	0	0	0	0
Standby - Large Use	-	-	0.00%	0	0	0	0	0	0	0	0	0	0
Total		24,412,564,088	100.00%	189,185	(26,775,177)	7,937,581	3,209,008	5,597	2	0	(521,235)	574,577	574,577

** RSVA - Power (Excluding Global Adjustment)*

1588 RSVA - Power (Global Adjustment Sub-Account)

Rate Class	non-RPP kWh	% kWh	1588
Residential	559,659,628	3.87%	-
Residential Urban	11,421,625	0.08%	-
General Service Less Than 50 kW	437,628,634	3.02%	-
General Service 50 to 999 kW	6,900,756,638	47.69%	-
General Service 1,000 to 4,999 kW	4,177,096,302	28.87%	-
Large Use > 5000 kW	2,272,251,249	15.70%	-
Unmetered Scattered Load	-	0.00%	-
Sentinel Lighting	-	0.00%	-
Street Lighting	110,128,567	0.76%	-
Standby - General Service 50 - 1,000 kW	-	0.00%	-
Standby - General Service 1,000 - 5,000 kW	-	0.00%	-
Standby - Large Use	-	0.00%	-
Total	14,468,942,643	100.00%	20,731,172

Allocation of Account 1562

	% of Distribution Revenue		Allocation of Balance in Account 1562
Residential	38.9%	-	2,213,196
Residential Urban	0.9%	-	49,733
General Service Less Than 50 kW	12.8%	-	727,088
General Service 50 to 999 kW	29.7%	-	1,689,673
General Service 1,000 to 4,999 kW	9.8%	-	555,067
Large Use > 5000 kW	4.8%	-	274,276
Unmetered Scattered Load	0.9%	-	50,616
Sentinel Lighting	0.0%		-
Street Lighting	2.2%	-	127,453
Standby - General Service 50 - 1,000 kW	0.0%		-
Standby - General Service 1,000 - 5,000 kW	0.0%		-
Standby - Large Use	0.0%		-
Total	100.0%	-	5,687,102

Ontario Energy Board

Deferral / Variance Account Work Form

Toronto Hydro-Electric System Limited - EB-2011-0144

No input required. This workshseet calculates rate riders related to the Deferral/Variance Account Disposition (if applicable) and associated rate riders for the global adjustment sub-account.

Please indicate the Rate Rider Recovery Period (in years): 1

Rate Class	Unit	Billed kWh	Billed kW	Accounts Allocated by kWh/kW (RPP) or Distribution Revenue	Deferral/Variance Account Rate Rider		Account 1588 Global Adjustment	Billed kWh or Estimated kW for Non-RPP	Global Adjustment Rate Rider
Residential	$/kWh	4,886,977,489	-	-$ 2,098,175	($0.00043)	$/kWh	$ -	559,659,628	$0.00000
Residential Urban	$/kWh	99,791,184	-	-$ 47,384	($0.00047)	$/kWh	$ -	11,421,625	$0.00000
General Service Less Than 50 kW	$/kWh	2,139,318,076	-	-$ 676,737	($0.00032)	$/kWh	$ -	437,628,634	$0.00000
General Service 50 to 999 kW	$/kVA	10,116,374,153	26,935,191	-$ 1,451,573	($0.05389)	$/kVA	$ -	-	$0.00000
General Service 1,000 to 4,999 kW	$/kVA	4,626,928,262	10,587,119	-$ 446,167	($0.04214)	$/kVA	$ -	-	$0.00000
Large Use > 5000 kW	$/kVA	2,376,778,323	4,993,733	-$ 218,336	($0.04372)	$/kVA	$ -	-	$0.00000
Unmetered Scattered Load	$/kWh	56,231,585	-	-$ 49,292	($0.00088)	$/kWh	$ -	-	$0.00000
Sentinel Lighting	-	-	-	$ -	$0.00000		$ -	-	$0.00000
Street Lighting	$/kVA	110,165,016	322,023	-$ 124,860	($0.38774)	$/kVA	$ -	-	$0.00000
Standby - General Service 50 - 1,000 kW	-	-	-	$ -	$0.00000		$ -	-	$0.00000
Standby - General Service 1,000 - 5,000 kW	-	-	-	$ -	$0.00000		$ -	-	$0.00000
Standby - Large Use	-	-	-	$ -	$0.00000		$ -	-	$0.00000
Total		24,412,564,088	42,838,067	-$ 5,112,525			$ -		

Ontario Energy Board

3RD Generation Incentive Regulation Model

Toronto Hydro-Electric System Limited - EB-2011-0144

Below is a listing of the current Monthly Fixed Charges. All rates with expired effective dates have been removed. In columns "B", "K", and "M" (green cells), please enter all additional Monthly Fixed Charges you are proposing (eg: Smart Meter Funding Adder, etc). Please ensure that the word "Rider" or "Adder" is included in the description (as applicable).

Rate Description	Unit	Amount	Effective Until Date	Proposed Amount	Effective Until Date
Residential					
Service Charge (Based on 30 day month)	$	18.37	April 30, 2015		
Smart Meter Funding Adder	$	0.68	April 30, 2014		
2011 Unfunded Capex Rate Rider - MFC (per 30 days)	$			0.65	April 30, 2015
2012 IRM Rate Rider - MFC (per 30 days)	$			0.06	April 30, 2015
2012 and 2013 - ICM Rate Adder - MFC (per 30 days)	$			1.88	April 30, 2015
Residential Urban					
Service Charge (Based on 30 day month)	$	17.12	April 30, 2015		
Smart Meter Funding Adder	$	0.68	April 30, 2014		
2011 Unfunded Capex Rate Rider - MFC (per 30 days)	$			0.60	April 30, 2015
2012 IRM Rate Rider - MFC (per 30 days)	$			0.05	April 30, 2015
2012 and 2013 - ICM Rate Adder - MFC (per 30 days)	$			1.75	April 30, 2015
General Service Less Than 50 kW					
Service Charge (Based on 30 day month)	$	24.47	April 30, 2015		
Smart Meter Funding Adder	$	0.68	April 30, 2014		
2011 Unfunded Capex Rate Rider - MFC (per 30 days)	$			0.86	April 30, 2015
2012 IRM Rate Rider - MFC (per 30 days)	$			0.07	April 30, 2015
2012 and 2013 - ICM Rate Adder - MFC (per 30 days)	$			2.50	April 30, 2015
General Service 50 to 999 kW					
Service Charge (Based on 30 day month)	$	35.80	April 30, 2015		
Smart Meter Funding Adder	$	0.68	April 30, 2014		
2011 Unfunded Capex Rate Rider - MFC (per 30 days)	$			1.26	April 30, 2015
2012 IRM Rate Rider - MFC (per 30 days)	$			0.11	April 30, 2015
2012 and 2013 - ICM Rate Adder - MFC (per 30 days)	$			3.65	April 30, 2015
General Service 1,000 to 4,999 kW					
Service Charge (Based on 30 day month)	$	691.13	April 30, 2015		
Smart Meter Funding Adder	$	0.68	April 30, 2014		
2011 Unfunded Capex Rate Rider - MFC (per 30 days)	$			24.39	April 30, 2015
2012 IRM Rate Rider - MFC (per 30 days)	$			2.11	April 30, 2015
2012 and 2013 - ICM Rate Adder - MFC (per 30 days)	$			70.51	April 30, 2015
Large Use > 5000 kW					
Service Charge (Based on 30 day month)	$	3029.57	April 30, 2015		
Smart Meter Funding Adder	$	0.68	April 30, 2014		
2011 Unfunded Capex Rate Rider - MFC (per 30 days)	$			106.92	April 30, 2015
2012 IRM Rate Rider - MFC (per 30 days)	$			9.25	April 30, 2015
2012 and 2013 - ICM Rate Adder - MFC (per 30 days)	$			309.08	April 30, 2015
Unmetered Scattered Load					
Service Charge (Based on 30 day month)	$	4.87	April 30, 2015		
2011 Unfunded Capex Rate Rider - MFC (per 30 days)	$			0.17	April 30, 2015
2012 IRM Rate Rider - MFC (per 30 days)	$			0.01	April 30, 2015
2012 and 2013 - ICM Rate Adder - MFC (per 30 days)	$			0.50	April 30, 2015
Sentinel Lighting					
Service Charge (per connection)	$	0.49	April 30, 2015		
2011 Unfunded Capex Rate Rider - MFC (per connection/ 30 days)	$			0.02	April 30, 2015
2012 IRM Rate Rider - MFC (per connection/30 days)	$			0.00	April 30, 2015
2012 and 2013 - ICM Rate Adder - MFC (per connection/30 days)	$			0.05	April 30, 2015
Street Lighting					
Service Charge (Based on 30 day month)	$	1.31	April 30, 2015		
2011 Unfunded Capex Rate Rider - MFC (per connection/ 30 days)	$			0.05	April 30, 2015
2012 IRM Rate Rider - MFC (per connection/30 days)	$			0.00	April 30, 2015
2012 and 2013 - ICM Rate Adder - MFC (per connection/30 days)	$			0.14	April 30, 2015
Standby - General Service 50 - 1,000 kW					
Service Charge (Based on 30 day month)	$	199.26	April 30, 2015		
	$				
	$				
	$				
Standby - General Service 1,000 - 5,000 kW					
Service Charge (Based on 30 day month)	$	199.26	April 30, 2015		
	$				
	$				
	$				
Standby - Large Use					
Service Charge (Based on 30 day month)	$	199.26	April 30, 2015		
	$				
	$				
	$				

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Below is a listing of the current Distribution Volumetric Rates other than the base rates. All rates with expired effective dates have been removed. In columns "B", "K", and "M" (green cells), please enter all additional volumetric rates you are proposing (eg: LRAM/SSM, Tax Adjustments, etc.). Please ensure that the word "Rider" or "Adder" is included in the description (as applicable).

Rate Description	Unit	Amount	Effective Until Date	Proposed Amount	Effective Until Date
Residential					
0					
0	0				
0	0				
2011 Unfunded Capex Rate Rider - DVR	$/kWh			0.00054	April 30, 2015
2012 IRM Rate Rider - DVR	$/kWh			0.00005	April 30, 2015
2012 ICM Rate Adder - DVR	$/kWh			0.00043	April 30, 2015
2013 ICM Rate Adder - DVR	$/kWh			0.00114	April 30, 2015
Residential Urban					
2011 Unfunded Capex Rate Rider - DVR	$/kWh			0.00092	April 30, 2015
2012 IRM Rate Rider - DVR	$/kWh			0.00008	April 30, 2015
2012 ICM Rate Adder - DVR	$/kWh			0.00073	April 30, 2015
2013 ICM Rate Adder - DVR	$/kWh			0.00194	April 30, 2015
Shared Tax Savings Rate Rider - DVR	$/kWh			-0.00010	April 30, 2014
General Service Less Than 50 kW					
2011 Unfunded Capex Rate Rider - DVR	$/kWh			0.00081	April 30, 2015
2012 IRM Rate Rider - DVR	$/kWh			0.00007	April 30, 2015
2012 ICM Rate Adder - DVR	$/kWh			0.00064	April 30, 2015
2013 ICM Rate Adder - DVR	$/kWh			0.00170	April 30, 2015
General Service 50 to 999 kW					
2011 Unfunded Capex Rate Rider - DVR	$/kVA			0.19880	April 30, 2015
2012 IRM Rate Rider - DVR	$/kVA			0.01720	April 30, 2015
2012 ICM Rate Adder - DVR	$/kVA			0.15800	April 30, 2015
2013 ICM Rate Adder - DVR	$/kVA			0.41680	April 30, 2015
Shared Tax Savings Rate Rider - DVR	$/kVA			-0.00670	April 30, 2014
General Service 1,000 to 4,999 kW					
2011 Unfunded Capex Rate Rider - DVR	$/kVA			0.15810	April 30, 2015
2012 IRM Rate Rider - DVR	$/kVA			0.01370	April 30, 2015
2012 ICM Rate Adder - DVR	$/kVA			0.12560	April 30, 2015
2013 ICM Rate Adder - DVR	$/kVA			0.33140	April 30, 2015
Shared Tax Savings Rate Rider - DVR	$/kVA			-0.00560	April 30, 2014
Large Use > 5000 kW					
2011 Unfunded Capex Rate Rider - DVR	$/kVA			0.16840	April 30, 2015
2012 IRM Rate Rider - DVR	$/kVA			0.01460	April 30, 2015
2012 ICM Rate Adder - DVR	$/kVA			0.13380	April 30, 2015
2013 ICM Rate Adder - DVR	$/kVA			0.35310	April 30, 2015
Shared Tax Savings Rate Rider - DVR	$/kVA			-0.00590	April 30, 2014
Unmetered Scattered Load					
2011 Unfunded Capex Rate Rider - DVR	$/kWh			0.00219	April 30, 2015
2012 IRM Rate Rider - DVR	$/kWh			0.00019	April 30, 2015
2012 ICM Rate Adder - DVR	$/kWh			0.00174	April 30, 2015
2013 ICM Rate Adder - DVR	$/kWh			0.00458	April 30, 2015

Shared Tax Savings Rate Rider - DVR	$/kWh	-0.00010	April 30, 2014

Sentinel Lighting

Street Lighting

2011 Unfunded Capex Rate Rider - DVR	$/kVA	1.02060	April 30, 2015
2012 IRM Rate Rider - DVR	$/kVA	0.08830	April 30, 2015
2012 ICM Rate Adder - DVR	$/kVA	0.81100	April 30, 2015
2013 ICM Rate Adder - DVR	$/kVA	2.13950	April 30, 2015
Shared Tax Savings Rate Rider - DVR	$/kVA	-0.04250	April 30, 2014

Standby - General Service 50 - 1,000 kW

Standby - General Service 1,000 - 5,000 kW

Standby - Large Use

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Current RTSR-Network Rates are listed below. In column "K", please enter your proposed RTSR-Network Rates as per Sheet 13 of the Board's RTSR Workform.

Rate Description	Unit	Current Amount	% Adjustment	Proposed Amount
Residential				
Retail Transmission Rate – Network Service Rate	$/kWh	0.00703	14.794%	0.00807
Residential Urban				
Retail Transmission Rate – Network Service Rate	$/kWh	0.00703	14.794%	0.00807
General Service Less Than 50 kW				
Retail Transmission Rate – Network Service Rate	$/kWh	0.00680	14.706%	0.00780
General Service 50 to 999 kW				
Retail Transmission Rate – Network Service Rate	$/kW	2.43510	14.767%	2.79470
General Service 1,000 to 4,999 kW				
Retail Transmission Rate – Network Service Rate	$/kW	2.35270	14.770%	2.70020
Large Use > 5000 kW				
Retail Transmission Rate – Network Service Rate	$/kW	2.68200	14.769%	3.07810
Unmetered Scattered Load				
Retail Transmission Rate – Network Service Rate	$/kWh	0.00428	14.720%	0.00491
Sentinel Lighting				
Street Lighting				
Retail Transmission Rate – Network Service Rate	$/kW	2.16580	14.771%	2.48570
Standby - General Service 50 - 1,000 kW				
Standby - General Service 1,000 - 5,000 kW				
Standby - Large Use				

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Current RTSR-Connection Rates are listed below. In column "K", please enter your proposed RTSR-Connection Rates as per Sheet 13 of the Board's RTSR Workform.

Rate Description	Unit	Current Amount	% Adjustment	Proposed Amount
Residential				
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00513	9.395%	0.00561
Residential Urban				
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00513	9.395%	0.00561
General Service Less Than 50 kW				
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00463	9.395%	0.00506
General Service 50 to 999 kW				
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	1.76300	9.395%	1.92864
General Service 1,000 to 4,999 kW				
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	1.76130	9.395%	1.92678
Large Use > 5000 kW				
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	1.95670	9.395%	2.14053
Unmetered Scattered Load				
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kWh	0.00324	9.395%	0.00354
Sentinel Lighting				
Street Lighting				
Retail Transmission Rate – Line and Transformation Connection Service Rate	$/kW	2.10220	9.395%	2.29970
Standby - General Service 50 - 1,000 kW				
Standby - General Service 1,000 - 5,000 kW				
Standby - Large Use				

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If applicable, please enter any adjustments related to the revenue to cost ratio model into columns H and K.
The Price Escalator has been set at the 2011 values and will be updated by Board staff. The Stretch Factor Value will also be updated by Board staff.

Price Escalator 2.00% **Productivity Factor** 0.72% **Price Cap Index** 0.68%

Choose Stretch Factor Group III **Associated Stretch Factor Value** 0.6%

Rate Description	Unit	Current MFC	MFC Adjustment from R/C Model	Current Volumetric Charge	Unit	DVR Adjustment from R/C Model	Price Cap Index	Proposed MFC	Proposed Volumetric Charge
Residential	$	18.37		0.01517	$/kWh		0.680%	18.50	0.01527
Residential Urban	$	17.12		0.02582	$/kWh		0.680%	17.23	0.02600
General Service Less Than 50 kW	$	24.47		0.02262	$/kWh		0.680%	24.63	0.02277
General Service 50 to 999 kW	$	35.80		5.63370	$/kVA		0.680%	36.05	5.67201
General Service 1,000 to 4,999 kW	$	691.13		4.48000	$/kVA		0.680%	695.83	4.51046
Large Use > 5000 kW	$	3,029.57		4.77280	$/kVA		0.680%	3,050.17	4.80526
Unmetered Scattered Load	$	4.87		0.06110	$/kWh		0.680%	4.91	0.06152
Sentinel Lighting	$	0.49					0.680%	0.50	
Street Lighting	$	1.31		28.92010	$/kVA		0.680%	1.32	29.11676
Standby - General Service 50 - 1,000 kW	$	199.26		5.63370	$/kVA		0.680%	200.61	5.67201
Standby - General Service 1,000 - 5,000 kW	$	199.26		4.48000	$/kVA		0.680%	200.61	4.51046
Standby - Large Use	$	199.26		4.77280	$/kVA		0.680%	200.61	4.80526

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Please enter the descriptions of the current Loss Factors from your most recent Board-Approved Tariff of Rates and Charges by using the drop-down menu in the column labeled "Loss Factors". If the description is not found in the drop-down menu, please enter the description in the green cells under the correct classes.

Loss Factors	Current
Total Loss Factor – Secondary Metered Customer < 5,000 kW	1.0376
Total Loss Factor – Secondary Metered Customer > 5,000 kW	1.1087
Distribution Loss Factor - Primary Metered Customer < 5,000 kW	1.0272
Distribution Loss Factor - Primary Metered Customer > 5,000 kW	1.0085

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**The standard Allowance rates have been included as default entries. If you have different rates, please make the appropriate corrections in the g
As well, please enter the current Specific Service Charges below. The standard Retail Service Charges have been entered below. If you have diff
please make the appropriate corrections in columns B, D or E as applicable (cells are unlocked).**

ALLOWANCES

	UNIT	CURRENT
Transformer Allowance for Ownership - per kVA of billing demand/30 days	$/kVA	(0.62)
Primary Metering Allowance for transformer losses – applied to measured demand and energy	%	(1.00)

SPECIFIC SERVICE CHARGES

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule

No charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

It should be noted that this schedule does not list any charges, assessments, or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, charges for the Ministry of Energy Conservation and Renewable Energy Program, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

Customer Administration

	UNIT	CURRENT
Duplicate invoices for previous billing	$	15.00
Easement letter	$	15.00
Income tax letter	$	15.00
Request for other billing information	$	15.00
Account set up charge/change of occupancy charge (plus credit agency costs if applicable)	$	30.00
Returned cheque charge (plus bank charges)	$	15.00
Special meter reads	$	30.00
Meter dispute charge plus Measurement Canada fees (if meter found correct)	$	30.00

Non-Payment of Account

Late Payment - per month	%	1.50
Late Payment - per annum	%	19.56
Collection of account charge - no disconnection	$	30.00
Disconnect/Reconnect at meter - during regular hours	$	65.00
Disconnect/Reconnect at meter - after regular hours	$	185.00
Disconnect/Reconnect at pole - during regular hours	$	185.00
Disconnect/Reconnect at pole - after regular hours	$	415.00

Other

Install/Remove load control device - during regular hours	$	65.00
Install/Remove load control device - after regular hours	$	185.00
Specific Charge for Access to the Power Poles $/pole/year	$	22.35
Specific Charge for Access to the Power Poles $/pole/year	$	18.55
Specific Charge for Access to the Power Poles $/pole/year	$	-22.75

Residential	2012 Interim			2013			Impact	
	Volume	Rate $	Charge $	Volume	Rate $	Charge $	Change $	Change %
Service Charge (per 30 days)	1	18.25	18.25	1	18.50	18.50	0.25	1.4%
Distribution	800	0.01520	12.16	800	0.01527	12.22	0.06	0.5%
Smart Meter Rider (per 30 days)	1	0.68	0.68	1	0.68	0.68	-	0.0%
LRAM Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011/12 Rate Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - Global Adjustment - RPP	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011 Rate Rider	-	-	-	-	-	-	-	n/a
Contact Voltage	-	-	-	-	-	-	-	n/a
Late Payment Penalty	1	0.24	0.24	-	-	-	(0.24)	-100.0%
Foregone Revenue Rate Rider - fixed rate	-	-	-	-	-	-	-	n/a
Foregone Revenue Rate Rider - variable rate	-	-	-	-	-	-	-	n/a
2011 Unfunded Capex Rate Rider - MFC	-	-	-	1	0.65	0.65	0.65	n/a
2011 Unfunded Capex Rate Rider - DVR	-	-	-	800	0.00054	0.43	0.43	n/a
Shared Tax Savings Rate Rider - DVR	-	-	-	800	-	-	-	n/a
2012 Foregone IRM Rate Rider - MFC	-	-	-	1	0.06	0.06	0.06	n/a
2012 Foregone IRM Rate Rider - DVR	-	-	-	800	0.00005	0.04	0.04	n/a
2012 ICM Rate Adder - MFC	-	-	-	1	0.52	0.52	0.52	n/a
2012 ICM Rate Adder - DVR	-	-	-	800	0.00043	0.34	0.34	n/a
2013 ICM Rate Adder - MFC	-	-	-	1	1.36	1.36	1.36	n/a
2013 ICM Rate Adder - DVR	-	-	-	800	0.00114	0.91	0.91	n/a
Deferral/Variance Account Rate Rider	-	-	-	800	(0.00043)	(0.34)	(0.34)	n/a
Sub Total A - Distribution			31.33			35.37	4.04	12.9%
RTST - Network	830	0.00703	5.84	830	0.00807	6.70	0.86	14.8%
RTSR - Connection	830	0.00513	4.26	830	0.00561	4.66	0.40	9.4%
Sub Total B (including Sub-Total A) - Distribution			41.42			46.73	5.30	12.8%
Wholesale Market Rate	830	0.0052	4.32	830	0.0052	4.32	-	0.0%
RRRP	830	0.0011	0.91	830	0.0011	0.91	-	0.0%
DRC	800	0.0070	5.60	800	0.0070	5.60	-	0.0%
Standard Supply Service Charge	1	0.25	0.25	1	0.25	0.25	-	0.0%
SPC	830	-	-	830	-	-	-	n/a
Cost of Power Commodity - 1st Tier (May 1st 2010)	600	0.075	45.00	600	0.075	45.00	-	0.0%
Cost of Power Commodity - 2nd Tier (May 1st 2010)	230	0.088	20.25	230	0.088	20.25	-	0.0%
Total Bill (including Sub-Total B)			117.75			123.05	5.30	4.5%

	kWh
Consumption Details	**800**
Total Loss Factor	1.0376

Competitive Sector Multi-Unit Residential	2012 Interim			2013			Impact	
	Volume	Rate $	Charge $	Volume	Rate $	Charge $	Change $	Change %
Service Charge (per 30 days)	1	18.25	18.25	1	17.23	17.23	(1.02)	-5.6%
Distribution	334	0.01520	5.08	334	0.02600	8.68	3.61	71.1%
Smart Meter Rider (per 30 days)	1	0.68	0.68	1	0.68	0.68	-	0.0%
LRAM Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011/12 Rate Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - Global Adjustment - RPP	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011 Rate Rider	-	-	-	-	-	-	-	n/a
Contact Voltage	-	-	-	-	-	-	-	n/a
Late Payment Penalty	1	0.24	0.24	-	-	-	(0.24)	-100.0%
Foregone Revenue Rate Rider - fixed rate	-	-	-	-	-	-	-	n/a
Foregone Revenue Rate Rider - variable rate	-	-	-	-	-	-	-	n/a
2011 Unfunded Capex Rate Rider - MFC	-	-	-	1	0.60	0.60	0.60	n/a
2011 Unfunded Capex Rate Rider - DVR	-	-	-	334	0.00092	0.31	0.31	n/a
Shared Tax Savings Rate Rider - DVR	-	-	-	334	(0.00010)	(0.03)	(0.03)	n/a
2012 Foregone IRM Rate Rider - MFC	-	-	-	1	0.05	0.05	0.05	n/a
2012 Foregone IRM Rate Rider - DVR	-	-	-	334	0.00008	0.03	0.03	n/a
2012 ICM Rate Adder - MFC	-	-	-	1	0.48	0.48	0.48	n/a
2012 ICM Rate Adder - DVR	-	-	-	334	0.00073	0.24	0.24	n/a
2013 ICM Rate Adder - MFC	-	-	-	1	1.27	1.27	1.27	n/a
2013 ICM Rate Adder - DVR	-	-	-	334	0.00194	0.65	0.65	n/a
Deferral/Variance Account Rate Rider	-	-	-	334	(0.00047)	(0.16)	(0.16)	n/a
Sub Total A - Distribution			24.25			30.03	5.78	23.8%
RTST - Network	347	0.00703	2.44	347	0.00807	2.80	0.36	14.8%
RTSR - Connection	347	0.00513	1.78	347	0.00561	1.94	0.17	9.4%
Sub Total B (including Sub-Total A) - Distribution			28.46			34.77	6.31	22.2%
Wholesale Market Rate	347	0.0052	1.80	347	0.0052	1.80	-	0.0%
RRRP	347	0.0011	0.38	347	0.0011	0.38	-	0.0%
DRC	334	0.0070	2.34	334	0.0070	2.34	-	0.0%
Standard Supply Service Charge	1	0.25	0.25	1	0.25	0.25	-	0.0%
SPC	347	-	-	347	-	-	-	n/a
Cost of Power Commodity - 1st Tier (May 1st 2010)	347	0.075	25.99	347	0.075	25.99	-	0.0%
Cost of Power Commodity - 2nd Tier (May 1st 2010)	-	0.088	-	-	0.088	-	-	n/a
Total Bill (including Sub-Total B)			59.22			65.53	6.31	10.7%

	kWh
Consumption Details	**334**
Total Loss Factor	1.0376

GS < 50 kW	2012 Interim			2013			Impact	
	Volume	Rate $	Charge $	Volume	Rate $	Charge $	Change $	Change %
Service Charge (per 30 days)	1	24.30	24.30	1	24.63	24.63	0.33	1.4%
Distribution	2,000	0.02247	44.94	2,000	0.02277	45.54	0.60	1.3%
Smart Meter Rider (per 30 days)	1	0.68	0.68	1	0.68	0.68	-	0.0%
LRAM Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011/12 Rate Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - Global Adjustment - RPP	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011 Rate Rider	-	-	-	-	-	-	-	n/a
Contact Voltage	-	-	-	-	-	-	-	n/a
Late Payment Penalty	1	$0.69	0.69	-	-	-	(0.69)	-100.0%
Foregone Revenue Rate Rider - fixed rate	-	-	-	-	-	-	-	n/a
Foregone Revenue Rate Rider - variable rate	-	-	-	-	-	-	-	n/a
2011 Unfunded Capex Rate Rider - MFC	-	-	-	1	0.86	0.86	0.86	n/a
2011 Unfunded Capex Rate Rider - DVR	-	-	-	2,000	0.00081	1.62	1.62	n/a
Shared Tax Savings Rate Rider - DVR	-	-	-	-	-	-	-	n/a
2012 Foregone IRM Rate Rider - MFC	-	-	-	1	0.07	0.07	0.07	n/a
2012 Foregone IRM Rate Rider - DVR	-	-	-	2,000	0.00007	0.14	0.14	n/a
2012 ICM Rate Adder - MFC	-	-	-	1	0.69	0.69	0.69	n/a
2012 ICM Rate Adder - DVR	-	-	-	2,000	0.00064	1.28	1.28	n/a
2013 ICM Rate Adder - MFC	-	-	-	1	1.81	1.81	1.81	n/a
2013 ICM Rate Adder - DVR	-	-	-	2,000	0.00170	3.40	3.40	n/a
Deferral/Variance Account Rate Rider	-	-	-	2,000	(0.00032)	(0.64)	(0.64)	n/a
Sub Total A - Distribution			70.61			80.08	9.47	13.4%
RTST - Network	2,075	0.00680	14.11	2,075	0.00780	16.19	2.08	14.7%
RTSR - Connection	2,075	0.00463	9.61	2,075	0.00506	10.50	0.89	9.3%
Sub Total B (including Sub-Total A) - Distribution			94.33			106.77	12.44	13.2%
Wholesale Market Rate	2,075	0.0052	10.79	2,075	0.0052	10.79	-	0.0%
RRRP	2,075	0.0011	2.28	2,075	0.0011	2.28	-	0.0%
DRC	2,000	0.0070	14.00	2,000	0.0070	14.00	-	0.0%
Standard Supply Service Charge	1	0.25	0.25	1	0.25	0.25	-	0.0%
Special Purpose Charge	2,075	-	-	2,075	-	-	-	n/a
Cost of Power Commodity - 1st Tier (May 1st 2010)	750	0.075	56.25	750	0.075	56.25	-	0.0%
Cost of Power Commodity - 2nd Tier (May 1st 2010)	1,325	0.088	116.62	1,325	0.088	116.62	-	0.0%
Total Bill (including Sub-Total B)			294.52			306.96	12.44	4.2%

	kWh
Consumption Details	**2,000**
Total Loss Factor	1.0376

GS > 50 < 1000	2012 Interim			2013			Impact	
	Volume	Rate $	Charge $	Volume	Rate $	Charge $	Change $	Change %
Service Charge (per 30 days)	1	35.56	35.56	1	36.05	36.05	0.49	1.4%
Distribution	388	5.5956	2,171.09	388	5.6720	2,200.74	29.64	1.4%
Smart Meter Rider (per 30 days)	1	0.68	0.68	1	0.68	0.68	-	0.0%
LRAM Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011/12 Rate Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - Global Adjustment - Non RPP	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011 Rate Rider	-	-	-	-	-	-	-	n/a
Contact Voltage	-	-	-	-	-	-	-	n/a
Late Payment Penalty	1	$8.37	8.37	-	-	-	(8.37)	-100.0%
Foregone Revenue Rate Rider - fixed rate	-	-	-	-	-	-	-	n/a
Foregone Revenue Rate Rider - variable rate	-	-	-	-	-	-	-	n/a
2011 Unfunded Capex Rate Rider - MFC	-	-	-	1	1.26	1.26	1.26	n/a
2011 Unfunded Capex Rate Rider - DVR	-	-	-	388	0.1988	77.13	77.13	n/a
Shared Tax Savings Rate Rider - DVR	-	-	-	388	(0.0067)	(2.60)	(2.60)	n/a
2012 Foregone IRM Rate Rider - MFC	-	-	-	1	0.11	0.11	0.11	n/a
2012 Foregone IRM Rate Rider - DVR	-	-	-	388	0.0172	6.67	6.67	n/a
2012 ICM Rate Adder - MFC	-	-	-	1	1.00	1.00	1.00	n/a
2012 ICM Rate Adder - DVR	-	-	-	388	0.1580	61.30	61.30	n/a
2013 ICM Rate Adder - MFC	-	-	-	1	2.65	2.65	2.65	n/a
2013 ICM Rate Adder - DVR	-	-	-	388	0.4168	161.72	161.72	n/a
Deferral/Variance Account Rate Rider	-	-	-	388	(0.0539)	(20.91)	(20.91)	n/a
Sub Total A - Distribution			2,215.70			2,525.80	310.10	14.0%
RTST - Network	349	2.4351	849.85	349	2.7947	975.35	125.50	14.8%
RTSR - Connection	349	1.7630	615.29	349	1.9286	673.08	57.79	9.4%
Sub Total B (including Sub-Total A) - Distribution			3,680.84			4,174.24	493.40	13.4%
Wholesale Market Rate	155,640	0.0052	809.33	155,640	0.0052	809.33	-	0.0%
RRRP	155,640	0.0011	171.20	155,640	0.0011	171.20	-	0.0%
DRC	150,000	0.0070	1,050.00	150,000	0.0070	1,050.00	-	0.0%
Standard Supply Service Charge	1	0.25	0.25	1	0.25	0.25	-	0.0%
Special Purpose Charge	155,640	-	-	155,640	-	-	-	n/a
Cost of Power Commodity - 1st Tier (May 1st 2010)	750	0.075	56.25	750	0.075	56.25	-	0.0%
Cost of Power Commodity - 2nd Tier (May 1st 2010)	154,890	0.088	13,630.32	154,890	0.088	13,630.32	-	0.0%
Total Bill (including Sub-Total B)			19,398.19			19,891.59	493.40	2.5%

	kWh	kW	kVA	Hours Use	PF	Net/Conn
Consumption Details	150,000	349	388	430	90%	100%
Total Loss Factor	1.0376					

GS > 1000 < 5000	2012 Interim			2013			Impact	
	Volume	Rate $	Charge $	Volume	Rate $	Charge $	Change $	Change %
Service Charge (per 30 days)	1	686.46	686.46	1	695.83	695.83	9.37	1.4%
Distribution	1,778	4.4497	7,911.57	1,778	4.5105	8,019.67	108.10	1.4%
Smart Meter Rider (per 30 days)	1	0.68	0.68	1	0.68	0.68	-	0.0%
LRAM Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011/12 Rate Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - Global Adjustment - Non RPP	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011 Rate Rider	-	-	-	-	-	-	-	n/a
Contact Voltage	-	-	-	-	-	-	-	n/a
Late Payment Penalty	1.00	$69.81	69.81	-	-	-	(69.81)	-100.0%
Foregone Revenue Rate Rider - fixed rate	-	-	-	-	-	-	-	n/a
Foregone Revenue Rate Rider - variable rate	-	-	-	-	-	-	-	n/a
2011 Unfunded Capex Rate Rider - MFC	-	-	-	1	24.39	24.39	24.39	n/a
2011 Unfunded Capex Rate Rider - DVR	-	-	-	1,778	0.1581	281.10	281.10	n/a
Shared Tax Savings Rate Rider - DVR	-	-	-	1,778	(0.0056)	(9.96)	(9.96)	n/a
2012 Foregone IRM Rate Rider - MFC	-	-	-	1	2.11	2.11	2.11	n/a
2012 Foregone IRM Rate Rider - DVR	-	-	-	1,778	0.0137	24.36	24.36	n/a
2012 ICM Rate Adder - MFC	-	-	-	1	19.38	19.38	19.38	n/a
2012 ICM Rate Adder - DVR	-	-	-	1,778	0.1256	223.32	223.32	n/a
2013 ICM Rate Adder - MFC	-	-	-	1	51.13	51.13	51.13	n/a
2013 ICM Rate Adder - DVR	-	-	-	1,778	0.3314	589.23	589.23	n/a
Deferral/Variance Account Rate Rider	-	-	-	1,778	(0.0421)	(74.85)	(74.85)	n/a
Sub Total A - Distribution			8,668.52			9,846.38	1,177.87	13.6%
RTST - Network	1,600	2.3527	3,764.32	1,600	2.7002	4,320.32	556.00	14.8%
RTSR - Connection	1,600	1.7613	2,818.08	1,600	1.9268	3,082.88	264.80	9.4%
Sub Total B (including Sub-Total A) - Distribution			15,250.92			17,249.58	1,998.67	13.1%
Wholesale Market Rate	830,080	0.0052	4,316.42	830,080	0.0052	4,316.42	-	0.0%
RRRP	830,080	0.0011	913.09	830,080	0.0011	913.09	-	0.0%
DRC	800,000	0.0070	5,600.00	800,000	0.0070	5,600.00	-	0.0%
Standard Supply Service Charge	1	0.25	0.25	1	0.25	0.25	-	0.0%
Special Purpose Charge	830,080	-	-	830,080	-	-	-	n/a
Cost of Power Commodity - 1st Tier (May 1st 2010)	750	0.075	56.25	750	0.075	56.25	-	0.0%
Cost of Power Commodity - 2nd Tier (May 1st 2010)	829,330	0.088	72,981.04	829,330	0.088	72,981.04	-	0.0%
Total Bill (including Sub-Total B)			99,117.96			101,116.63	1,998.67	2.0%

	kWh	kW	kVA	Hours Use	PF	Net/Conn
Consumption Details	800,000	1,600	1,778	500	90%	100%

Total Loss Factor	1.0376

LU	2012 Interim			2013			Impact	
	Volume	Rate $	Charge $	Volume	Rate $	Charge $	Change $	Change %
Service Charge (per 30 days)	1	3,009.11	3,009.11	1	3,050.17	3,050.17	41.06	1.4%
Distribution	9,434	4.7406	44,722.82	9,434	4.8053	45,333.20	610.38	1.4%
Smart Meter Rider (per 30 days)	1	0.68	0.68	1	0.68	0.68	-	0.0%
LRAM Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011/12 Rate Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - Global Adjustment - Non RPP	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011 Rate Rider	-	-	-	-	-	-	-	n/a
Contact Voltage	-	-	-	-	-	-	-	n/a
Late Payment Penalty	1	$304.62	304.62	1	-	-	(304.62)	-100.0%
Foregone Revenue Rate Rider - fixed rate	-	-	-	-	-	-	-	n/a
Foregone Revenue Rate Rider - variable rate	-	-	-	-	-	-	-	n/a
2011 Unfunded Capex Rate Rider - MFC	-	-	-	1	106.92	106.92	106.92	n/a
2011 Unfunded Capex Rate Rider - DVR	-	-	-	9,434	0.1684	1,588.69	1,588.69	n/a
Shared Tax Savings Rate Rider - DVR	-	-	-	9,434	(0.0059)	(55.66)	(55.66)	n/a
2012 Foregone IRM Rate Rider - MFC	-	-	-	1	9.25	9.25	9.25	n/a
2012 Foregone IRM Rate Rider - DVR	-	-	-	9,434	0.0146	137.74	137.74	n/a
2012 ICM Rate Adder - MFC	-	-	-	1	84.96	84.96	84.96	n/a
2012 ICM Rate Adder - DVR	-	-	-	9,434	0.1338	1,262.27	1,262.27	n/a
2013 ICM Rate Adder - MFC	-	-	-	1	224.12	224.12	224.12	n/a
2013 ICM Rate Adder - DVR	-	-	-	9,434	0.3531	3,331.15	3,331.15	n/a
Deferral/Variance Account Rate Rider	-	-	-	9,434	(0.0437)	(412.27)	(412.27)	n/a
Sub Total A - Distribution			48,037.23			54,661.21	6,623.98	13.8%
RTST - Network	8,491	2.6820	22,772.86	8,491	3.0781	26,136.15	3,363.29	14.8%
RTSR - Connection	8,491	1.9567	16,614.34	8,491	2.1405	18,174.99	1,560.65	9.4%
Sub Total B (including Sub-Total A) - Distribution			87,424.43			98,972.34	11,547.91	13.2%
Wholesale Market Rate	4,584,150	0.0052	23,837.58	4,584,150	0.0052	23,837.58	-	0.0%
RRRP	4,584,150	0.0011	5,042.57	4,584,150	0.0011	5,042.57	-	0.0%
DRC	4,500,000	0.0070	31,500.00	4,500,000	0.0070	31,500.00	-	0.0%
Standard Supply Service Charge	1	0.25	0.25	1	0.25	0.25	-	0.0%
Special Purpose Charge	4,584,150	-	-	4,584,150	-	-	-	n/a
Cost of Power Commodity - 1st Tier (May 1st 2010)	750	0.075	56.25	750	0.075	56.25	-	0.0%
Cost of Power Commodity - 2nd Tier (May 1st 2010)	4,583,400	0.088	403,339.20	4,583,400	0.088	403,339.20	-	0.0%
Total Bill (including Sub-Total B)			551,200.28			562,748.19	11,547.91	2.1%
	kWh	**kW**	**kVA**	**Hours Use**	**PF**	**Net/Conn**		
Consumption Details	4,500,000	8,491	9,434	530	90%	100%		
Total Loss Factor	1.0187							

Street Lights	2012 Interim			2013			Impact	
	Volume	Rate $	Charge $	Volume	Rate $	Charge $	Change $	Change %
Connection Charge	162,353	1.30	211,059.44	162,353	1.32	214,306.51	3,247.07	1.5%
Distribution	25,755	28.7248	739,807.22	25,755	29.1168	749,903.18	10,095.96	1.4%
Regulatory Assets - 2011/12 Rate Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - Global Adjustment - RPP	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011 Rate Rider	-	-	-	-	-	-	-	n/a
Contact Voltage	-	-	-	-	-	-	-	n/a
Late Payment Penalty	162,353	$0.04	6,494.14	-	-	-	(6,494.14)	-100.0%
Foregone Revenue Rate Rider - fixed rate	-	-	-	-	-	-	-	n/a
Foregone Revenue Rate Rider - variable rate	-	-	-	-	-	-	-	n/a
2011 Unfunded Capex Rate Rider - MFC	-	-	-	162,353	0.05	8,117.67	8,117.67	n/a
2011 Unfunded Capex Rate Rider - DVR	-	-	-	25,755	1.0206	26,285.55	26,285.55	n/a
Shared Tax Savings Rate Rider - DVR	-	-	-	25,755	(0.0425)	(1,094.59)	(1,094.59)	n/a
2012 Foregone IRM Rate Rider - MFC	-	-	-	162,353	-	-	-	n/a
2012 Foregone IRM Rate Rider - DVR	-	-	-	25,755	0.0883	2,274.17	2,274.17	n/a
2012 ICM Rate Adder - MFC	-	-	-	162,353	0.04	6,494.14	6,494.14	n/a
2012 ICM Rate Adder - DVR	-	-	-	25,755	0.8110	20,887.31	20,887.31	n/a
2013 ICM Rate Adder - MFC	-	-	-	162,353	0.10	16,235.34	16,235.34	n/a
2013 ICM Rate Adder - DVR	-	-	-	25,755	2.1395	55,102.82	55,102.82	n/a
Deferral/Variance Account Rate Rider	-	-	-	25,755	(0.3877)	(9,985.21)	(9,985.21)	n/a
Sub Total A - Distribution			957,360.80			1,088,526.89	131,166.09	13.7%
RTST - Network	25,755	2.1658	55,780.18	25,755	2.4857	64,019.20	8,239.02	14.8%
RTSR - Connection	25,755	2.1022	54,142.16	25,755	2.2997	59,228.77	5,086.61	9.4%
Sub Total B (including Sub-Total A) - Distribution		-	1,067,283.14		-	1,211,774.87	144,491.72	13.5%
Wholesale Market Rate	9,620,365	0.0052	50,025.90	9,620,365	0.0052	50,025.90	-	0.0%
RRRP	9,620,365	0.0011	10,582.40	9,620,365	0.0011	10,582.40	-	0.0%
DRC	9,271,748	0.0070	64,902.23	9,271,748	0.0070	64,902.23	-	0.0%
Standard Supply Service Charge	1	0.25	0.25	1	0.25	0.25	-	0.0%
Special Purpose Charge	9,620,365	-	-	9,620,365	-	-	-	n/a
Cost of Power Commodity - 1st Tier (May 1st 2010)	750	0.075	56.25	750	0.075	56.25	-	0.0%
Cost of Power Commodity - 2nd Tier (May 1st 2010)	9,619,615	0.088	846,526.14	9,619,615	0.088	846,526.14	-	0.0%
Total Bill (including Sub-Total B)			2,039,376.31			2,183,868.04	144,491.72	7.1%

	kWh	Connections	kW	KVA	**Hours Use**	**PF**	**Net/Conn**
Consumption Details	9,271,747.50	162,353	25,755	25,755.00	360	100%	100%
Total Loss Factor	1.0376						

USL	2012 Interim			2013			Impact	
	Volume	Rate $	Charge $	Volume	Rate $	Charge $	Change $	Change %
Service Charge (per 30 days)	1	4.84	4.84	1	4.91	4.91	0.07	1.4%
Connection Charge	1	0.49	0.49	1	0.50	0.50	0.01	2.0%
Distribution	365	0.06070	22.16	365	0.06152	22.45	0.30	1.4%
LRAM Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011/12 Rate Rider	-	-	-	-	-	-	-	n/a
Regulatory Assets - Global Adjustment - RPP	-	-	-	-	-	-	-	n/a
Regulatory Assets - 2011 Rate Rider	-	-	-	-	-	-	-	n/a
Contact Voltage	-	-	-	-	-	-	-	n/a
Late Payment Penalty	1	0.09	0.09	-	-	-	(0.09)	-100.0%
Foregone Revenue Rate Rider - fixed rate - customer	-	-	-	-	-	-	-	n/a
Foregone Revenue Rate Rider - variable rate - connection	-	-	-	-	-	-	-	n/a
Foregone Revenue Rate Rider - variable rate	-	-	-	-	-	-	-	n/a
2011 Unfunded Capex Rate Rider - MFC	-	-	-	1	0.17	0.17	0.17	n/a
2011 Unfunded Capex Rate Rider - MFC (Connection)	-	-	-	1	0.02	0.02	0.02	n/a
2011 Unfunded Capex Rate Rider - DVR	-	-	-	365	0.00219	0.80	0.80	n/a
Shared Tax Savings Rate Rider - DVR	-	-	-	365	(0.00010)	(0.04)	(0.04)	n/a
2012 Foregone IRM Rate Rider - MFC	-	-	-	1	0.01	0.01	0.01	n/a
2012 Foregone IRM Rate Rider - MFC (Connection)	-	-	-	1	-	-	-	n/a
2012 Foregone IRM Rate Rider - DVR	-	-	-	365	0.00019	0.07	0.07	n/a
2012 ICM Rate Adder - MFC	-	-	-	1	0.14	0.14	0.14	n/a
2012 ICM Rate Adder - MFC (Connection)	-	-	-	1	0.01	0.01	0.01	n/a
2012 ICM Rate Adder - DVR	-	-	-	365	0.00174	0.64	0.64	n/a
2013 ICM Rate Adder - MFC	-	-	-	1	0.36	0.36	0.36	n/a
2013 ICM Rate Adder - MFC (Connection)	-	-	-	1	0.04	0.04	0.04	n/a
2013 ICM Rate Adder - DVR	-	-	-	365	0.00458	1.67	1.67	n/a
Deferral/Variance Account Rate Rider	-	-	-	365	(0.00088)	(0.32)	(0.32)	n/a
Sub Total A - Distribution			27.58			31.43	3.86	14.0%
RTST - Network	379	0.00428	1.62	379	0.00491	1.86	0.24	14.7%
RTSR - Connection	379	0.00324	1.23	379	0.00354	1.34	0.11	9.3%
Sub Total B (including Sub-Total A) - Distribution			30.42			34.63	4.21	13.8%
Wholesale Market Rate	379	0.0052	1.97	379	0.0052	1.97	-	0.0%
RRRP	379	0.0011	0.42	379	0.0011	0.42	-	0.0%
DRC	365	0.0070	2.56	365	0.0070	2.56	-	0.0%
Standard Supply Service Charge	1	0.25	0.25	1	0.2500	0.25	-	0.0%
Special Purpose Charge	-	-	-	-	-	-	-	n/a
Cost of Power Commodity - 1st Tier (May 1st 2010)	379	0.075	28.40	379	0.075	28.40	-	0.0%
Cost of Power Commodity - 2nd Tier (May 1st 2010)	-	0.088	-	-	0.088	-	-	n/a
Total Bill (including Sub-Total B)			64.02			68.23	4.21	6.6%

	Kwh	Customer	Connection
Consumption Details	365	1	1
Total Loss Factor	1.0376		

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

2012 IRM - LOST REVENUE RATE RIDER

Rate Class	Re-based Billed Customers or Connections	Re-based Billed kWh	Re-based Billed kVa	Service Charge	Distribution Volumetric Rate kWh	Distribution Volumetric Rate kVa	Service Charge Revenue	Distribution Volumetric Rate Revenue kWh	Distribution Volumetric Rate Revenue kVa	Revenue Requirement from Rates
	A	B	C	D	E	F	G = A * D * 11	H = B * E	I = C * F	J = G + H + I
	2011 Approved Load Forecast - 11 Months			**2011 Approved Rates**			**11 Months Revenue at 2011 Rates**			
Residential	598,508	4,525,698,913		18.25	0.01507		120,150,481	68,202,283	0	188,352,764
Residential Urban	24,898	91,475,252		17.00	0.02565		4,655,926	2,346,340	0	7,002,266
General Service Less Than 50 kW	65,792	1,973,588,444		24.30	0.02247		17,586,243	44,346,532	0	61,932,776
General Service 50 to 999 kW	13,067		24,760,210	35.56		5.5956	5,111,111	0	138,548,230	143,659,342
General Service 1,000 to 4,999 kW	514		9,712,360	686.46		4.4497	3,881,245	0	43,217,088	47,098,333
Large Use - Regular	47		4,583,464	3,009.11		4.7406	1,555,710	0	21,728,369	23,284,079
Street Lighting	162,777		295,192	1.30		28.7248	2,327,712	0	8,479,335	10,807,047
Unmetered Scattered Load	1,130	51,545,620		4.84	0.06070		60,143	3,128,819	0	3,188,962
Unmetered Scattered Load	21,729			0.49			117,120	0	0	117,120
							155,445,691	118,023,974	211,973,023	**485,442,688**
	2011 Approved Load Forecast - 11 Months			**2012 IRM Rates** (2011 Rates * IRM Price Cap Index)			**11 Months Revenue at 2012 IRM Rates**			
Residential	598,508	4,525,698,913		18.37	0.01517		120,967,504	68,666,058	0	189,633,562
Residential Urban	24,898	91,475,252		17.12	0.02582		4,687,586	2,362,295	0	7,049,882
General Service Less Than 50 kW	65,792	1,973,588,444		24.47	0.02262		17,705,830	44,648,089	0	62,353,918
General Service 50 to 999 kW	13,067		24,760,210	35.80		5.6337	5,145,867	0	139,490,358	144,636,225
General Service 1,000 to 4,999 kW	514		9,712,360	691.13		4.4800	3,907,637	0	43,510,965	47,418,602
Large Use - Regular	47		4,583,464	3,029.57		4.7728	1,566,289	0	21,876,122	23,442,411
Street Lighting	162,777		295,192	1.31		28.9201	2,343,540	0	8,536,995	10,880,535
Unmetered Scattered Load	1,130	51,545,620		4.87	0.06111		60,552	3,150,095	0	3,210,647
Unmetered Scattered Load	21,729			0.49			117,916	0	0	117,916
							156,502,722	118,826,537	213,414,440	**488,743,699**
2012 IRM Price Cap Index	**0.680%**									

Rate Class	2011 Approved Load Forecast - 12 Months (A)	(B)	(C)	Revenue at 2012 IRM rates less Revenue at 2011 rates (G)	(H)	(I)	(J)	Rate Rider - 24 months Recovery (DOS): Service Charge	Distribution Volumetric Rate kWh	Distribution Volumetric Rate kVa
Residential	598,508	4,886,977,489		$ 817,023	$ 463,776	$ -	$ 1,280,799	$ 0.06	$ 0.00005	
Residential Urban	24,898	99,791,184		$ 31,660	$ 15,955	$ -	$ 47,615	$ 0.05	$ 0.00008	
General Service Less Than 50 kW	65,792	2,139,318,076		$ 119,586	$ 301,556	$ -	$ 421,143	$ 0.07	$ 0.00007	
General Service 50 to 999 kW	13,067		26,935,191	$ 34,756	$ -	$ 942,128	$ 976,884	$ 0.11		$ 0.0172
General Service 1,000 to 4,999 kW	514		10,587,119	$ 26,392	$ -	$ 293,876	$ 320,269	$ 2.11		$ 0.0137
Large Use - Regular	47		4,993,733	$ 10,579	$ -	$ 147,753	$ 158,332	$ 9.25		$ 0.0146
Street Lighting	162,777		322,023	$ 15,828	$ -	$ 57,659	$ 73,488	$ 0.00		$ 0.0883
Unmetered Scattered Load	1,130	56,231,585		$ 409	$ 21,276	$ -	$ 21,685	$ 0.01	$ 0.00019	
Unmetered Scattered Load	21,729			$ 796	$ -	$ -	$ 796	$ 0.00		
				$ 1,057,031	$ 802,563	$ 1,441,417	**$ 3,301,010**			

INCREMENTAL CAPITAL MODULE

THESL seeks the Board's approval for incremental revenue requirements of $10.1 million, $39.9 million ~~and $13.5 million~~ for the years 2012, 2013 ~~and 2014~~, respectively, to be recovered from customers through fixed and variable rate class specific rate adders over the applicable calendar years commencing May 1 of 2013 ~~and 2014, respectively~~, related to non-discretionary, incremental capital investments. To the greatest extent possible, THESL request is in accordance with the Board's requirements for the Incremental Capital Module ("ICM") under its IRM plan. The proposed rate adders would result in an increase of approximately $3.13, ~~and $0.77~~, per month in an average residential customer's bill for 2013 ~~and 2014, respectively~~. **/UF, US** **/UF, US**

THESL's Proposed Capital Expenditures

A summary of THESL's proposed capital expenditures is provided in Appendix 1 to this schedule. This table shows the total level of proposed capital expenditures, including amounts below the materiality threshold, by Project and Project Segment for each year 2012-13.

Detailed Business Case descriptions of the proposed capital expenditures for each Segment are provided in Schedules B and C. Reviews by third party consultants of the Business Cases and THESL's approach to Asset Management are provided in Schedule D.

To determine the rate riders resulting from the proposed ICM capital expenditures, THESL has populated the ICM Workforms (E Schedules) using the details from the individual ICM Worksheets for each Segment (F Schedules), for each year.

Summary of Capital Program

			Cost Estimates ($M)				
Schedule Number	**Projects**	**Segments**	**2012 Forecast ***	**2013 Budget**	**2014**	**Total for 2012 and 2013 ****	
B1	Underground Infrastructure and Cable	Underground Infrastructure	28.75	58.94	~~74.92~~	87.70	/UF, US
B2		Paper Insulated Lead Covered Cable - Piece Outs and Leakers	0.08	5.42	~~1.47~~	5.50	/UF, US
B3		Handwell Replacement	13.65	16.65	~~7.17~~	30.30	/UF, US
B4	Overhead Infrastructure and Equipment	Overhead Infrastructure	9.07	55.88	~~20.11~~	64.95	/UF, US
B5		Box Construction	0.58	23.04	~~27.76~~	23.62	/UF, US
B6		Rear Lot Construction	16.36	29.43	~~11.03~~	45.78	/UF, US
B7		Polymer SMD-20 Switches	-	1.53	~~2.94~~	1.53	/UF, US
B8		SCADA-Mate R1 Switches	-	1.43	~~2.69~~	1.43	/UF, US
B9	Network Infrastructure and Equipment	Network Vault & Roofs	2.84	18.76	~~15.57~~	21.60	/UF, US
B10		Fibertop Network Units	1.48	7.71	~~9.36~~	9.19	/UF, US
B11		Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)	-	3.26	~~3.23~~	3.26	/UF, US
B12	Station Infrastructure and Equipment	Stations Power Transformers	0.38	3.48	~~0.87~~	3.86	/UF, US
B13.1 & 13.2		Stations Switchgear - Muncipal and Transformer Stations	1.73	21.81	~~20.31~~	23.54	/UF, US
B14		Stations Circuit Breakers	0.76	0.55	~~1.38~~	1.31	/UF, US
B15		Stations Control & Communicaton Systems	0.14	1.00	~~1.34~~	1.14	/UF, US
B16		Downtown Station Load Transfers	0.68	2.14	~~3.59~~	2.82	/UF, US
B17	Bremner TS	Bremner Transformer Station	8.50	81.00	~~23.02~~	89.50	/UF, US
B18	Hydro One Capital Contributions	Hydro One Capital Contributions	22.98	48.12	~~36.00~~	71.10	/UF, US
B19	Feeder Automation	Feeder Automation	2.30	20.66	~~7.38~~	22.97	/UF, US
B20	Metering	Metering	4.74	8.40	~~10.03~~	13.14	/UF, US
B21	Plant Relocations	Externally-Initiated Plant Relocations and Expansions	10.16	24.84	~~13.34~~	35.00	/UF, US
B22	Grid Solutions	Grid Solutions	-	-	~~0.96~~	-	/UF, US
C1	Operations Portfolio Capital		120.51	121.63	~~121.60~~	242.14	/UF, US
C2	Information Technology Capital		22.00	15.00	~~15.00~~	37.00	/UF, US
C3	Fleet Capital		0.80	2.00	~~2.00~~	2.80	/UF, US
C4	Buildings and Facilities Capital		5.00	5.00	~~5.00~~	10.00	/UF, US
	Allowance for Funds Used During Construction		1.20	1.40	~~1.40~~	2.60	/UF, US
Total			**274.68**	**579.09**	~~439.47~~	**853.78**	/UF, US

* The sum of actual spending to August 31, 2012 and estimated spending to year end.

** THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date.

II INFORMATION TECHNOLOGY CAPITAL

The Information Technology (IT) Capital Portfolio for 2012-2014 consists of required hardware asset replacements, application upgrades and 2011 carryover projects that need to be completed. The IT Capital Portfolio provides enabling technology to support critical business processes; Meter-to-Cash, Legal and Regulatory compliance, stakeholder reporting, as well as power delivery and restoration. A hardware asset failure due to end of life or a critical application failure due to lack of vendor support would result in substantial and prolonged disruption to THESL's operations and adversely impact customers. The IT Capital Portfolio is required to mitigate the risk to THESL's ability to reliably deliver power, restore outages, bill customers, and comply with Legal and Regulatory requirements including reporting.

Table 1 below summarizes THESL's planned spending by project for 2012-2014.

Table 1: Projects for 2012-2014 ($ M)

Project Name	2012	2013	~~2014~~
Corporate Applications Upgrade	1.09	1.12	~~0.45~~
Billing and Regulatory Compliance Systems Upgrade	3.62	2.75	~~2.14~~
Geospatial Information System & Outage Management System Upgrade	0.40	2.63	~~3.57~~
Information Technology Hardware Asset Replacement	5.74	8.51	~~8.85~~
2011 Carryover Projects	11.15	-	~~-~~
TOTAL	**22.00**	**15.00**	~~**15.00**~~

/UF

1. Corporate Applications Upgrade

THESL must upgrade its Financial Forecasting and Records Management systems to the most recent versions. The Financial Forecasting system is critical to THESL's financial processes such as capital/operational budgeting, financial consolidation and regulatory reporting. As part of THESL's legal and governance framework, the Records Management system is the official core repository of capital project artifacts including electrical drawings, standards, and Ontario

III FLEET CAPITAL

THESL's Fleet is currently composed of 693 units, including motorized vehicles (such as cars, pickups, and bucket trucks), and equipment (such as sweepers, backhoes and forklifts). The fleet capital spending proposed for 2012 to 2014 is to acquire new vehicles and equipment to replace those existing units that have reached the end of their service lives and where further repairs and maintenance would not be appropriate or cost effective. It is also intended to /UF include the purchase of on-vehicle equipment, such as rubber power line covers. /UF

Table 1 below outlines THESL's forecast of units requiring replacement, the type of replacement vehicle to be acquired and the pre-tax cost of replacement in 2012 and 2013, as well as the /UF forecasted cost of rubber power line covers required in the same years. The projected fleet /UF costs for 2012 are less than 10% of THESL's historic total fleet budget in recent years and those /UF for 2013 are roughly 20% of the said budget.

Table 1: Fleet Costs for 2012-2014

Vehicle Description	2012		2013		2014	
	Number	Cost	Number	Cost	Number	Cost
Car/Light Truck	5	0.14	-	-	-	-
Derrick	2	0.35	-	-	-	-
Forklift	1	0.11	-	-	-	-
Bucket Truck (Various Designs)	-	-	-	-	~~6~~	~~1.69~~
Cube Van	-	-	18	1.90	~~3~~	~~0.31~~
Vehicle Sub-Total	8	0.60	18	1.90	~~9~~	~~2.00~~
On-Vehicle Equipment						
Rubber Power Line Covers		0.20		0.10		~~-~~
Total		**0.80**		**2.00**		**2.00**

/UF

End-of-life vehicle replacement is non-discretionary and must occur during the test year period if THESL is to have the adequate number and quality of vehicles required to accomplish its distribution function. THESL's vehicle fleet must be safe, reliable and operate at reasonable cost. As a result, THESL must replace vehicles that exhibit one or more of the following conditions:

- are not consistently reliable and directly adversely impact THESL's ability to provide an acceptable level of reliable customer service;

work being performed on these assets. The consultant's report is provided in Tab 4, Schedule D6. In planning its Facilities capital plan, THESL relies on the recommendations and findings of these reports. THESL's planned spending on Facilities capital projects for 2012-2014 is less than half of actual historical spending in recent years, given that proposed expenditures are limited to the highest-priority, non-discretionary items only.

Table 1 below summarizes THESL planned spending by project. The details of each project are further summarized below.

Table 1: Buildings and Facilities Budget 2012-2014 ($ M)

Project Name	2012	2013	~~2014~~
14 Carlton Street	2.20	2.01	~~1.62~~
500 Commissioners Street	0.70	1.60	~~0.97~~
6 Monogram Place	0.13	0.13	~~0.11~~
60 Eglinton Ave W	0.13	0.02	~~-~~
601 Milner Avenue	0.13	0.12	~~0.40~~
Card Access Security System	1.70	1.02	~~1.90~~
Installation of Backflow Preventer	0.01	0.08	~~-~~
TOTAL	**5.00**	**5.00**	~~**5.00**~~

/US

1. 14 Carlton Street

Work at THESL's Head Office at 14 Carlton involves a number of priority maintenance initiatives, as well as several larger initiatives where THESL believes that further postponement and delay is not a viable option. Notably, THESL plans to refurbish the existing sixth floor to retrofit the cooling/heating fan coil units which are well past their life cycle and have started to fail. THESL cannot risk allowing multiple failures of these coils since accessing them would involve disturbing asbestos wrapping. The sixth floor also has a number of Asbestos Containing Materials which were an integral part of the building construction. In accordance with the OHSA and regulations, the Asbestos Containing Materials must be removed prior to any work being performed on these assets. THESL also plans to install a new drainage pipe in the building, to

ICM Project – Underground Infrastructure and Cable

Underground Infrastructure Segment

Toronto Hydro-Electric System Limited (THESL)

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $99.96 M to $87.7 M, a reduction of $12.26 M
- Revised number of jobs proposed for 2012/2013 to 27, with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Clarified the trend in outages due to direct buried cable by presenting the information in terms of outages per kilometre of direct buried cable remaining in the system. See Figure 1
- Corrected numerical and typographical errors

I EXECUTIVE SUMMARY

1. Project Description

This segment includes 27 discrete jobs to replace approximately $87.7 million of direct buried cable with cable in concrete-encased ducts, and air-insulated pad-mounted switchgear units with SF_6-insulated pad-mounted switchgear units in 2012~~,~~ and 2013~~, and 2014~~. The cost breakdown by year is $61.1 million in 2012~~,~~ and $26.6 million in 2013~~, and $74.92 million in 2014~~. The jobs address both direct buried cable and air-insulated pad-mounted switchgear units collectively, as this is the most efficient and cost-effective approach. Table 1 below lists the proposed jobs, in order of the number of unplanned sustained outages[1] experienced by the feeder in 2011 (with the exception of the last job in the table because it addresses a number of feeders). Each job is described in section II. /UF, US /UF, US

Table 1: List of jobs to be executed in 2012~~,~~ and 2013 ~~and 2014~~

Job Title	Year	Estimated Cost ($M)	
Underground Rehabilitation of Feeder NY80M29	2012, 2013	$2.90	
Underground Rehabilitation of Feeder SCNAR26M34	2012, 2013~~, 2014~~	$2.33	/US
Underground Rehabilitation of Feeder NY55M8	2013	$2.50	/UF, US
Underground Rehabilitation of Feeder YK35M10	2012	$2.32	/US
~~Underground Rehabilitation of Feeder SCNT63M4~~	~~2014~~	~~$3.16~~	
Underground Rehabilitation of Feeder SCNA47M14	2012, 2013	$4.43	
Underground Rehabilitation of Feeder NY51M6	2012	$2.91	/UF, US
~~Underground Rehabilitation of Feeder NY80M8~~	~~2014~~	~~$9.51~~	
~~Underground Rehabilitation of Feeder NY85M6~~	~~2014~~	~~$2.01~~	
Underground Rehabilitation of Feeder NY51M8	2013~~, 2014~~	$1.26	/US
Underground Rehabilitation of Feeder SCNA502M22	2012, 2013~~, 2014~~	$2.78	/UF, US

[1] A sustained outage is an outage lasting more than one minute.

ICM Project | Underground Infrastructure Segment

Job Title	Year	Estimated Cost ($M)	
Underground Rehabilitation of Feeder SCNAH9M30	2012~~, 2014~~	$0.84	/UF, US
Underground Rehabilitation of Feeder NY85M4	2013~~, 2014~~	$2.48	
Underground Rehabilitation of Feeder SCNA47M13	2012, ~~2013, 2014~~	$3.47	
Underground Rehabilitation of Feeder NY80M2	2012	$0.80	/UF
Underground Rehabilitation of Feeder NY51M7	2013	$1.13	
Underground Rehabilitation of Feeder NY51M24	2013~~, 2014~~	$3.21	/US
Underground Rehabilitation of Feeder NY80M30	2012	$4.07	/UF
~~Underground Rehabilitation of Feeder NY55M23~~	~~2014~~	~~$2.24~~	
~~Underground Rehabilitation of Feeder NY85M24~~	~~2014~~	~~$2.03~~	/US
Underground Rehabilitation of Feeder SCNAE5-2M3	2012	$1.51	
~~Underground Rehabilitation of Feeder NY85M7~~	~~2014~~	~~$13.83~~	
Underground Rehabilitation of Feeder SCNT63M12	2012, 2013~~, 2014~~	$7.68	/UF, /US
Underground Rehabilitation of Feeder SCNT63M8	2012, 2013~~, 2014~~	$5.05	
Underground Rehabilitation of Feeder SCNAE5-1M29	2012	$3.97	
Underground Rehabilitation of Feeder NY53M25	2013	$2.40	/US
~~Underground Rehabilitation of Feeder NY80M9~~	~~2014~~	~~$2.21~~	
Underground Rehabilitation of Feeder SCNT47M3	2012, 2013~~, 2014~~	$16.98	/UF, /US
~~Underground Rehabilitation of Feeder SCNAH9M23~~	~~2014~~	~~$2.71~~	
Underground Rehabilitation of Feeder NY51M3	2012, 2013,~~2014~~	$0.37	/UF, /US
Underground Rehabilitation of Feeder SCNA47M17	2012	$1.10	
Underground Rehabilitation of Feeder NY85M31	2013	$0.34	/UF
~~Underground Rehabilitation of Feeder SCNA502M21~~	~~2014~~	~~$2.56~~	
Underground Rehabilitation of Feeder SCNT47M1	2012, 2013~~, 2014~~	$6.63	/UF, /US
Underground Rehabilitation of Feeder NY55M21	2013	$1.51	/UF
Underground Rehabilitation of Feeders NY85M1, NY85M9 and NYSS58F1	2012, 2013	$2.66	/US
	Jobs Total	**$87.63**	
Reconciliation for job cost changes < $100,000 and rounding		**$ 0.07**	
	Reconciled Total	**$87.70**	

The number of sustained interruptions due to direct buried cable failures has exhibited a slightly decreasing trend since 2000, mainly due to the direct buried replacement projects that have been completed since 2007. However, the number of sustained interruptions (due to direct buried cable) per kilometer of direct buried cable remaining in the system has been increasing since 2007. This is illustrated in Figure 1, and highlights the need to continue to replace direct buried cable. Approximately 887 conductor kilometres of direct buried cable remain in THESL's system, representing approximately 7% of all underground primary cable in THESL's distribution grid. Of the 887 conductor kilometres, approximately 580 conductor kilometres require immediate attention.

/C

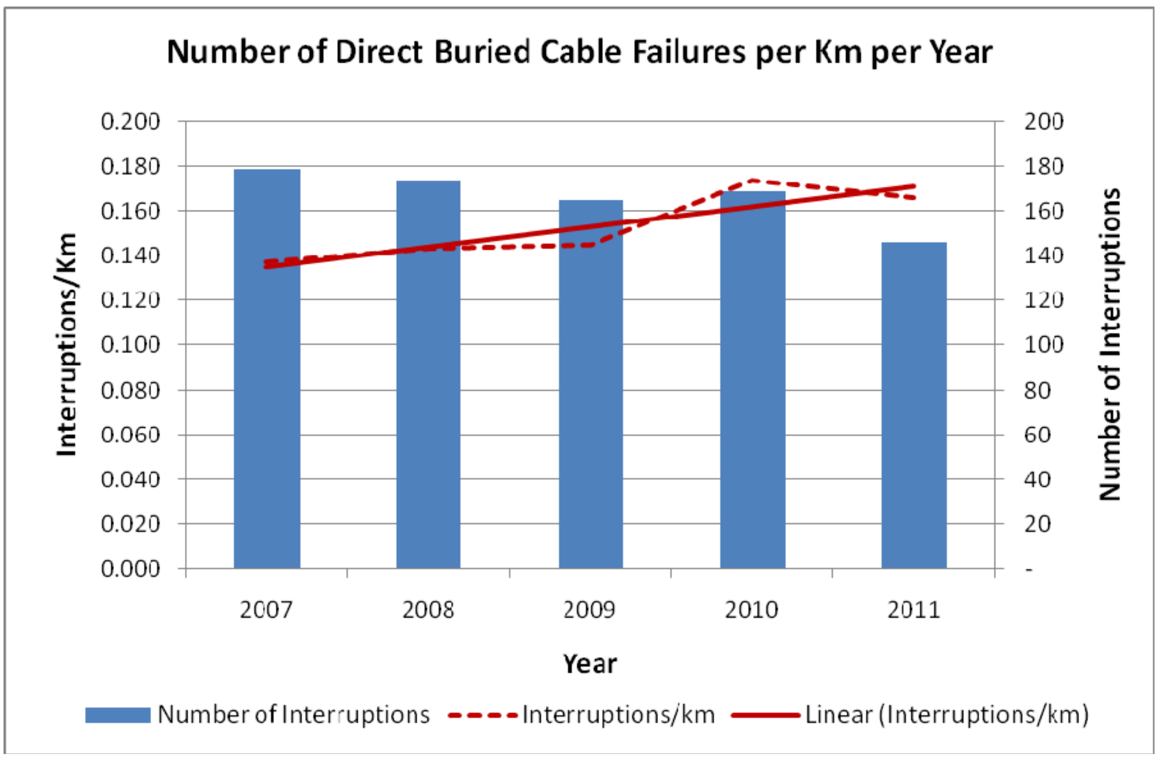


Figure 1: Number of sustained interruptions, attributed to direct buried cable failures, per kilometer of direct buried cable remaining in the system.

In 2011, Customers Interrupted (CI) and Customer Hours Interrupted (CHI) values for direct buried cables accounted for 57% and 43% respectively of the CI and CHI for the entire underground distribution system.

II DESCRIPTION OF WORK

Direct buried (DB) cross-linked polyethylene (XLPE) cables and air-insulated pad-mounted switches both represent critical assets within the underground distribution system. Both of these assets have been identified as carrying significant reliability and safety risks, inherent to past installation practices as well as overall design. Based on factors such as specific failure modes, safety incidents, reliability, and asset performance, it has been determined that approximately $87.7 million of underground infrastructure rehabilitation is required in 2012 and 2013~~to 2014~~ to address direct buried cable and air-insulated pad-mounted switchgear. /UF, US

As will be further discussed in later sections, direct buried XLPE cables are not only past their useful service life, but due to the specific method of installation (i.e., directly buried in the ground) these cables are experiencing hydrothermal aging and failing at a higher than anticipated rate. As detailed in section III below, direct buried cable failures have a significant impact on the reliability of THESL's grid.

Air-insulated pad-mounted switchgear units have also been failing at an accelerated rate. The design of these switchgear units allows for contamination and moisture to easily accumulate in the switching compartment, resulting in premature failure. These switchgear units present potential safety risks due to their live-front design and failure mode. The failure of an air-insulated pad-mounted switch can have a significant impact on reliability as these switches are often used to tie together multiple circuits. The most prudent solution, detailed below, is to replace air-insulated pad-mounted switchgear with SF_6-insulated pad-mounted switchgear.

The underground infrastructure rehabilitation jobs to replace direct buried cable and air-insulated distribution switchgear with cable in concrete-encased ducts and SF_6-insulated distribution switchgear, respectively, have been selected based on feeders experiencing the worst reliability. Each job, with the exception of one, targets the assets of one feeder (as indicated in the title of each job), thereby focusing on improving the condition and reliability of that feeder.

Table 4: Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
20043	E12206 NY80M29 Fenn/Foursome UG DB Rebuild Civil	2012	$1.28
19464	E12226 NY80M27/29 Yorkminster UG Tie Elec	2013	$0.54
20044	E12227 NY80M29 Fenn/Foursome UG DB Rebuild Elect	2012	$0.43
23241	E12656 UG Cable Replacement NY80M29 Harrison Garden West	2012	$0.49
23556	E12666 Phase 1 Reconfigure FESI 80M29 -Harrison Garden	2012	$0.16
		Total:	**$2.90**

/UF

2. Underground Rehabilitation of Feeder SCNAR26M34 (E11544, E12121, and E12153) /US

2.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder SCNAR26M34 in order to improve reliability of service and mitigate potential safety risks.

2.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 12

As evident from Table 5, this feeder has been experiencing increasingly poor reliability over the past three years. This poor reliability is partially due to failures of underground assets, including direct buried cable. This job rebuilds areas that have experienced underground asset failures.

ICM Project | **Underground Infrastructure Segment**

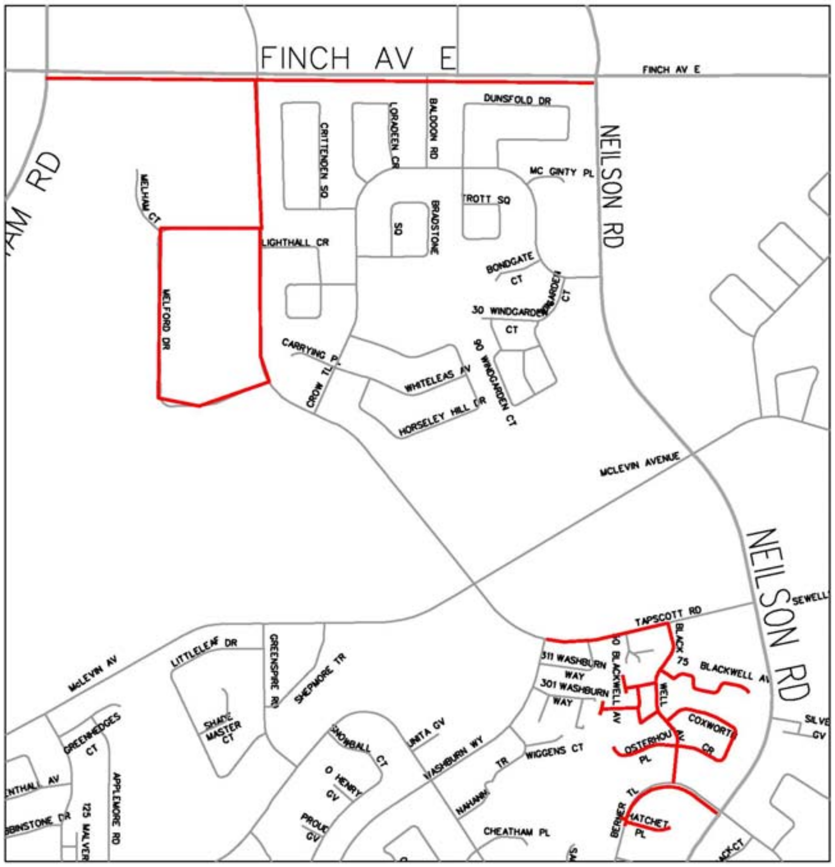


Figure 4: Map of Underground Rehabilitation of Feeder SCNAR26M34

2.5. Required Capital Costs

There are six phases to this job in 2012-2013 with a total estimated cost of $2.33M. **/US**

Table 5: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNAR26M34			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	1,183	9,101	7,560
Feeder CHI ***(Cumulative)***	7,221	5,567	14,616

2.3. Scope of Work

This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts, and new submersible transformers. Assets to be replaced include direct-buried cable and submersible transformers. /US

Table 6: Asset Replacement

Assets to be Replaced		New Assets to be Installed	
Primary Cable	8,250 m	Primary Cable	8,250 m
Submersible Transformers	18	Submersible Transformers	18
Air-insulated Pad-mounted Switchgear	4	SF_6-insulated Pad-mounted Switchgear	4

/US

2.4. Map and Locations

The assets being replaced by this job are located in the area bordered by Neilson Road to the east, Markham Road to the west, Finch Avenue East to the north, and Sheppard Avenue to the south. A map of the job area appears in Figure 4 below.

Table 7: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
24850	E11544 Rebuild Blackwell Coxworth UG (Civil)	2012	$1.38
24852	E12121 Rebuild Blackwell Coxworth UG (Electrical)	2013	$0.48
24500	E12153 Melford Distribution Feeder Transfer from R26M34	2012	$0.47
~~24149~~	~~E14321 Establish Neilson Tapscott R26M34 Main - Civil~~	~~2014~~	~~$1.06~~
~~24150~~	~~E14322 Establish Neilson Tapscott R26M34 Main - Electrical~~	~~2014~~	~~$0.54~~
		Total:	**$2.33**

/ US

3. Underground Rehabilitation of Feeder NY55M8 (W11385)

3.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY55M8 in order to improve reliability of service and mitigate potential safety risks.

3.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 12

As is evident from Table 8, the reliability of this feeder is poor. The majority of outages on this feeder are related to asset failures, and the majority of asset failures are underground asset failures.

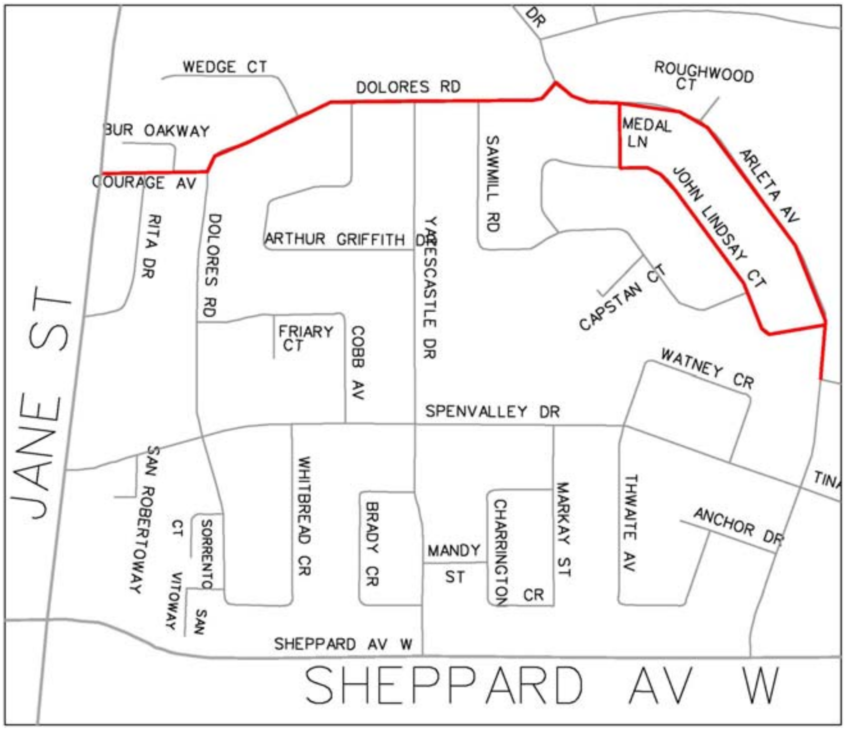


Figure 5: Map of Underground Rehabilitation of Feeder NY55M8

3.5. Required Capital Costs

Table 10: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
18585	W11385 FESI 55M8 Northwoods Sub UG Cable and Rebuild	2013	$2.50
		Total:	**$2.50**

/UF, US

4. Underground Rehabilitation of Feeder YK35M10 (X11444)

4.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder YK35M10 in order to improve reliability of service and mitigate potential safety risks.

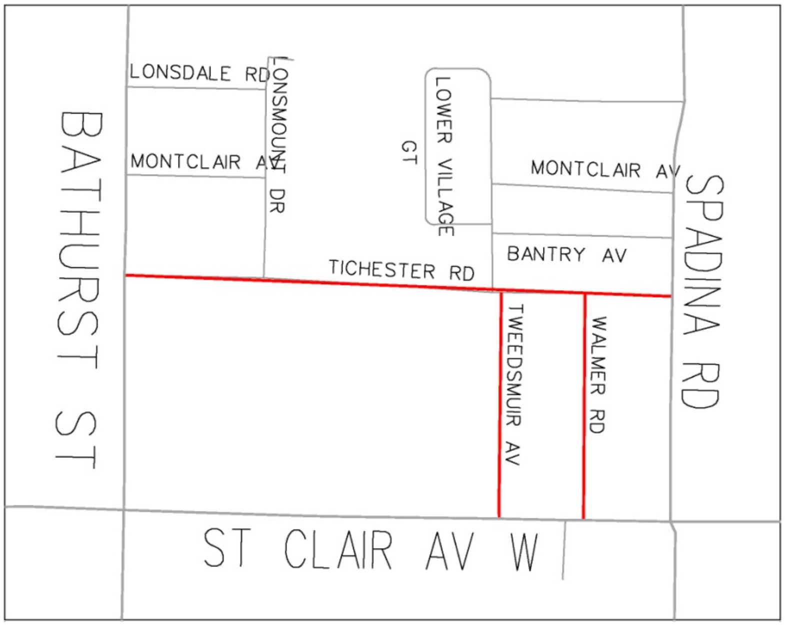


Figure 6: Map of Underground Rehabilitation of Feeder YK35M10

4.5. Required Capital Cost

Table 13: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
18675	Tichester and surrounding civil electrical enhancement 35M10/35M9	2012	$2.32
		Total:	**$2.32**

/UF

~~5. Underground Rehabilitation of Feeder SCNT63M4 (E14327, E14330)~~

~~5.1. Objective~~

~~The objective of this job is to proactively replace underground assets on the 27.6 kV feeder SCNT63M4 to improve reliability of service and mitigate potential safety risks.~~

5.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 10

Historically, the majority of asset related sustained outages on this feeder have been due to the failure of underground assets. Underground asset failures accounted for approximately 50% of the CI and CHI in 2011. Table 14 provides reliability data for this feeder for 2009, 2010 and 2011.

Table 14: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNT63M4			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	397	230	28,124
Feeder CHI ***(Cumulative)***	131	649	22,102

5.3. Scope of Work

This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts, new SF_6-insulated switchgear, and new submersible transformers. Assets to be replaced include direct-buried cable, air-insulated switchgear and submersible transformers.

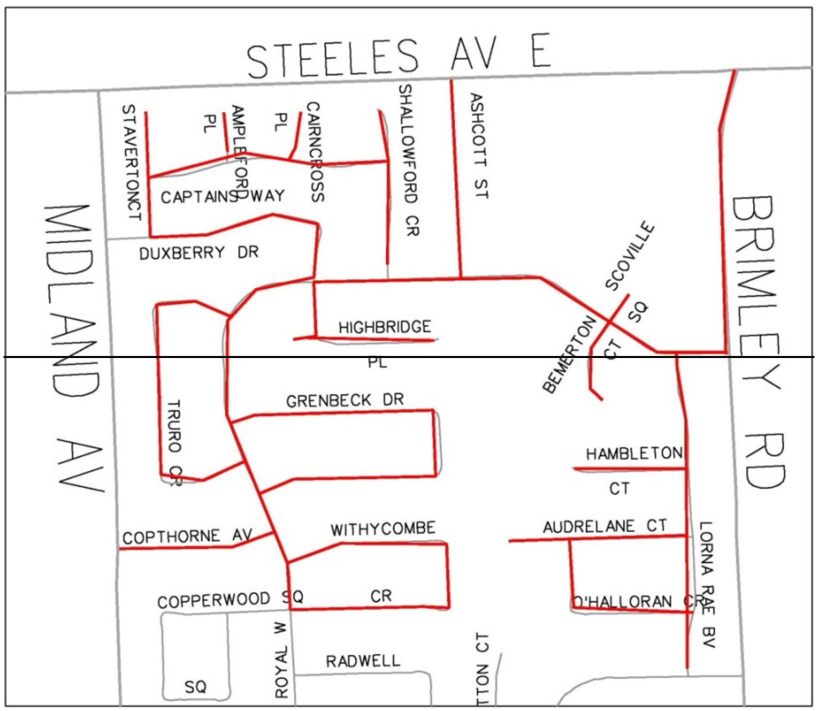
Table 15: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	13,750m	Primary Cable	13,750m
Submersible Transformers	1	Submersible Transformers	1
Air-insulated Pad-mounted Switchgear	7	SF_6-insulated Pad-mounted Switchgear	7
Air-insulated Vault-installed	4	SF_6-insulated Vault-installed	4

~~Switchgear~~		~~Switchgear~~	

~~5.4. Map and Locations~~

~~The assets being replaced by this job are located in the area bordered by Brimley Road to the east, Midland Avenue to the west, Steeles Avenue East to the north, and McNicoll Avenue to the south. A map of the job area appears in Figure 7 below.~~



~~Figure 7: Map of Underground Rehabilitation of Feeder SCNT63M4~~

~~5.5. Required Capital Costs~~

~~There are two phases to this job for a total estimated cost of $3.16M.~~

~~Table 16: Required Capital Costs~~

~~Job Estimate Number~~	~~Job Phase~~	~~Job Year~~	~~Estimated Cost ($M)~~
~~24224~~	~~E14327-P01 Port Royal N UG Reconfigure Main Civ Agincourt TS SCNT63M4~~	~~2014~~	~~$2.20~~
~~24225~~	~~E14330-P01 Port Royal N UG Reconfigure Main Elec Agincourt TS SCNT63M4~~	~~2014~~	~~$0.96~~
		~~**Total:**~~	~~**$3.16**~~

6. Underground Rehabilitation of Feeder SCNA47M14 (E12529, E12530, E13060, E13061, E13063 and E13064)

6.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder SCNA47M14 in order to improve reliability of service and mitigate potential safety risks.

6.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 10

This feeder has been experiencing increasingly poor reliability, with the majority of asset related sustained outages due to the failure of underground assets. Table 17 provides historical reliability data for this feeder.

Table 17: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNA47M14			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	4,076	14,227	11,491
Feeder CHI ***(Cumulative)***	3,365	7,658	7,586

Table 21: Asset Replacement

Assets to be Replaced		New Assets to be Installed	
Primary Cable	13,300 m	Primary Cable	13,300 m
Air-insulated Pad-mounted Switchgear	6	SF_6-insulated Pad-mounted Switchgear	6
Air-insulated Vault-installed Switchgear	12	SF_6-insulated Vault-installed Switchgear	12

7.4. Maps and Locations

The assets being replaced by this job are located along Leslie Street from Sheppard Avenue East to just north of Finch Avenue East. A map of the job area appears in Figure 9 below.

7.5. Required Capital Costs

There are two phases to this job for a total estimated cost of $2.91M. /UF

Table 22: Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)	
21551	E11593 FESI-12 NY51M6 Leslie/Nymark UG Cable Rehab Ph1	2012	$1.41	/UF
22424	E11592 FESI-12 NY51M6 Leslie/Nymark UG Cable Rehab Prt2	2012	$1.50	/UF, US
		Total:	**$2.91**	/UF

8. Underground Rehabilitation of Feeder NY80M8 (W12464, W14229, W14248)

8.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY80M8 in order to improve reliability of service and mitigate potential safety risks.

8.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 8

Table 23 provides historical reliability data for this feeder. While the table seems to indicate slightly improving reliability over the past three years, this feeder experienced a large number of unplanned sustained outages in 2011 – eight. Half of these unplanned sustained outages were due to failures related to underground primary cable.

Table 23: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY80M8			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	4,622	4,616	3,004
Feeder CHI ***(Cumulative)***	5,144	3,768	2,975

This job rebuilds an area that has experienced multiple direct buried cable failures.

8.3. Scope of Work

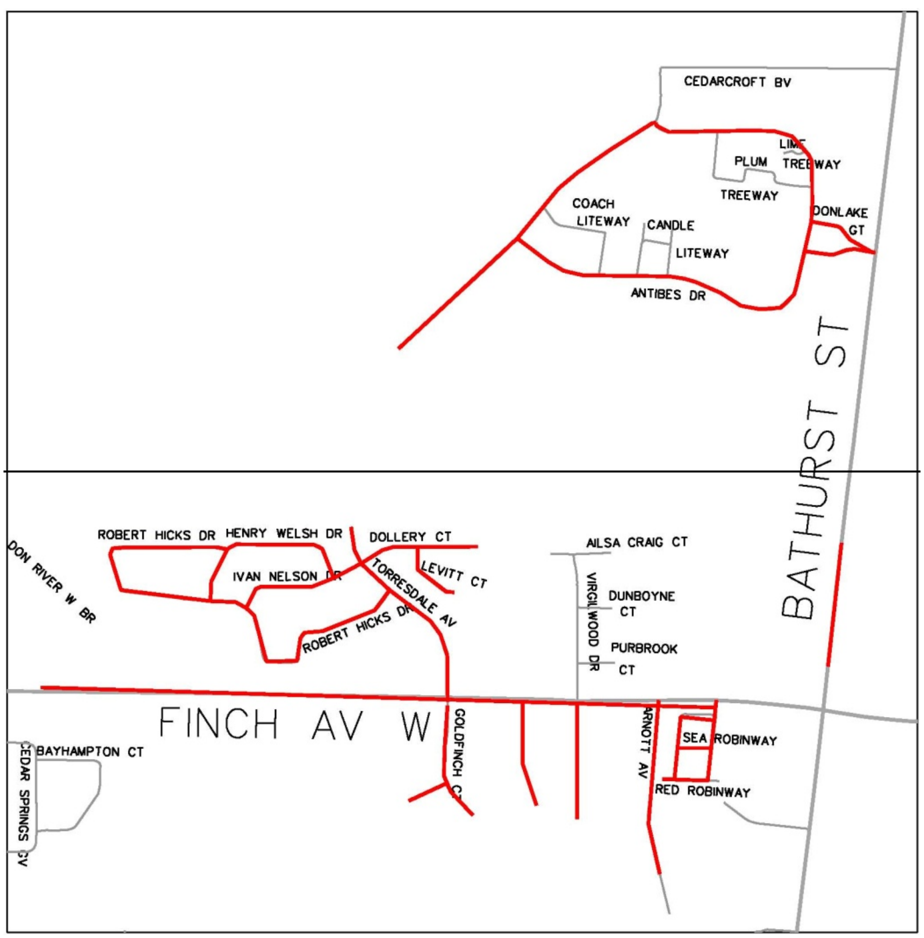
This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts, new SF_6-insulated switchgear, and new submersible transformers. Assets to be replaced include direct-buried cable, air-insulated switchgear and submersible transformers.

~~**Table 24: Asset Replacement**~~

~~**Assets to be Replaced**~~		~~**New Assets to be Installed**~~	
~~Primary Cable~~	~~11,000 m~~	~~Primary Cable~~	~~11,000 m~~
~~Submersible Transformers~~	~~18~~	~~Submersible Transformers~~	~~18~~
~~Air-insulated Pad-mounted Switchgear~~	~~1~~	~~SF_6-insulated Pad-mounted Switchgear~~	~~1~~

~~8.4. Maps and Locations~~

~~The assets being replaced by this job are located in the area northwest of the intersection of Bathurst Street and Finch Avenue West. A map of the job area appears in Figure 10 below.~~



~~**Figure 10: Map of Underground Rehabilitation of Feeder NY80M8**~~

~~8.5. Required Capital Costs~~

~~There are three phases to this job for a total estimated cost of $9.51M.~~

~~**Table 25: Capital Costs**~~

~~Job Estimate Number~~	~~Job Phase~~	~~Job Year~~	~~Estimated Cost ($M)~~
~~21262~~	~~W12464 FESI - UG Cable Rehab Antibes 80M2 and 80M8~~	~~2014~~	~~$1.27~~
~~23543~~	~~W14229 Finch/Torresdale and Robert Hicks Subdivision Civil~~	~~2014~~	~~$6.55~~
~~23446~~	~~W14248 Finch/Torresdale and Robert Hicks Subdivision Electrical~~	~~2014~~	~~$1.69~~
		~~**Total:**~~	~~**$9.51**~~

~~9. Underground Rehabilitation of Feeder NY85M6 (W14078, W14096)~~

~~9.1. Objective~~

~~The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY85M6 in order to improve reliability of service.~~

~~9.2. Historical Reliability Performance~~

~~Number of Unplanned Sustained Outages in 2011: 8~~

~~As is evident from Table 26, this feeder has been experiencing increasingly poor reliability.~~

Table 26: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY85M6			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	576	1,831	5,833
Feeder CHI ***(Cumulative)***	38	782	12,279

9.3. Scope of Work

This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts and new submersible transformers. Assets to be replaced include direct-buried cable and submersible transformers.

Table 27: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	7,400 m	Primary Cable	7,400 m
Submersible Transformers	4	Submersible Transformers	4

9.4. Maps and Locations

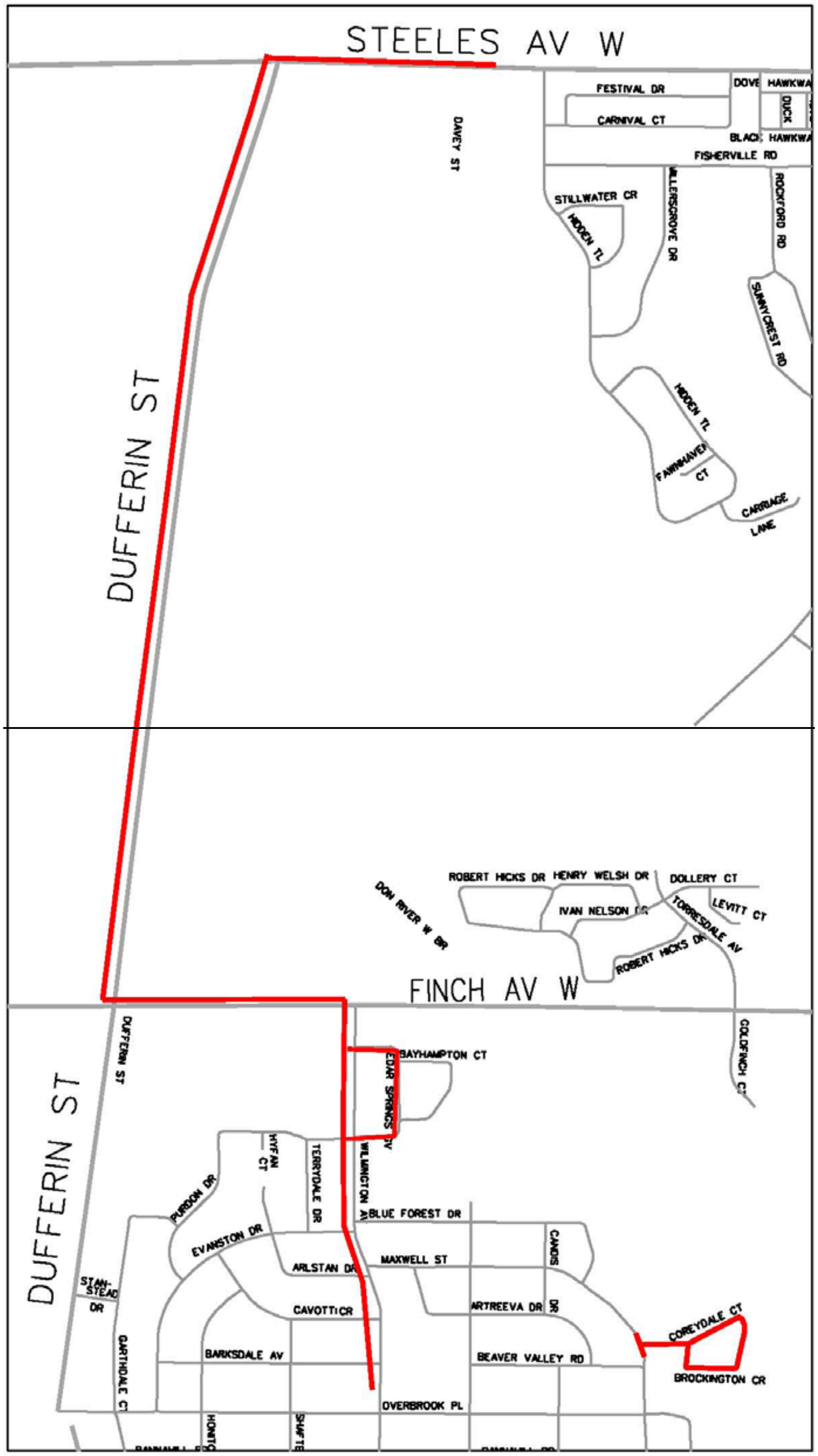
The assets being replaced by this job are located in the area bordered by Bathurst Street to the east, Dufferin Street to the west, Steeles Avenue West to the north, and Sheppard Avenue West to the south. A map of the job area appears in Figure 11 below.

9.5. Required Capital Costs

There are two phases to this job for a total of $2.01M.

1 ~~**Table 28: Capital Costs**~~

~~**Job Estimate Number**~~	~~**Job Phase**~~	~~**Job Year**~~	~~**Estimated Cost ($M)**~~
~~22865~~	~~W14078 UG lateral Cable Rehab Dufferin/Finch/Wilmington~~	~~2014~~	~~$0.83~~
~~22902~~	~~W14096 Coreydale/Brockington UG Residential Rebuild~~	~~2014~~	~~$1.18~~
		~~**Total:**~~	~~**$2.01**~~



~~**Figure 11: Map of Underground Rehabilitation of Feeder NY85M6**~~

10. Underground Rehabilitation of Feeder NY51M8 (E13078~~, E13077~~) /US

10.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY51M8 in order to improve reliability of service and mitigate potential safety risks.

10.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 8

Table 29 provides reliability data for this feeder. While total CI and CHI for the feeder have been decreasing since 2009, the number of sustained outages due to underground asset failures has been on the rise. Underground asset failures represented the majority of CI in 2009 and 2011.

Table 29: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY51M8			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	6,124	2,277	2,480
Feeder CHI ***(Cumulative)***	2,787	2,634	461

10.3. Scope of Work

This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts to replace old direct-buried cable.

Table 30: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	4,000 m	Primary Cable	4,000 m

10.5. Required Capital Costs

There is a single phase of this job in 2013 for a total estimated cost of $1.26M. /US

Table 31: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
21298	E13078 UG DB cable replacement between Leslie and Bayview - Civil NY51M8, NY51M6	2013	$1.26
~~21297~~	~~E13077 UG DB cable replacement between Leslie and Bayview - Electrical NY51M8, NY51M6~~	~~2014~~	~~$0.32~~
		Total	**$1.26**

/US

11. Underground Rehabilitation of Feeder SCNA502M22 (E11072, E12256, E12259, E13037, E13124~~, E14009~~) /US

11.1. Objective

The objective of this job is to proactively replace underground assets on the 27.6 kV feeder SCNA502M22 to improve reliability of service and mitigate potential safety risks.

11.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 7

As is evident from Table 32, this feeder has been experiencing very poor reliability. This job addresses previous direct buried cable failures that have contributed to the poor reliability of this feeder.

11.5. Required Capital Costs

There are five phases to this job in 2012-2013 for a total estimated cost of $2.78M. /UF, US

Table 34: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
20948	Bridletowne NA502M22 UG Replacement SCNA502M22 (Elec)	2012	$0.18
20261	E12256 Bridletowne Cable Replacement SCNA502M22 - Electrical	2012	$0.34
20263	E12259 Bridletowne Cable Replacement SCNA502M22 – Civil	2012	$1.09
24683	E13037 2501-61 Bridletowne UG 502M22 Rebuild Electrical SCNA502M22	2013	$0.16
21589	E13124 Rebuild Orange File SD 502M22 UG-Civil	2013	$1.01
~~21591~~	~~E14009 Rebuild Orange File SD 502M22 UG-Electrical~~	~~2014~~	~~$0.25~~
		Total:	**$2.78**

/UF, US (rows 20261–20263)
/US (row 24683)
/UF, US (Total)

12. Underground Rehabilitation of Feeder SCNAH9M30 (E12188, E12348, ~~E13011, E14190, E14191~~) /US

12.1. Objective

The objective of this job is to proactively replace underground assets on the 27.6 kV feeder SCNAH9M30 to improve reliability of service and mitigate potential safety risks.

12.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 7

12.5. Required Capital Costs

There are two phases to this job in 2012 for a total estimated cost of $0.84M. /UF, US

Table 37: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
20001	E12188 H9M30 435 Markam Rd TH UG Rehab	2012	$0.36
20520	E12348 H9M30 UG Rebuild Muir Dr - Golf Club - Civil SCNAH9M30	2012	$0.48
~~20525~~	~~E13011 H9M30 UG Rebuild Muir Dr - Golf Club - Electrical SCNAH9M30~~	~~2014~~	~~$0.36~~
~~23297~~	~~E14190 UG Rebuild H9M30 Kingston Mason - Civil~~	~~2014~~	~~$1.72~~
~~23300~~	~~E14191 UG Rebuild H9M30 Kingston Mason - Electrical~~	~~2014~~	~~$0.67~~
		Total:	**$0.84**

/UF, US
/US
/UF, US

13. Underground Rehabilitation of Feeder NY85M4 (~~W13239,~~ W13278~~, W14153, W14154, W14155~~) /US

13.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY85M4 in order to improve reliability of service and mitigate potential safety risks.

13.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 7

Table 38 presents historical reliability data for this feeder. While there is a drop in CI and CHI in 2010, the overall trend is worsening reliability.

Table 38: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY85M4			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	524	26	2,862
Feeder CHI ***(Cumulative)***	129	84	6,235

This job addresses direct buried cable failures that have occurred on this feeder.

13.3. Scope of Work

This job replaces both civil and electrical assets. It installs 10,800 m of new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts to replace direct-buried cable. Of the assets shown in Table 39, 3,700 m of primary cable as well as all of the submersible transformers and SF_6-insulated switchgear will be installed in future years, however, the civil work for the installation of these electrical assets is part of this job. /US

Table 39: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	14,500 m	Primary Cable	14,500 m
Submersible Transformers	30	Submersible Transformers	30
Air-insulated Vault-installed Switchgear	3	SF_6-insulated Vault-installed Switchgear	3

Table 40: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)	
				/US
22715	W13278 Northview Heights Civil Rebuild	2013	$2.48	
~~23258~~	~~W14153 UG Rebuild and Cable Replacement Whitehorse/Kodiak~~	~~2014~~	~~$0.51~~	
~~23313~~	~~W14154 Lateral Cable Replacement Dufferin/Finch/Toro~~	~~2014~~	~~$1.30~~	
~~23330~~	~~W14155 Lateral Cable Replacement Chesswood/Champagne~~	~~2014~~	~~$1.50~~	
		Total:	**$2.48**	/US

14. Underground Rehabilitation of Feeder SCNA47M13 (E12209, E12228, E12275, ~~E12276,~~ E13014~~ and E13015~~) /US

14.1. Objectives

The objective of this job is to proactively replace underground assets on 27.6 kV feeder SCNA47M13 in order to improve reliability of service and mitigate potential safety risks.

14.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 6

As is clear from Table 41, this feeder has been experiencing increasingly worsening reliability. This is partially due to failures of underground assets, including direct buried cable.

Table 41: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNA47M13			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	4,889	10,328	17,600
Feeder CHI ***(Cumulative)***	2,653	11,821	12,499

14.3. Scope of Work

This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts and new submersible transformers. Assets to be replaced include direct-buried cable and submersible transformers.

Table 42: Asset Replacement

Assets to be Replaced		New Assets to be Installed	
Primary Cable	11,600 m	Primary Cable	11,600 m
Submersible Transformers	63	Submersible Transformers	63

14.4. Maps and Locations

The assets being replaced by this job are located in the vicinity of the intersection of Meadowvale Road and Ellesmere Road. A map of the job area appears in Figure 16.

14.5. Required Capital Costs

There are four phases to this job in 2012 for a total of $3.47M. /US

Table 43: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)	
24843	E12275 Muirbank 47M13 UG Rebuild - Civil	2012	$0.84	/UF, US
20637	E13014 Holmcrest 47M13 UG Rebuild - Civil	2012	$1.41	/US
20066	E12209 Dalmatian/Choiceland 47M13 UG Rebuild-Civil	2012	$1.20	/US
20067	E12228 Dalmatian/Choiceland 47M13 Rebuild – Electrical (DESIGN ONLY)	2012	$0.02	/UF, US
~~24636, 24844~~	~~E12276 Muirbank 47M13 UG Rebuild - Electrical~~	~~2014~~	~~$0.52~~	
~~20638~~	~~E13015 Holmcrest 47M13 UG Rebuild - Electrical~~	~~2014~~	~~$0.44~~	
		Total:	**$3.47**	/UF, US

15. Underground Rehabilitation of Feeder NY80M2 (W12449) /US

15.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY80M2 in order to improve reliability of service and mitigate potential safety risks.

15.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 6

Table 44 provides historical reliability data for this feeder. Overall, this feeder has been exhibiting a worsening reliability trend. The spike in CI and CHI in 2010 is due to asset failures. In 2010, 4,191 of CHI were due to underground asset failures. Over the past two years, 63% of asset related sustained outages have been due to underground asset failures.

Table 44: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY80M2			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	2,050	7,966	2,809
Feeder CHI ***(Cumulative)***	395	5,441	1,354

15.3. Scope of Work

This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts to replace old direct-buried cable.

Table 45: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	3,000 m	Primary Cable	3,000 m

/US

15.4. Maps and Locations

The assets being replaced by this job are located in the vicinity of Bathurst Street, south of Steeles Avenue West. A map of the job area appears in Figure 17.

15.5. Required Capital Costs

There is one phase of this job for a total estimated cost of $0.80M. /UF, US

Table 46: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
20902	W12449 FESI - Lateral Cable and Tx Rehab Bathurst and Rockford	2012	$0.80
		Total:	**$0.80**

/UF, US

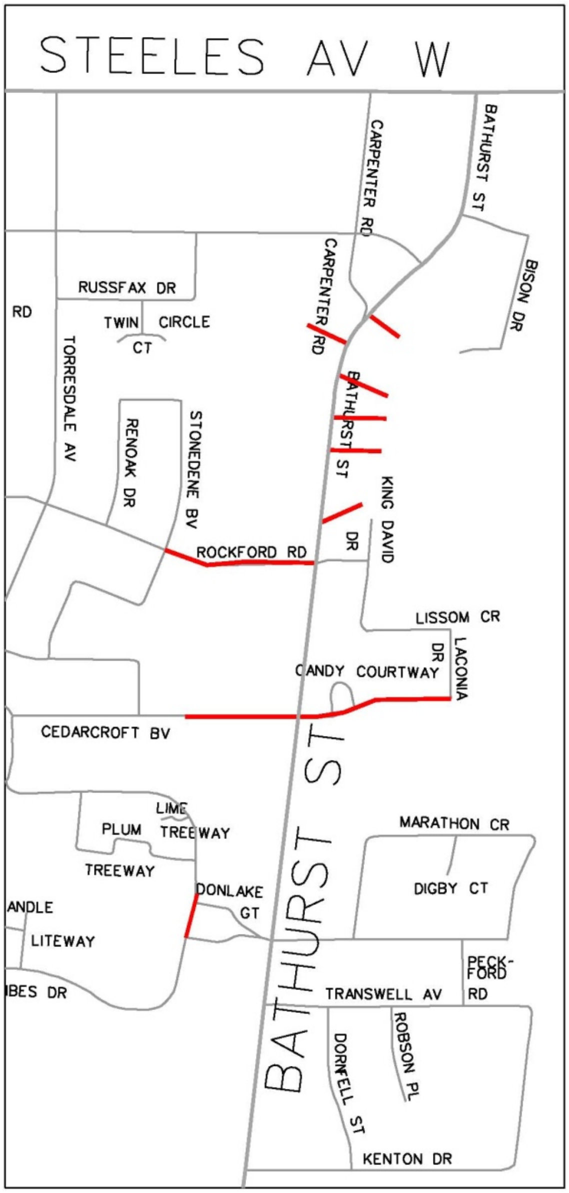


Figure 17: Map of Underground Rehabilitation of Feeder NY80M2

16. Underground Rehabilitation of Feeder NY51M7 (~~E13074,~~ E13075) /US

16.1. Objective

The objective of this job is to proactively replace underground assets on 27.6kV feeder NY51M7 in order to improve reliability of service and mitigate potential safety risks.

16.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 6

Historical reliability data for this feeder is presented in Table 47. This significant rise in CI and CHI in 2010 is due to an increase in overhead and underground asset failures. Nearly half of the CI in 2010 is due to primary cable failure. This job aims to address the increase in primary cable failures in 2010.

Table 47: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY51M7			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	5,466	9,764	3,126
Feeder CHI ***(Cumulative)***	1,783	3,676	1,728

16.3. Scope of Work

This job installs civil assets for the electrical assets listed in Table 48 below. The electrical assets will be installed in future years. **/US**

Table 48: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	4,000 m	Primary Cable	4,000 m
Submersible transformer	1	Submersible transformer	1

16.4. Maps and Locations

The assets being replaced by this job are located in the area bordered by Leslie Street to the east, Bayview Avenue to the west, Hawsbury Drive to the north, and York Mills Road to the south. A map of the job area appears in Figure 18.

16.5. Required Capital Costs

There is one phase of this job for a total estimated cost of $1.13M in 2013. /US

Table 49: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
21291	NY51M7 Replacement of DB Cables btn Leslie & Bayview - Civil	2013	$1.13
		Total	**$1.13**

/US

17. Underground Rehabilitation of Feeder NY51M24 (E13102, ~~E13103, E13107,~~ E13108, E13099, ~~E13098, E13101,~~ E13104, E13106~~, E13058, E13069~~) /US

17.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY51M24 in order to improve reliability of service and mitigate potential safety risks.

17.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 6

This feeder has been regularly experiencing underground asset failures over the past ten years. These failures have been contributing significantly to the number of unplanned sustained outages, as well as CI and CHI. This job provides a long-term solution to address previous direct buried cable failures on this feeder and reduce the likelihood of future underground asset failures.

Table 50 provides historical reliability data for this feeder.

Table 50: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY51M24			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	4,337	6,265	270
Feeder CHI ***(Cumulative)***	3,518	5,410	942

17.3. Scope of Work

This job installs 5,540 m of new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts to replace direct-buried cable. Of the assets shown in Table 51, 14,500 m of primary cable as well as all of the submersible transformers and SF_6-insulated switchgear will be installed in future years, however, the civil work for the installation of these electrical assets is part of this job. **/US**

Table 51: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	20,040 m	Primary Cable	20,040 m
Submersible Transformers	22	Submersible Transformers	22
Air-insulated Vault-installed Switchgear	6	SF_6-insulated Vault-installed Switchgear	6

17.4. Maps and Locations

The assets being replaced by this job are located in the area bordered by Highway 404 to the east, Leslie Street to the west, Finch Avenue East to the north, and Highway 401 to the south. Maps of the job areas appear in Figure 19 and Figure 20.

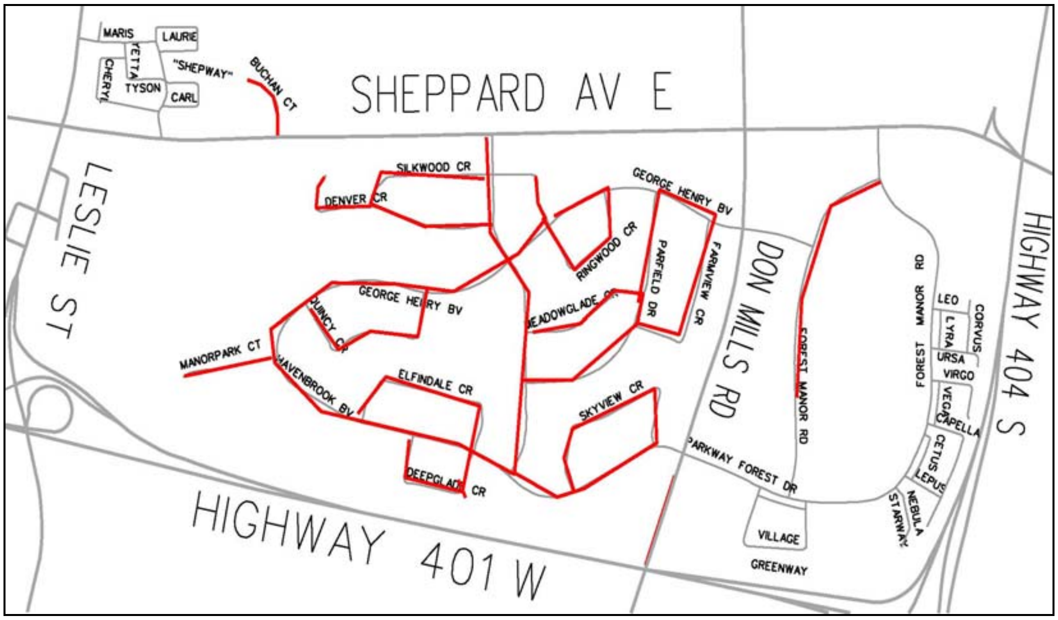


Figure 19: Map of Underground Rehabilitation of Feeder NY51M24

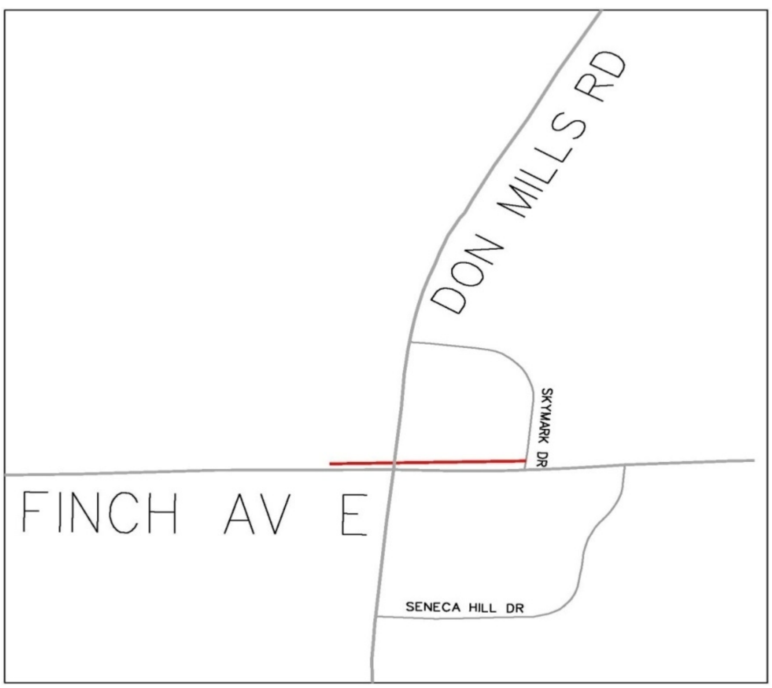


Figure 20: Map of Underground Rehabilitation of Feeder NY51M24

17.5. Required Capital Costs

There are six phases to this job in 2013 for a total estimated cost of $3.21M. **/US**

1 **Table 52: Required Capital Costs**

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
21449	E13102 UG rebuild of NY51M24 Forest Manor Rd East of Don Mills - Electrical NY51M24	2013	$0.08
21450	E13102 UG rebuild of NY51M24 Forest Manor Rd East of Don Mills - Civil NY51M24	2013	$0.23
21447	E13108 UG rebuild of NY51M24 Buchan Crt by Sheppard Ave E. - Civil NY51M24	2013	$0.24
21500	E13099 UG Rebuild on Don Mills between Sheppard and Graydon - Electrical NY51M24	2013	$0.19
21433	E13104 NY51M24 UG Rebuild in Subdivision by Don Mills & Sheppard Part 1 - Civill NY51M24	2013	$1.12
21434	E13106 NY51M24 UG Rebuild in Subdivision by Don Mills & Sheppard Part 2 - Civill NY51M24	2013	$1.35
~~21110~~	~~E13058 NY51M24, NY51M25 UG Rebuild Finch & Don Mills - Electrical NY51M24, NY51M25~~	~~2014~~	~~$0.16~~
~~21202~~	~~E13069 NY51M24, NY51M25 UG Rebuild Finch & Don Mills - Civil NY51M24, NY51M25~~	~~2014~~	~~$0.51~~
		Total	**$3.21**

/US
/US
/US

2

Table 54: Asset Replacement

Assets to be Replaced		New Assets to be Installed	
Primary Cable	40,300 m	Primary Cable	40,300 m
Submersible Transformers	30	Pad-mounted Transformers	30
Air-insulated Pad-mounted Switchgear	1	SF_6-insulated Pad-mounted Switchgear	1
Air-insulated Vault-installed Switchgear	1	SF_6-insulated Vault-installed Switchgear	1

18.4. Maps and Location

The assets being replaced by this job are located along Yonge Street between Lawrence Avenue and Sheppard Avenue. A map of the job area appears in Figure 21.

18.5. Required Capital Costs

There are four phases to this job for a total estimated cost of $4.07M in 2012. /UF

Table 55: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
18845	W11455 FESI-12 Yonge St UG Fdr Cable rehab (NY80M30/M27)	2012	$0.39
19032	W11456 FESI-12 Hwy 401 UG Fdr Cable rehab NY80M30	2012	$1.56
19399	W11460 FESI-12 NY80M30 Johnston/Yonge UG Fdr Cable rehab	2012	$0.02
19522	W12077 Hoggs Hollow UG Rebuild (NY80M30)	2012	$2.10
		Total:	**$4.07**

/UF

19. Underground Rehabilitation of Feeder NY55M23 (W14284, W14350)

19.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY55M23 to improve reliability of service and mitigate potential safety risks.

19.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 6

Table 56 presents reliability data for this feeder for 2009, 2010 and 2011. The high CI and CHI in 2010 as compared with 2009 and 2011 is primarily due to primary cable failures.

Table 56: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY55M23			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	115	6,533	3,170
Feeder CHI ***(Cumulative)***	455	1,367	915

19.3. Scope of Work

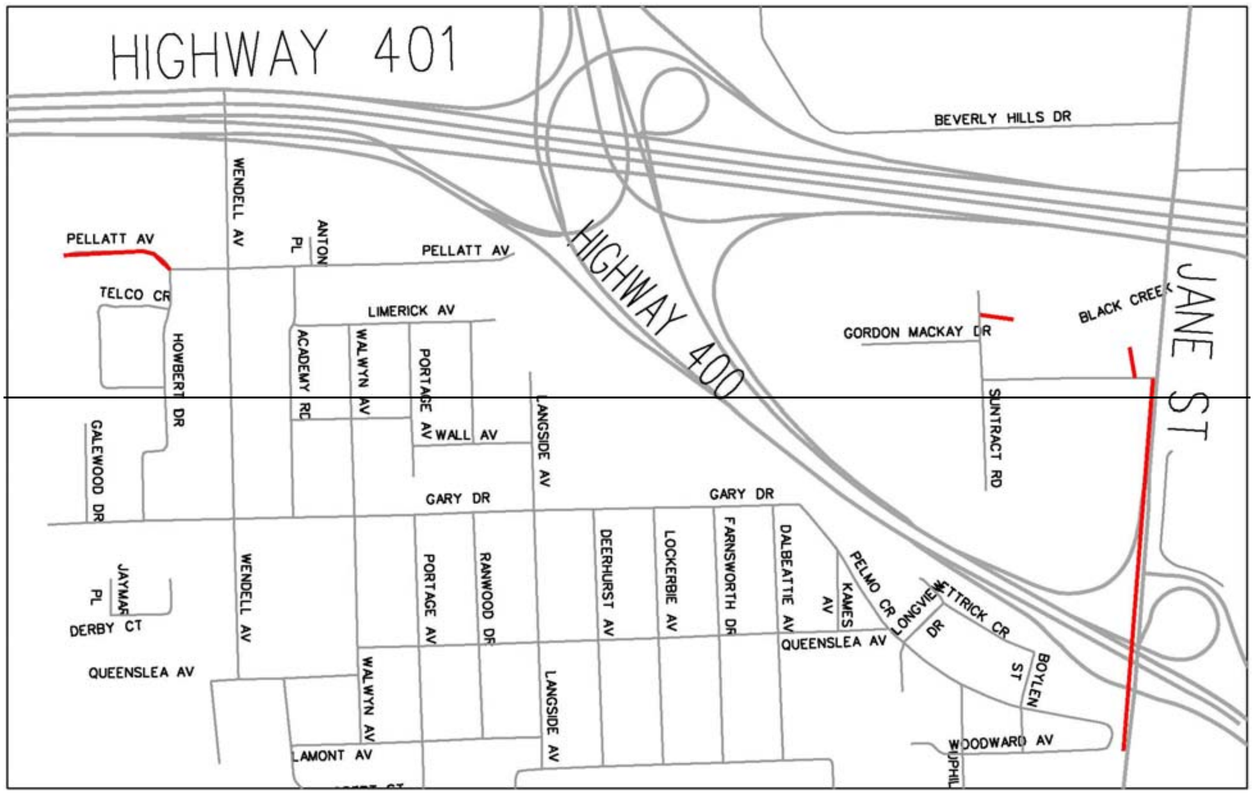
This job replaces both civil and electrical assets. This job installs new 27.6 kV Aluminum TR-XLPE cable in new concrete-encased ducts and new submersible transformers. Assets to be replaced include direct-buried cable and submersible transformers.

Table 57: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	1,575 m	Primary Cable	1,575 m
Submersible Transformers	3	Submersible Transformers	3

~~19.4. Maps and Locations~~

~~The assets being replaced by this job are located in the Highway 401 and Jane Street area. A map of the job area appears in Figure 22.~~



~~Figure 22: Map of Underground Rehabilitation of Feeder NY55M23~~

~~19.5. Required Capital Costs~~

~~There are two phases to this job for a total estimated cost of $2.24M in 2014.~~

Table 58: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
23947	W14284 Pellatt Ave. UG DB Rebuild NY55M23	2014	$1.07
24386	W14350 P01 Gordon Mackay Underground Rebuild	2014	$1.17
		Total:	**$2.24**

20. Underground Rehabilitation of Feeder NY85M24 (W14268, W14269, W14270)

20.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY85M24 in order to improve reliability of service and mitigate potential safety risks.

20.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 6

Historical reliability data for this feeder is presented in Table 59. As can be seen, there is an overall trend of worsening reliability.

Table 59: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY85M24			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	2,726	62	4,793
Feeder CHI ***(Cumulative)***	1,322	52	3,024

This job rebuilds areas that have experienced direct buried cable failures.

~~20.3. Scope of Work~~

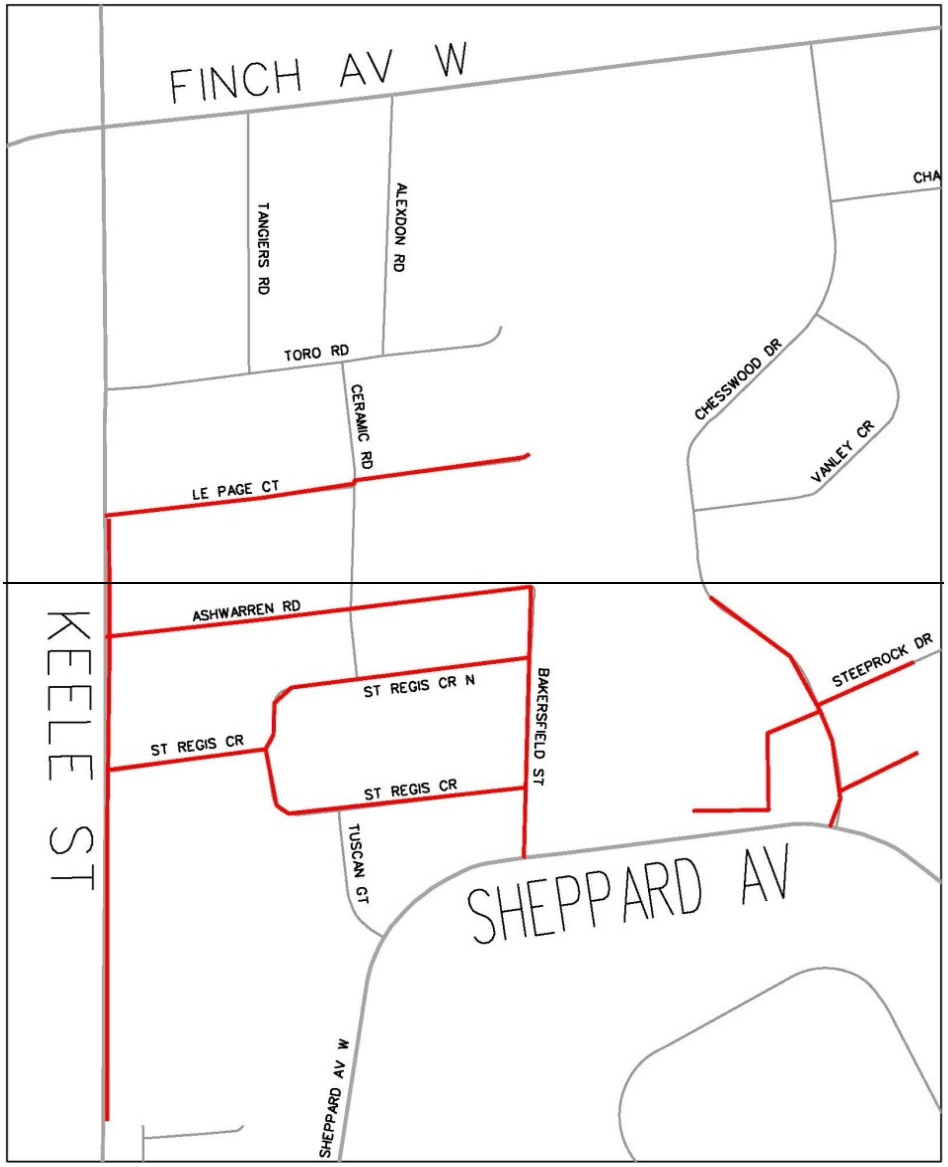
~~This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts and new SF_6-insulated switchgear. Assets to be replaced include direct-buried cable and air-insulated switchgear.~~

~~Table 60: Asset Replacement~~

~~Assets to be Replaced~~		~~New Assets to be Installed~~	
~~Primary Cable~~	~~14,100 m~~	~~Primary Cable~~	~~14,100 m~~
~~Air-insulated Vault-installed Switchgear~~	~~1~~	~~SF_6-insulated Vault-installed Switchgear~~	~~1~~

~~20.4. Maps and Locations~~

~~The assets being replaced by this job are located in the area bordered by Dufferin Street to the east, Keele Street to the west, Finch Avenue West to the north, and Sheppard Avenue West to the south. A map of the job area appears in Figure 23.~~



~~**Figure 23: Map of Underground Rehabilitation of Feeder NY85M24**~~

~~**20.5. Required Capital Costs**~~

~~There are three phases to this job for a total of $2.03M.~~

~~**Table 61: Required Capital Costs**~~

~~Job Estimate Number~~	~~Job Phase~~	~~Job Year~~	~~Estimated Cost ($M)~~
~~23818~~	~~Chesswood and Steeprock Dr. Lateral Replacement NY85M24~~	~~2014~~	~~$0.56~~
~~23819~~	~~St. Regis, Bakersfield & Ashwarren Lateral Replacement NY85M24~~	~~2014~~	~~$0.86~~
~~23820~~	~~Lepage and Keele St. Lateral Replacement~~	~~2014~~	~~$0.61~~
		~~**Total:**~~	~~**$2.03**~~

21. Underground Rehabilitation of Feeder SCNAE5-2M3 (E12202, E12230)

21.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder SCNAE5-2M3 to improve reliability of service and mitigate potential safety risks.

21.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 6

This feeder has exhibited worsening reliability, as is evident from Table 62. Moreover, failures of underground assets have represented the majority of asset related sustained outages on this feeder. This job rebuilds an area that experienced a direct buried cable failure in 2010.

Table 62: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNAE5-2M3			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	174	297	2,374
Feeder CHI ***(Cumulative)***	448	1,376	758

21.5. Required Capital Costs

There are two phases to this job for a total of $1.51M.

Table 64: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
20106	E12202 Rehab of Feeder NAE5-2M3 in McCowan and Kingston area (Electrical)	2012	$0.42
20136	E12230 Rehab of Feeder NAE5-2M3 in McCowan and Kingston area (Civil)	2012	$1.09
		Total:	**$1.51**

/US

~~22. Underground Rehabilitation of Feeder NY85M7 (W14129, W14130, W14131, W14132, W14133, W14134, W14135)~~

~~22.1. Objectives~~

~~The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY85M7 in order to improve reliability of service and mitigate potential safety risks.~~

~~22.2. Historical Reliability Performance~~

~~Number of Unplanned Sustained Outages in 2011: 6~~

~~Table 65 provides historical reliability data for this feeder. Over the past ten years, underground asset failures have represented the 82% of asset failures and have contributed significantly to CI and CHI.~~

Table 65: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY85M7			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	1,228	3,414	85
Feeder CHI ***(Cumulative)***	1,415	773	36

This job rebuilds areas that have experienced direct buried cable failures.

22.3. Scope Work

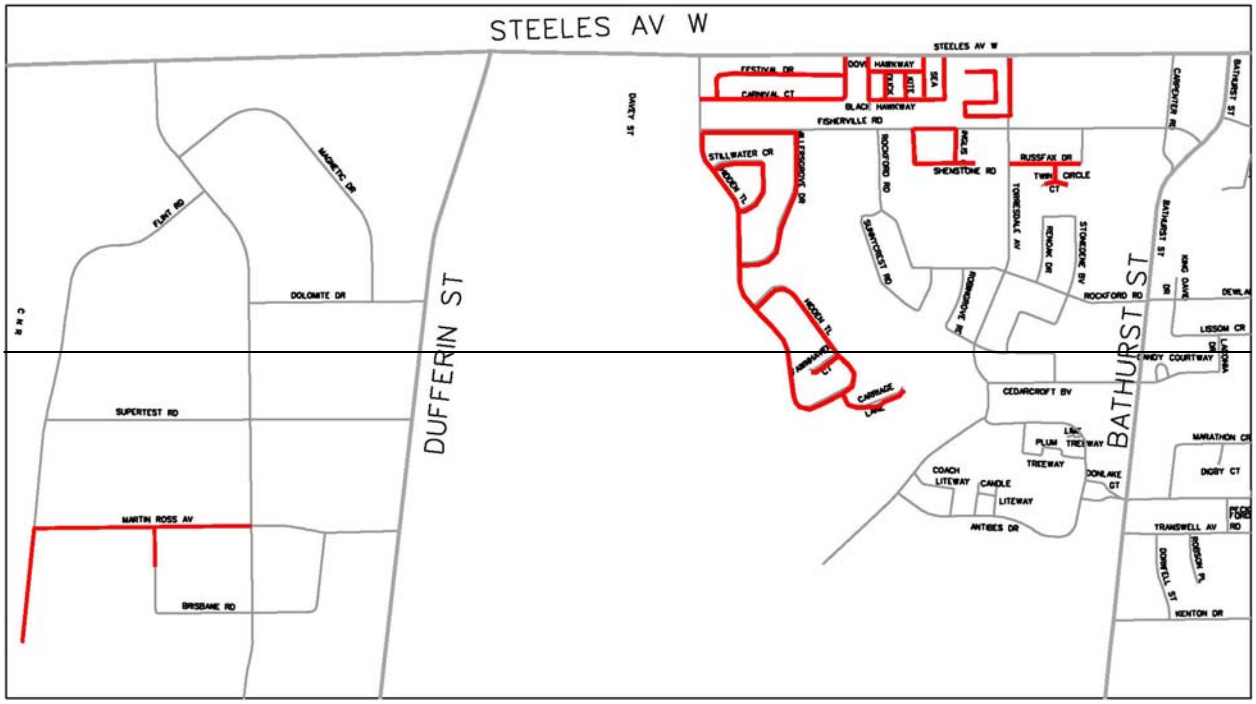
This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts and new submersible transformers. Assets to be replaced include direct-buried cables and submersible transformers.

Table 66: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	8,580 m	Primary Cable	8,580 m
Submersible Transformers	41	Submersible Transformers	41

22.4. Maps and Locations

The assets being replaced by this job are located in the area bordered by Bathurst Street to the east, Keele Street to the west, Steeles Avenue West to the north, and Finch Avenue West to the south. A map of the job area appears in Figure 25.



~~**Figure 25: Map of Underground Rehabilitation of Feeder NY85M7**~~

~~**22.5. Required Capital Costs**~~

~~There are eight phases to this job for a total of $13.83M.~~

~~**Table 67: Required Capital Costs**~~

~~Job Estimate Number~~	~~Job Phase~~	~~Job Year~~	~~Estimated Cost ($M)~~
~~23006~~	~~W14129 Torresdale UG DB Rebuild~~	~~2014~~	~~$0.64~~
~~23009~~	~~W14130 Rebuild Russfax and Twin Circle Crt~~	~~2014~~	~~$0.46~~
~~22992~~	~~W14131 UG DB Rebuild Ingles Gate & Shenstone Rd~~	~~2014~~	~~$0.77~~
~~23004~~	~~W14132 Black Hawkway DB Rebuild~~	~~2014~~	~~$2.05~~
~~23043~~	~~W14133 UG DB Rebuild on Festival and Carnival~~	~~2014~~	~~$2.55~~
~~22984~~	~~W14134 UG DB PH#1 Rebuild Hidden Trail and Surrounding Area~~	~~2014~~	~~$3.75~~
~~22987~~	~~W14135 UG DB PH#2 Rebuild Hidden Trail and Surrounding Area~~	~~2014~~	~~$3.61~~
		~~**Total:**~~	~~**$13.83**~~

23. Underground Rehabilitation of Feeder SCNT63M12 (E11472, E11483, ~~E11484,~~ E11618, E12081, E12094, E12095, E12096, E12317~~, E13152, E14011~~) /US

23.1. Objective

The objective of this job is to proactively replace underground assets on the 27.6 kV feeder SCNT63M12 to improve reliability of service and mitigate potential safety risks.

23.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 5

23.4. Maps and Locations

The assets being replaced by this job are located in the area bordered by Middlefield Road to the east, Brimley Road to the west, Steeles Avenue East to the north, and Finch Avenue East to the south. A map of the job area appears in Figure 26.

23.5. Required Capital Costs

There are eight phases to this job in 2012-2013 for a total of $7.68M. /UF, US

Table 70: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)	
22215	E11618 Rebuild Ingleton UG SCNT63M12 Main (Civil) - Ph B	2012	$0.06	
20438	E11472 Rebuild Ingleton UG SCNT63M12 Main (Civil) - Ph A	2012	$0.06	
19001	E11483 Rebuild Ingleton 63M12 - Ph 1 - Civil	2012	$2.67	/UF
19437	E12081 Rebuild Ingleton Main Ph A - Elect	2013	$1.26	/US
19448	E12095 Rebuild Ingleton Ph 2 Elect	2012	$0.67	
24717	E12317 Rebuild Ingleton Main Ph B - Elect	2013	$0.56	/US
19442	E12094 Rebuild Ingleton Ph 1 Elect	2012	$1.22	/US
24658	E12096 Rebuild Ingleton Ph 3 Elect	2012	$1.18	/UF, US
~~21868~~	~~E13152 Rebuild UG Trunk NT63M12 M8 Brimley -Civil~~	~~2014~~	~~$1.69~~	
~~21869~~	~~E14011 Rebuild UG Trunk NT63M12 M8 Brimley - Electrical~~	~~2014~~	~~$0.93~~	
		Total:	**$7.68**	/UF, US

24. Underground Rehabilitation of Feeder SCNT63M8 (E12493, E12494, E12495, E13042, E13043, E13044, E13129, E13267, E14010, E14047) /US

24.1. Objective

The objective of this job is to proactively replace underground assets on the 27.6 kV feeder SCNT63M8 to improve reliability of service and mitigate potential safety risks.

24.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 5

Reliability information pertaining to this feeder indicates that historically the majority of asset related sustained outages on this feeder are due to the failure of underground assets. These failures have contributed significantly to CI and CHI.

In 2009, 28.2% of CI and 2.8% of CHI were due to air-insulated switchgear failures. These figures jumped to 99.7% in 2011.

Table 71 provides historical reliability data for this feeder. This feeder has both overhead and underground assets. Overhead asset failures did not cause sustained outages in 2010 and 2011, but overhead asset failures did account for most of CI and CHI in 2009. Without the impact of overhead asset failures in Table 71, the table would show a worsening reliability trend for this feeder from 2009 to 2011. In other words, it is the underground asset failures that are causing worsening reliability for this feeder.

Table 71: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNT63M8			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	11,495	227	5,313
Feeder CHI ***(Cumulative)***	5,276	658	5,879

24.5. Required Capital Costs

There are five phases to this job in 2012-2013 for a total of $5.05M. /UF, US

Table 73: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)	
20973	E12493 FESI UG Rebuild NT63M8 Revlis Sub Part 1- Civil SCNT63M8	2012	$0.62	/US
20978	E12494 FESI UG Rebuild NT63M8 Revlis Sub Part 2-Civil SCNT63M8	2013	$1.58	/UF
20979	E12495 FESI UG Rebuild NT63M8 Revlis Sub Part 3-Civil SCNT63M8	2012	$1.77	/US
21864	E13129 Rebuild UG Trunk NT63M8 M11 McCowan-Civil	2013	$0.65	
22591	E13267 UG Rebuild 63M8 Silver star Midland- Civil	2013	$0.43	
~~21356~~	~~E13042 FESI UG Rebuild NT63M8 Revlis Sub Part 1- Elec SCNT63M8~~	~~2014~~	~~$0.53~~	
~~21357~~	~~E13043 FESI UG Rebuild NT63M8 Revlis Sub Part 2-Elec SCNT63M8~~	~~2014~~	~~$0.41~~	
~~21358~~	~~E13044 FESI UG Rebuild NT63M8 Revlis Sub Part 3-Elec SCNT63M8~~	~~2014~~	~~$0.67~~	
~~21865~~	~~E14010 Rebuild UG Trunk NT63M8 M11 McCowan-Electrical~~	~~2014~~	~~$0.34~~	
~~22592~~	~~E14047 UG Rebuild 63M8 Silver star Midland- Electrical~~	~~2014~~	~~$0.30~~	
		Total:	**$5.05**	/UF, US

25.5. Required Capital Costs

There are two phases to this job for a total of $3.97M. /UF

Table 76: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
18653	E11421 Antrim Glamorgan Dundalk UG Rebuild SCNAE5-1M29 (Elec)	2012	$1.69
18652	E11421 Antrim Glamorgan Dundalk UG Rebuild SCNAE5-1M29 (Civil)	2012	$2.28
		Total:	**$3.97**

/UF, US (row 18653)
/UF, US (Total)

26. Underground Rehabilitation of Feeder NY53M25 (E11139~~, E12237~~) /US

26.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY53M25 in order to improve reliability of service and mitigate potential safety risks.

26.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 5

Table 77 presents the historical reliability performance of this feeder. The very high CI and CHI figures in 2009, as compared to 2010 and 2011, are primarily due to underground primary cable failures.

Table 77: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY53M25			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	19,054	563	1,393
Feeder CHI ***(Cumulative)***	10,648	1,167	920

This job rebuilds an area that has experienced direct buried cable failures.

26.3. Scope of Work

This job installs civil assets to accommodate the electrical assets listed in Table 78. These electrical assets will be installed in future years. /US

Table78: Asset Replacement

Assets to be Replaced		New Assets to be Installed	
Primary Cable	13,600 m	Primary Cable	13,600 m

26.4. Maps and Locations

The assets being replaced by this job are located in the area bordered by Victoria Park Avenue to the east, the Don Valley Parkway to the west, York Mills Road to the north, and Lawrence Avenue East to the south. A map of the job area appears in Figure 29.

26.5. Required Capital Costs

There is a single phase of this job with a total cost of $2.40M. /US

Table 81: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
25279	E11139 Cassandra UG Rebuild - Civil	2013	$2.40
		Total:	**$2.40**

/US

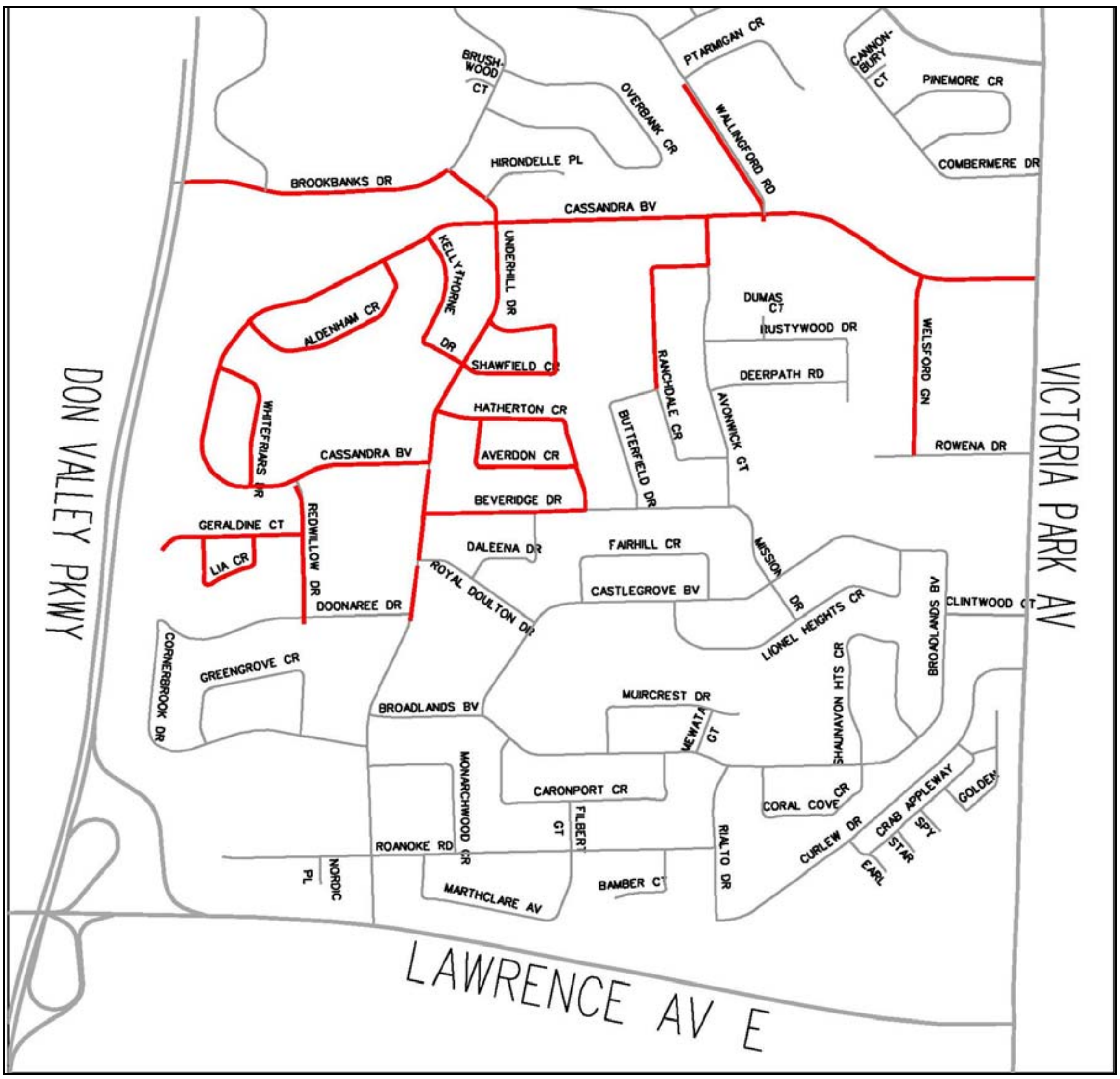


Figure 29: Map of Underground Rehabilitation of Feeder NY53M25

27. Underground Rehabilitation of Feeder NY80M9 (W12642)

27.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY80M9 in order to improve reliability of service and mitigate potential safety risks.

27.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 5

Table 80 presents the historical reliability performance of this feeder. The high CI and CHI figures in 2009, as compared to 2010 and 2011, are due significantly to underground primary cable failures.

Table 80: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY80M9			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	3,666	141	927
Feeder CHI ***(Cumulative)***	1,662	423	817

This job rebuilds an area that has experienced underground asset failures, including direct buried cable failures.

27.3. Scope of Work

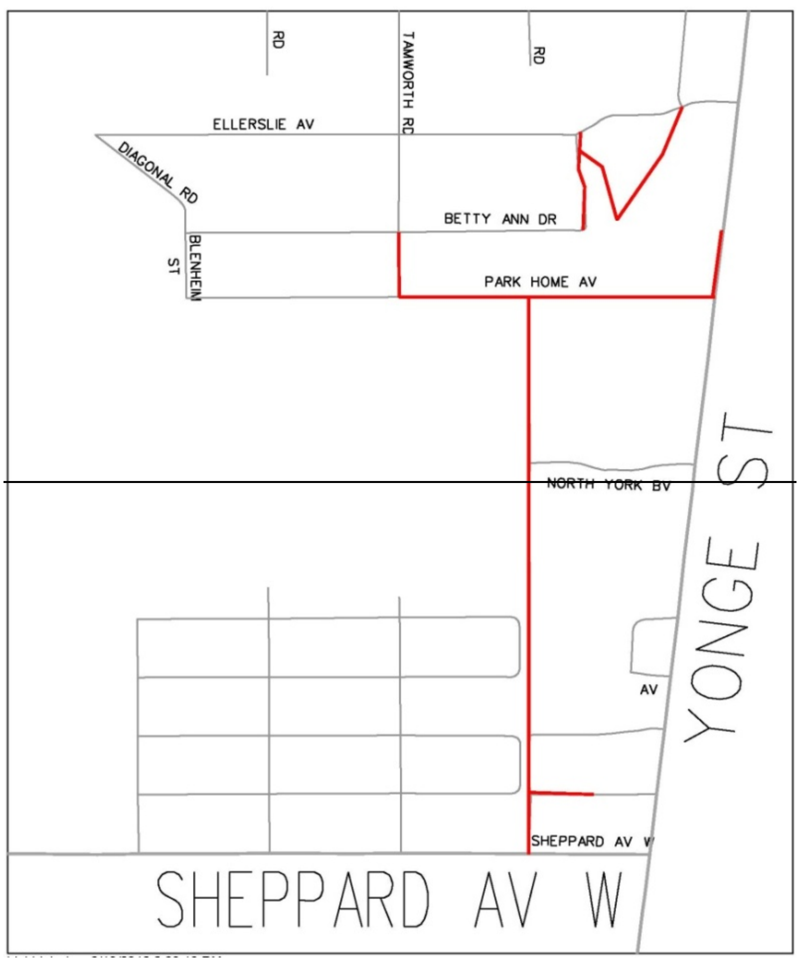
This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts, new SF_6-insulated switchgear, and new submersible transformers. Assets to be replaced include direct-buried cable, air-insulated switchgear and submersible transformers.

~~**Table 81: Asset Replacement**~~

~~**Assets to be Replaced**~~		~~**New Assets to be Installed**~~	
~~Primary Cable~~	~~16,250 m~~	~~Primary Cable~~	~~16,250 m~~
~~Submersible Transformers~~	~~3~~	~~Submersible Transformers~~	~~3~~
~~Air-insulated Pad-mounted Switchgear~~	~~2~~	~~SF_6-insulated Pad-mounted Switchgear~~	~~2~~

~~27.4. Maps and Locations~~

~~The assets being replaced by this job are located in the northwest area of the intersection of Yonge Street and Sheppard Avenue. A map of the job area appears in Figure 30.~~



~~**Figure 30: Map of Underground Rehabilitation of Feeder NY80M9**~~

~~27.5. Required Capital Costs~~

~~Table 84: Required Capital Costs~~

~~Job Estimate Number~~	~~Job Phase~~	~~Job Year~~	~~Estimated Cost ($M)~~
~~23023~~	~~W12642 UG Trunk and Lat Cable Rehab Beecroft~~	~~2014~~	~~$2.21~~
		~~Total:~~	**~~$2.21~~**

28. Underground Rehabilitation of Feeder SCNT47M3 (E11191, E11301, E11356, E11372, E11380, E12157, E11438, E12357, E12319, E11439, E12126, E12127, ~~E12128,~~ E12234 and E12235) /C, /US

28.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder SCNT47M3 in order to improve reliability of service and mitigate potential safety risks.

28.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 4

This feeder has held the rank of worst performing feeder on THESL's system for a few years. Table 83 presents historical reliability data for this feeder.

Table 83: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNT47M3			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	47,262	102,883	12,750
Feeder CHI ***(Cumulative)***	21,607	45,729	8,963

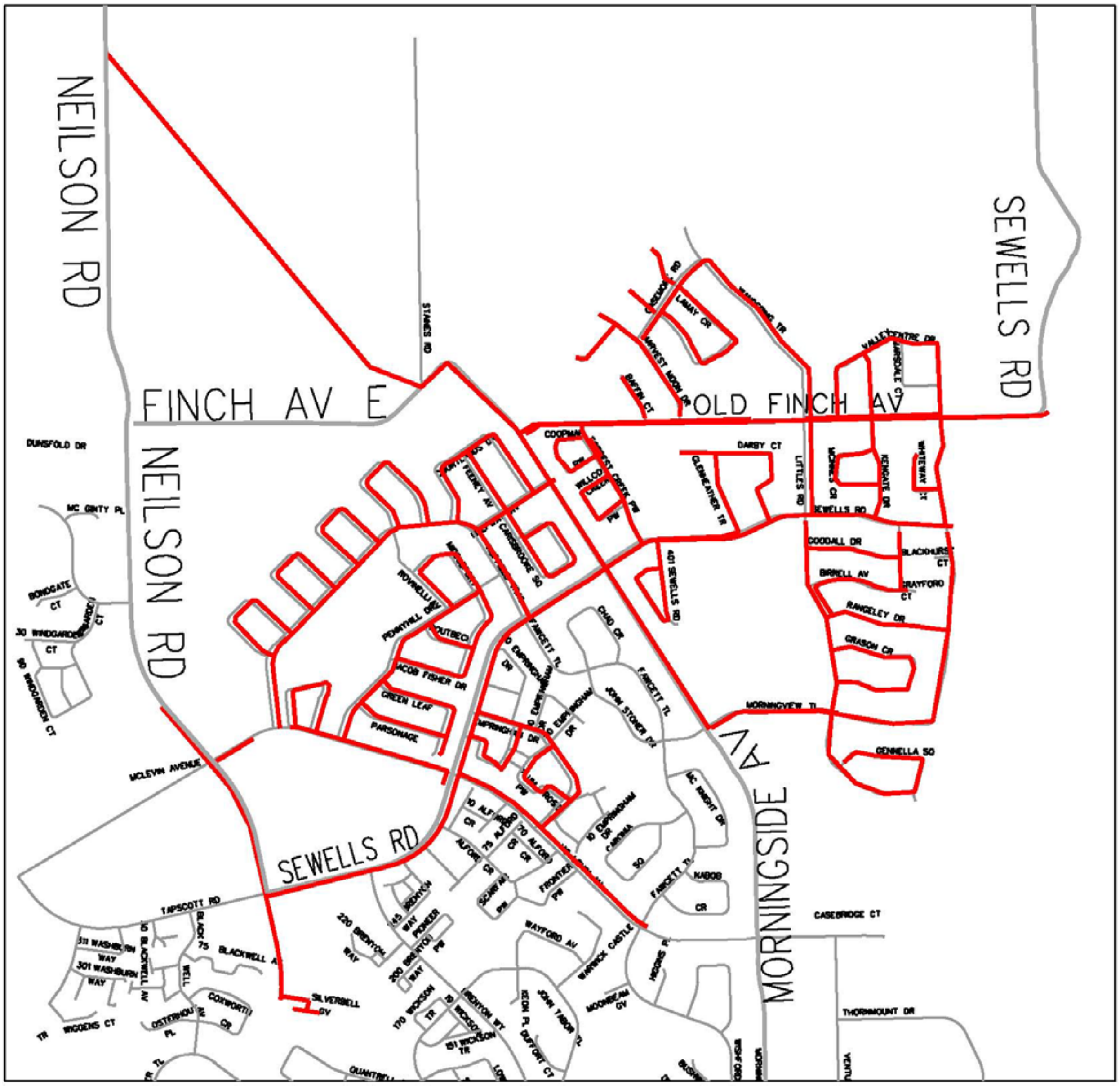


Figure 31: Map of Underground Rehabilitation of Feeder NT47M3

28.5. Required Capital Costs

There are 17 phases to this job in 2012-2013 for a total of $16.98M. /C

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Table 85: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)	
21506	E11191 FESI-12 McLevin/Alford UG rebuild NT4747M3	2012	$0.88	
21853	E11301 FESI-12 Hupfield UG rebuild Phase 1 NT47M3	2012	$1.67	/UF
22356	E11356 FESI-12 Pennyhill UG rebuild NT47M3	2012	$1.00	
21854	E11372 FESI-12 Hupfield UG rebuild Phase 2 NT47M3	2012	$1.33	
22928	E11380 FESI-12 Empringham/McLevin UG rebuild NT47M3	2012	$1.84	
20430	E12157 26M23 New Feeder to Morningside- Old Finch –Civil	2012	$1.15	/UF
18719	E11438 Old Finch UG Rebuild Phase 1 - Civil (47M3)	2012	$1.95	
19623	E12126 Morningview SCNT47M3 UG Rebuild Phase 1 (Electrical) (DESIGN ONLY)	2012	$0.03	/UF, US
19627	E12127 Morningview SCNT47M3 UG Rebuild Phase 2 (Electrical) (DESIGN ONLY)	2012	$0.04	
~~19629~~	~~E12128 Morningview SCNT47M3 UG Rebuild Phase 3 (Electrical)~~	~~2014~~	~~$0.79~~	
20558	E12357 Extend UG R26M23 to Morningview 47M3 (DESIGN ONLY)	2012	$0.02	/UF, US
20432	E12319 26M23 New Feeder to Morningside- Old Finch –Electric	2012	$0.42	/US
18720	E11439 Old Finch UG Rebuild Phase 1 - Electrical (47M3)	2012	$1.25	/UF, US

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
19622	E12126 Morningview SCNT47M3 UG Rebuild Phase 1 (Civil)	2012	$1.81
19626	E12127 Morningview SCNT47M3 UG Rebuild Phase 2 (Civil)	2012	$1.59
19628	E12128 Morningview SCNT47M3 UG Rebuild Phase 3 (Civil)	2013	$1.96
20169	E12234 Rebuild 3-Phase Neilson Industrial NT47M3 – Civil (DESIGN ONLY)	2012	$0.03
20170	E12235 Rebuild 3-Ph Neilson Industrial NT47M3-Electrical (DESIGN ONLY)	2012	$0.01
		Total:	**$16.98**

/UF, US

/UF, US

~~**29. Underground Rehabilitation of Feeder SCNAH9M23 (E13121, E13147 and E13148)**~~

~~**29.1. Objective**~~

~~The objective of this job is to proactively replace underground assets on 27.6 kV feeder SCNAH9M23 in order to improve reliability of service and eliminate safety~~

~~**29.2. Historical Reliability Performance**~~

~~Number of Unplanned Sustained Outages in 2011: 4~~

~~Table 86 presents historical reliability data for this feeder. In 2011, there were a number of primary cable failures that contributed significantly to the increase in CI and CHI from 2010.~~

~~**Table 86: Historical Reliability Performance**~~

~~**HISTORICAL RELIABILITY PERFORMANCE – SCNAH9M23**~~			
~~**Reliability Metric**~~	~~**2009**~~	~~**2010**~~	~~**2011**~~
~~Feeder CI ***(Cumulative)***~~	~~1,963~~	~~1,163~~	~~10,042~~
~~Feeder CHI ***(Cumulative)***~~	~~433~~	~~135~~	~~7,207~~

~~This job rebuilds an area that has experienced a direct buried cable failure.~~

~~29.3. Scope of Work~~

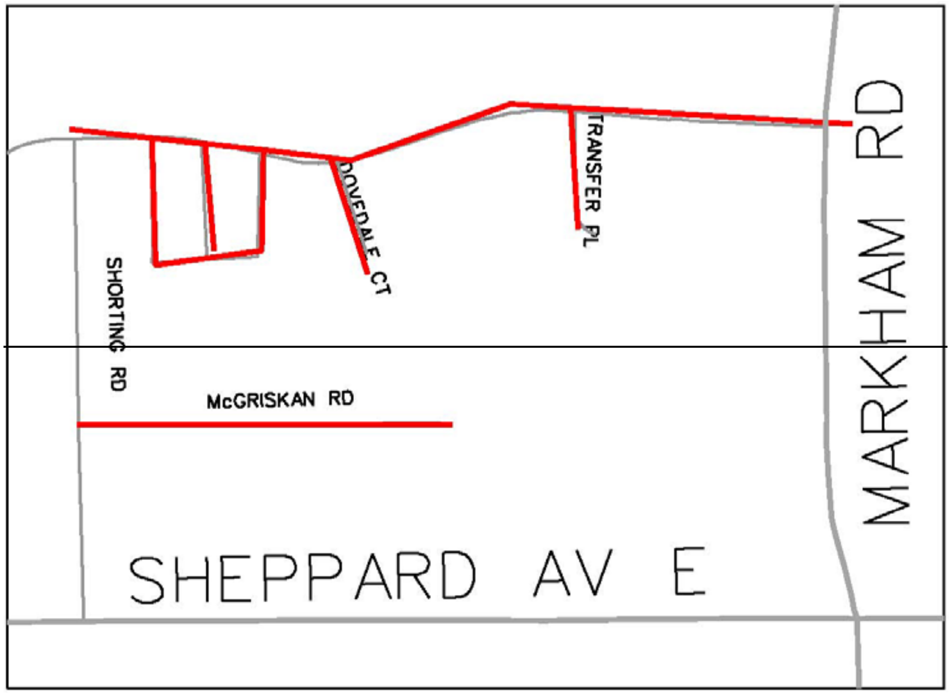
~~This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts and new SF_6-insulated switchgear. Assets to be replaced include direct-buried cables and air-insulated switchgear.~~

~~**Table 87: Asset Replacement**~~

~~**Assets to be Replaced**~~		~~**New Assets to be Installed**~~	
~~Primary Cable~~	~~12,300m~~	~~Primary Cable~~	~~12,300m~~
~~Air-insulated Pad-mounted Switchgear~~	~~1~~	~~SF_6-insulated Pad-mounted Switchgear~~	~~1~~
~~Air-insulated Vault-installed Switchgear~~	~~26~~	~~SF_6-insulated Vault-installed Switchgear~~	~~26~~

~~29.4. Maps and Locations~~

~~The assets being replaced by this job are located in the vicinity of the intersection of Markham Road and Sheppard Avenue East. A map of the job area appears in Figure 32.~~



~~Figure 32: Map of Underground Rehabilitation of Feeder SCNAH9M23~~

~~29.5. Required Capital Costs~~

~~There are four phases to this job for a total of $2.71M.~~

~~Table 88: Required Capital Costs~~

~~Job Estimate Number~~	~~Job Phase~~	~~Job Year~~	~~Estimated Cost ($M)~~
~~21565~~	~~E13121 McGriskin Road UG Rebuild- Civil SCNAH9M23~~	~~2014~~	~~$0.28~~
~~21561~~	~~E13121 McGriskin Road UG Rebuild- Civil SCNAH9M23~~	~~2014~~	~~$0.19~~
~~21663~~	~~E13147 Nugget Avenue UG Rebuild Civil SCNAH9M23~~	~~2014~~	~~$0.91~~
~~21664~~	~~E13148 Nugget Avenue UG Rebuild Electrical SCNAH9M23~~	~~2014~~	~~$1.33~~
		~~Total:~~	**~~$2.71~~**

30. Underground Rehabilitation of Feeder NY51M3 (~~E12341, E12346, E12377, E12379,~~ E12393, E12394, ~~E12408, E12409,~~ andE10112) /US

30.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY51M3 in order to improve reliability of service and mitigate potential safety risks.

30.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 4

Table 91 presents historical reliability data for this feeder. There was an increase in underground asset failures in 2010 that contributed significantly to the high CI (compared to 2009 and 2011). Overall, there is a worsening reliability trend for this feeder.

Table 90: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY51M3			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	150	4,500	1,638
Feeder CHI ***(Cumulative)***	454	1,420	3,013

30.3. Scope of Work

This job involves design work to replace both civil and electrical assets, as well as installation of civil assets. In future years, direct buried cable will be replaced with new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts, and new submersible transformers will be installed as shown in Table 91. /US

Table 91: Asset Replacement

Assets to be Replaced		New Assets to be Installed	
Primary Cable	8,500 m	Primary Cable	8,500 m
Submersible transformer	51	Submersible transformer	51

/US

Table 91: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)	
~~24578~~	~~E12341 Bluffwood Saddletree Civil NY51M3~~	~~2014~~	~~$1.35~~	
24846	E10112 Purple Sageway 51M3 UG replacement (Civil)	2013	$0.34	/UF
~~20645~~	~~E12377 Goldenwood Road UG Rehab Electrical~~	~~2014~~	~~$0.32~~	
~~20648~~	~~E12379 Pineway Craigmont Bruce Farm UG Rehab~~	~~2014~~	~~$0.13~~	
~~20519~~	~~E12346 Bluffwood Saddletree Electrical NY51M3~~	~~2014~~	~~$0.14~~	
20672	E12393 James Gray Drive UG Rebuild Elec NY51M3 (DESIGN ONLY)	2012	$0.01	/UF, US
20674	E12394 James Gray Drive UG Rebuild Civil NY51M3 (DESIGN ONLY)	2012	$0.02	/UF, US
~~20697~~	~~E12408 Thimble Berryway Aspenwood UG Rebuiild Civil NY51M3~~	~~2014~~	~~$0.45~~	
~~0693~~	~~E12409 Thimble Berryway Aspenwood UG Rebuild Electrical NY51M3~~	~~2014~~	~~$0.17~~	
		Total	**$0.37**	/UF, US

31. Underground Rehabilitation of Feeder SCNA47M17 (E11616, E12239, E12240, E12241, E12242, E12243, E12244, E12281, E12335 and E12336)

31.1. Objectives

The objective of this job is to proactively replace underground assets on 27.6 kV feeder SCNA47M17 in order to improve reliability of service and mitigate potential safety risks.

31.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 3

Table 92 provides historical reliability data for this feeder. The decrease of CI and CHI in 2011 can be attributed to some underground rehabilitation work that was performed on this feeder in 2010 and 2011. This work carried a cost of nearly $8 million. This job will address remaining underground assets on this feeder that require replacement, and is expected to result in long-term reliability improvement of the feeder.

Table 92: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNA47M17			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	7,260	7,740	3,303
Feeder CHI ***(Cumulative)***	1,916	3,305	665

31.3. Scope of Work

This job involves design work as well as the replacement of both civil and electrical assets. New 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts and new submersible transformers will replace existing direct-buried cable and submersible transformers. /US

Table 93: Asset Replacement

Assets to be Replaced		New Assets to be Installed	
Primary Cable	16,600 m	Primary Cable	16,600 m
Submersible Transformers	1	Submersible Transformers	1

31.4. Maps and Locations

The assets being replaced are located in the vicinity of the intersection of Sheppard Avenue East and Kingston Road. A map of the job area appears in Figure 34.

ICM Project | **Underground Infrastructure Segment**

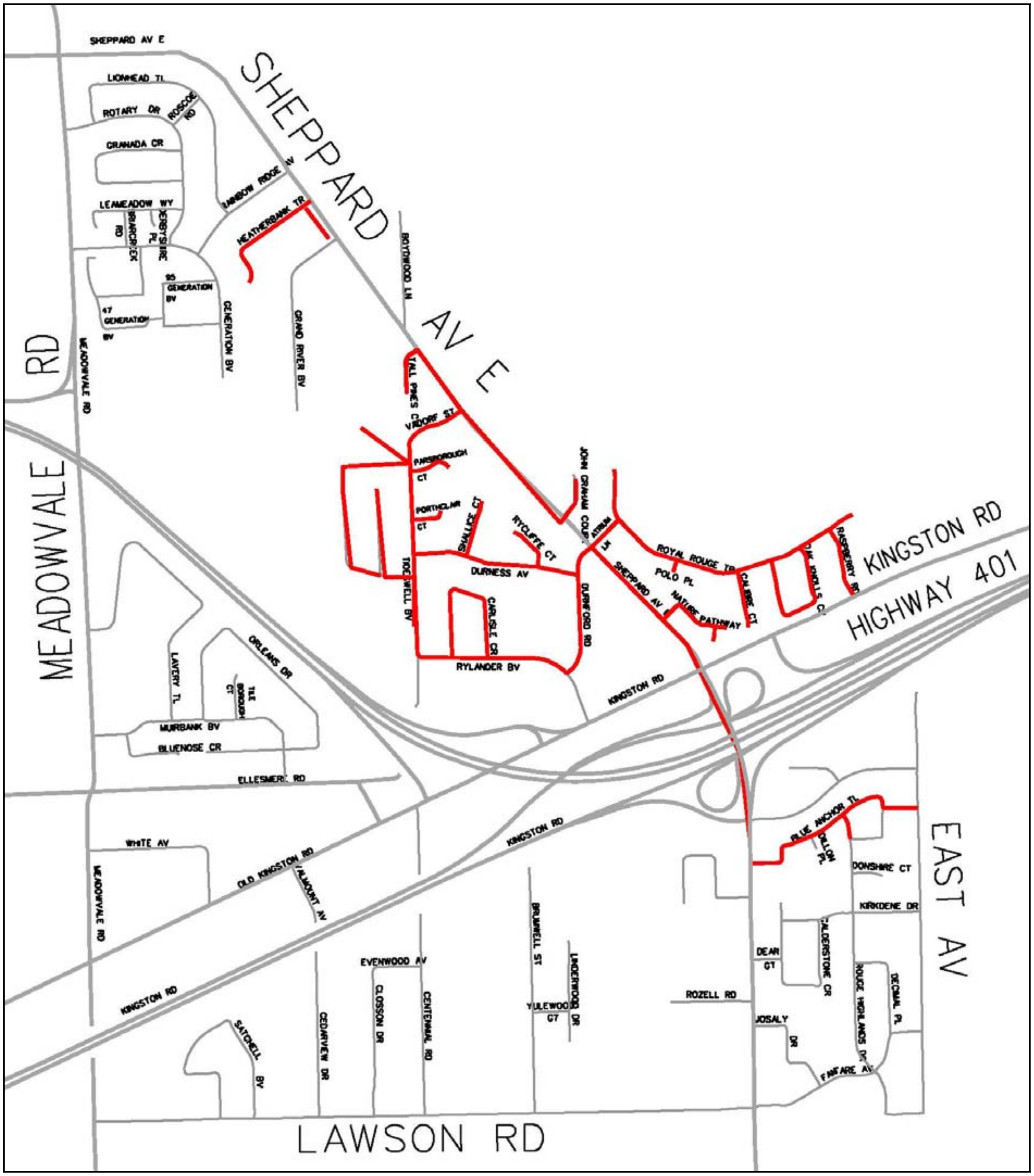


Figure 34: Map of Underground Rehabilitation of Feeder SCNA47M17

31.5. Required Capital Costs

There are ten phases in this job for a total estimated cost of $1.10M. /UF, US

Table 94: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)	
20207	E12239 Royal Rouge Trail UG Rebuild 47M17-Civil (DESIGN ONLY)	2012	$0.05	/UF, US
20200	E12240 Durnford/Rylander/Tideswell 47M17 3-Ph Loop-Civil	2012	$0.89	/US
20209	E12241 Rebuild Tallpine Subd and Durnford TH 47M17- Civil (DESIGN ONLY)	2012	$0.05	
20208	E12242 Royal Rouge Trail UG Rebuild 47M17-Electrical (DESIGN ONLY)	2012	$0.01	
20206	E12243 Durnford/Rylander/Tideswell 47M17 3-Ph Loop-Electric (DESIGN ONLY)	2012	$0.01	
20210	E12244 Rebuild Talpine Sub and Durnford TH 47M17- Electrical (DESIGN ONLY)	2012	$0.01	/UF, US
20345	E11616 Meadowvale/Heatherbank 47M17 Cabling Civil (DESIGN ONLY)	2012	$0.02	
20313	E12281 Meadowvale/Heatherbank 47M17 Cabling Elec (DESIGN ONLY)	2012	$0.02	
20477	E12335 47M17 Blue Anchor UG Rebuild Electrical (DESIGN ONLY)	2012	$0.01	
20478	E12336 47M17 Blue Anchor UG Rebuild Civil (DESIGN ONLY)	2012	$0.03	
		Total:	**$1.10**	

32. Underground Rehabilitation of Feeder NY85M31 (W13474, W13475)

32.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY85M31 in order to improve reliability of service and mitigate potential safety risks.

32.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 3

Number of Unplanned Sustained Outages in 2012: 2

Since January of 2011, all 4 of the unplanned momentary outages and 4 of the 5 unplanned sustained outages on this feeder have been due to the failure of the cable segment being replaced through this job. The severe deterioration of this specific cable segment and increasing reactive repair costs to address these failures supports the need for this job. The pertinent loop on Lodestar Road also supplies a critical customer, the Toronto Ambulance Dispatch Centre.

/UF, US

Table 94a provides historical reliability data for this feeder.

Table 94a: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY80M29			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	1	12	571
Feeder CHI ***(Cumulative)***	3	23	58

32.3. Scope of Work

This job will install new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts. Assets to be replaced include direct-buried cable that was installed in 1977.

Table 94b: Asset Replacement

Assets to be Replaced	
Primary Cable	3,900 m

32.4. Map and Locations

The assets being replaced by this job are located on Lodestar Road. A map of the area appears in Figure 34a below.

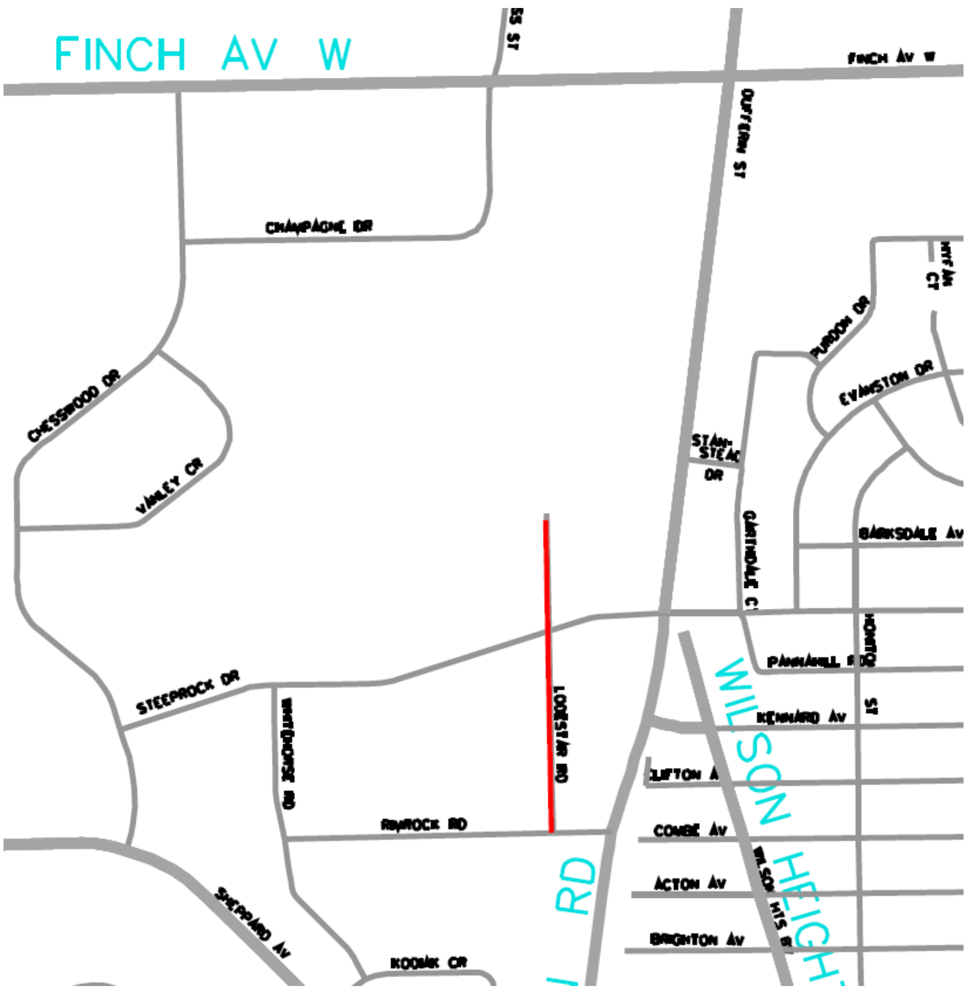


Figure 34a: Map of Underground Rehabilitation of Feeder NY85M31

/UF, US

32.5. Required Capital Costs

There are two phases to this job with a total estimated cost of $0.34 M.

Table 94c: Capital Costs

/UF, US

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
26034	W13475 UG Cable Replacement on 85M31 at Lodestar Road, Toronto (Civil)	2013	$ 0.14
26035	W13474 UG Cable Replacement on 85M31 at Lodestar Road, Toronto (Electrical)	2013	$ 0.20
		Total:	**$ 0. 34**

33. Underground Rehabilitation of Feeder SCNA502M21 (E13123, E13184, E14008)

33.1. Objective

The objective of this job is to proactively replace underground assets on the 27.6 kV feeder SCNA502M21 to improve reliability of service and mitigate potential safety risks.

33.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 2

This feeder has been experiencing worsening reliability, as is evident from Table 95. The majority of CI and CHI in 2009, 2010, and 2011 were due to underground primary cable failures.

Table 95: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNA502M21			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	7,099	4,814	8,992
Feeder CHI ***(Cumulative)***	941	1,534	6,298

33.3. Scope of Work

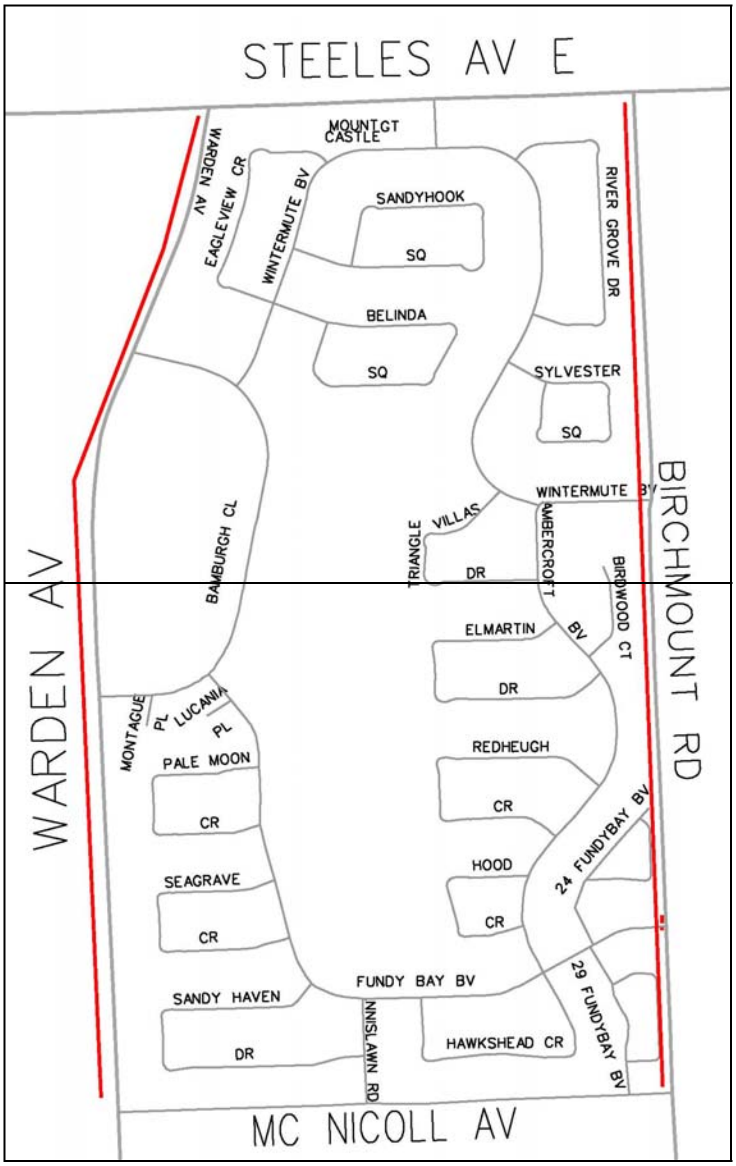
This job replaces both civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts and new SF_6-insulated switchgear. Assets to be replaced include direct-buried cable and air-insulated switchgear.

Table 96: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	16,742m	Primary Cable	16,742m
Air-insulated Pad-mounted Switchgear	4	SF_6-insulated Pad-mounted Switchgear	4

~~33.4. Maps and Locations~~

~~The assets being replaced by this job are located along Birchmount Avenue and Warden Avenue, south of Steeles Avenue East. A map of the job area appears in Figure 35.~~



~~**Figure 35: Map of Underground Rehabilitation of Feeder SCNA502M21**~~

~~33.5. Required Capital Costs~~

~~There are four phases to this job for a total estimated cost of $2.56M.~~

~~**Table 97: Required Capital Costs**~~

~~**Job Estimate Number**~~	~~**Job Phase**~~	~~**Job Year**~~	~~**Estimated Cost ($M)**~~
~~21585~~	~~E13123 Rebuild Trunk 502M1 M22 Birchmount-Civil~~	~~2014~~	~~$0.88~~
~~21933~~	~~E13184 Rebuild UG Trunk 502M21-28 Warden -Civil~~	~~2014~~	~~$1.28~~
~~21586~~	~~E14008 Rebuild Trunk 502M1 M22 Birchmount - Electrical~~	~~2014~~	~~$0.40~~
		~~**Total:**~~	~~**$2.56**~~

34. Underground Rehabilitation of Feeder SCNT47M1 (E11087, E12195, ~~E12210,~~ E12212, ~~E12213, E12225,~~ E12288, ~~E12299,~~ E12300, ~~E12316,~~ E12520 ~~and E13079~~) /US

34.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder SCNT47M1 in order to improve reliability of service and mitigate potential safety risks.

34.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 2

Table 98 presents the historical reliability of this feeder. The higher CI and CHI figures in 2010 are primarily due to a spike in overhead asset failures in 2010. The improvement in reliability in 2011 (and in 2010 if the overhead asset failures are removed from the data) are due to approximately $7 million in underground rehabilitation work completed in 2009. Prior to 2009, the feeder was experiencing an increasing number of underground asset failures. This job will address the remaining aged undergound assets on this feeder, including direct buried cable sections that have experienced multiple failures, in order to provide long-term reliability improvement for the feeder.

Table 98: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – SCNT47M1			
Reliability Metric	**2009**	**2010**	**2011**
Feeder CI ***(Cumulative)***	6,436	11,039	2,151
Feeder CHI ***(Cumulative)***	3,493	7,163	143

34.3. Scope of Work

This job involves design work as well as installation of civil and electrical assets. This job installs new 28 kV Aluminum TR-XLPE cable in new concrete-encased ducts, new SF_6-insulated switchgear, and new submersible transformers. Assets to be replaced include direct-buried cable, air-insulated switchgear and submersible transformers. /US

Table 99: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	58,680 m	Primary Cable	58,680 m
Submersible Transformers	16	Submersible Transformers	16
Air-insulated Pad-mounted Switchgear	4	SF_6-insulated Pad-mounted Switchgear	4
Air-insulated Vault-installed Switchgear	5	SF_6-insulated Vault-installed Switchgear	5

34.4. Maps and Locations

The assets being replaced by this job are located in the area bordered by Neilson Road to the east, Markham Road to the west, Finch Avenue to the north, and Highway 401 to the south. A map of the job area appears in Figure 36.

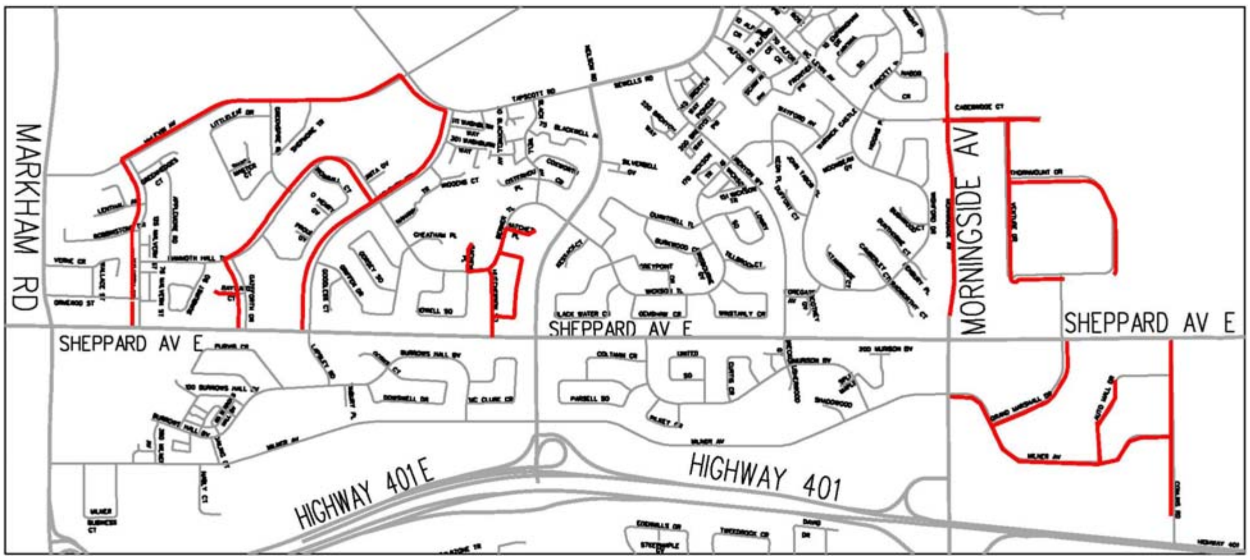


Figure 36: Map of Underground Rehabilitation of Feeder SCNT47M1

34.5. Required Capital Costs

There are six phases to this job in 2012 and 2013 for a total estimated cost of $6.63M. **/UF, US**

Table 100: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)	
24664	E11087 Grand Marshall Cable Repl SCNT47M1 – Civil and Electrical	2012	$0.57	/UF
21287	E12520 UG Rebuild NT47M1 Conlins Milner- Civil	2012	$1.30	/UF
19999	E12195 Mammoth Hall UG Rebuild Civil NT47M1	2013	$3.42	
~~20051~~	~~E12213 Morningside Avenue UG Rebuild Electrical NT47M1~~	~~2014~~	~~$2.05~~	
~~20417~~	~~E12299 Gateforth Drive SCNT47M1 UG Rebuild (Civil)~~	~~2014~~	~~$0.27~~	
~~21288~~	~~E13079 UG Rebuild NT47M1 Conlins Milner - Electrical~~	~~2014~~	~~$0.99~~	
20383	E12288 NT47M1 - UG Rebuild in the Hutcherson Sq area Electrical (DESIGN ONLY)	2012	$0.01	/UF, US
20388	E12300 NT47M1 - UG Rebuild in the Hutcherson Sq area Civil (DESIGN ONLY)	2012	$0.01	/UF, US
~~20059~~	~~E12210 - Venture Drive UG SCNT47M1 - Civ / Elec~~	~~2014~~	~~$1.92~~	
20058	E12212 Venture Drive UG Rebuild Civil SCNT47M1	2012	$1.32	/UF, US
~~20013~~	~~E12225 Mammoth Hall UG Rebuild Electrical NT47M1~~	~~2014~~	~~$1.21~~	
~~20424~~	~~E12316 Gateforth Drive SCNT47M1 UG Rebuild (Electrical)~~	~~2014~~	~~$0.14~~	
		Total:	**$6.63**	/UF, US

35. Underground Rehabilitation of Feeder NY55M21 (W13193)

35.1. Objective

The objective of this job is to proactively replace underground assets on 27.6 kV feeder NY55M21 in order to improve reliability of service and mitigate potential safety risks.

35.2. Historical Reliability Performance

Number of Unplanned Sustained Outages in 2011: 2

Number of Unplanned Sustained Outages in 2012: 7

Table 98 presents the historical reliability of this feeder. Although the yearly cumulative number of interruptions per customer appears to be improving, the cumulative outage duration per year has increased in the last three years. 16% of the outages in the last three years and all 7 unplanned sustained outages this year (2012) on the feeder have been due to underground cable failures. Prior to 2009, the feeder was experiencing an increasing number of underground asset failures.

/UF, US

Table 100a: Historical Reliability Performance

HISTORICAL RELIABILITY PERFORMANCE – NY55M21			
Reliability Metric	**2010**	**2011**	**2012**
Feeder CI ***(Cumulative)***	1,254	189	170
Feeder CHI ***(Cumulative)***	716	381	836

This job rebuilds the area supplied by the feeder that has experienced multiple direct buried cable failures.

35.3. Scope of Work

This job installs both civil and electrical assets. The job installs new 28kV Aluminum TR-XLPE cable in new concrete-encased ducts and new submersible transformers to replace the aged and poorly performing direct buried cables and end-of-life submersible transformers.

Table 100b: Asset Replacement

Assets to be Replaced		**New Assets to be Installed**	
Primary Cable	7,500m	Primary Cable	7,500m
Submersible Transformers	3	Submersible Transformers	3

/UF, US

35.4. Maps and Locations

The assets being replaced by this job are located in the primary cable loop along Deerhide Crescent, Arrow Road and Pemmican Court. A map of the job area appears in Figure 36a below.

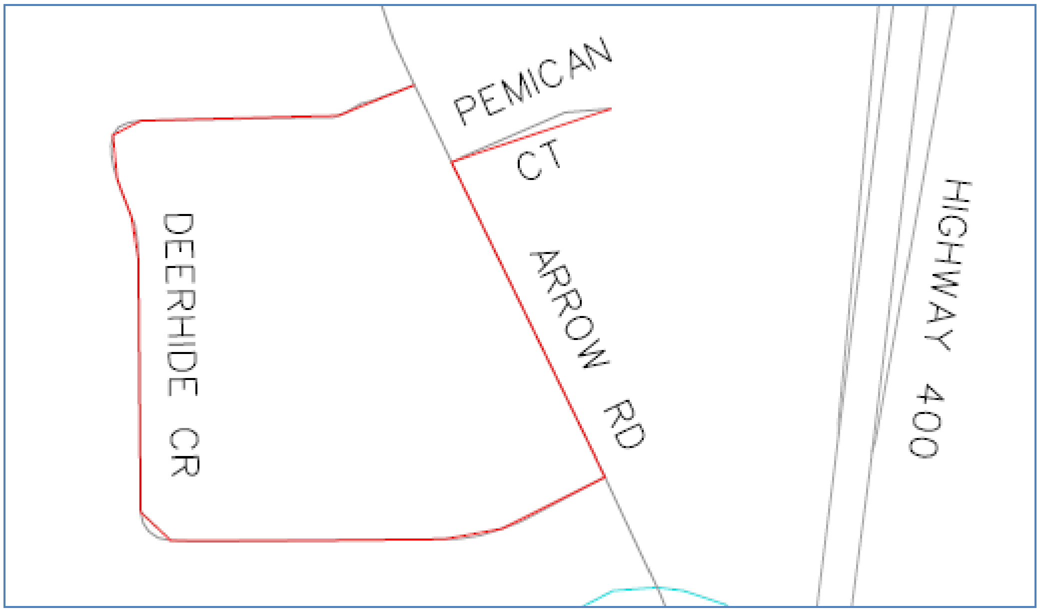
35.5. Required Capital Costs

The job is estimated at $1.51M and is planned for execution in 2013.

Table 100c: Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimate Cost ($M)
22319	W13193 Arrow Rd - Lateral UG Loop Replacement	2013	$1.51
		Total:	**$1.51**

/UF, US



1 **Figure 36a: Map of Underground Rehabilitation of Feeder NY55M21**

Table 103: Required Capital Costs

Job Estimate Number	Job Phase	Job Year	Estimated Cost ($M)
20380	W11614 FESI LadyShot-Eldorado DB Cable Replace	2013	$0.69
22073	W11615 FESI Keegen Cr. DB Cable Replace	2012	$0.45
20812	W12435 Faul David and Astral UG DB Res'l Rebuild	2012	$0.55
20989	W12490 FESI-UG DB Cable Rehab Bombardier Supply	2012	$0.97
		Total:	**$2.66**

/US

III NEED

1. Underground Direct Buried Cable

1.1. Overview

The installation of primary voltage XLPE cables directly into the ground – hence the term *direct buried* – dates as far back as the 1950s in the districts of North York, East York, York, Scarborough and Etobicoke within of the City of Toronto. These cables total approximately 877 conductor kilometers, representing approximately 7% of the underground primary cable in THESL's distribution grid. Sixty-six percent of these direct buried XLPE cables (580 conductor kilometers) are in need of immediate attention. /C

The most significant degradation process for XLPE cables is water treeing [Ref 1 – App A]. Water treeing and electrical treeing (the final stage of water treeing) are pre-breakdown phenomena associated with dielectric cable failure. Water treeing starts with the penetration of moisture into the cable insulation; these trees are microscopic tears within the dielectric. In the early stages of water treeing, the path between the conductor and the neutral still remains intact. However, over time, continuous seepage of moisture into the insulation and electrical stress allows ions from the conductor to start migrating into the microscopic tears. These voids then become carbonized and form electrical trees. Once this final stage of treeing is reached, the cable starts to fail rapidly due to internal short circuits that occur between the primary conductor and the neutral conductor on the outside of the cable insulation as shown in Figure 40.

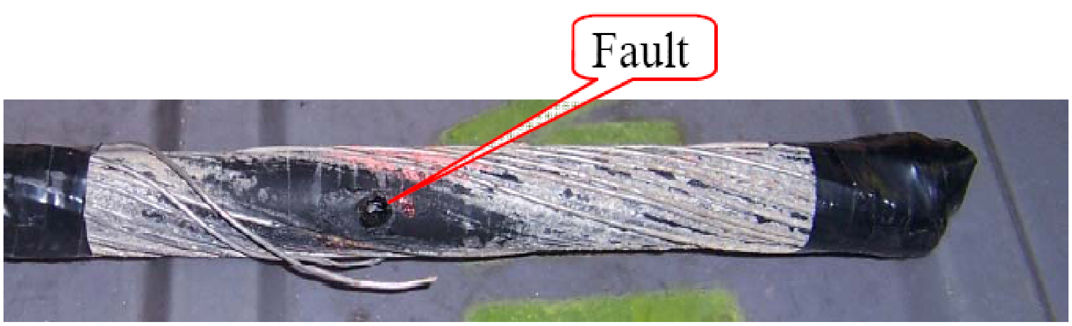


Figure 40: Fault due to premature insulation failure (taken on January 14, 2009)

and 2006 there were a total of 337 reported contact incidents on underground cables due to dig-ins in Ontario. Sixteen serious incidents in Ontario due to dig-ins were reported to the ESA between January 2006 and April 2007 [Ref 15 – App A].

From 2001 to 2009, the ESA reported a total of 662 contact incidents with respect to underground cable assets [Ref 16 – App A]. Despite administrative controls in place to identify underground cables before excavation begins, 4% and 7% of all underground cable outages which occurred in 2010 and 2011, respectively, were attributed to dig-ins. Therefore, direct buried cables continue to present a potentially serious safety risk to field crews and the general public.

1.4. Environmental Impact

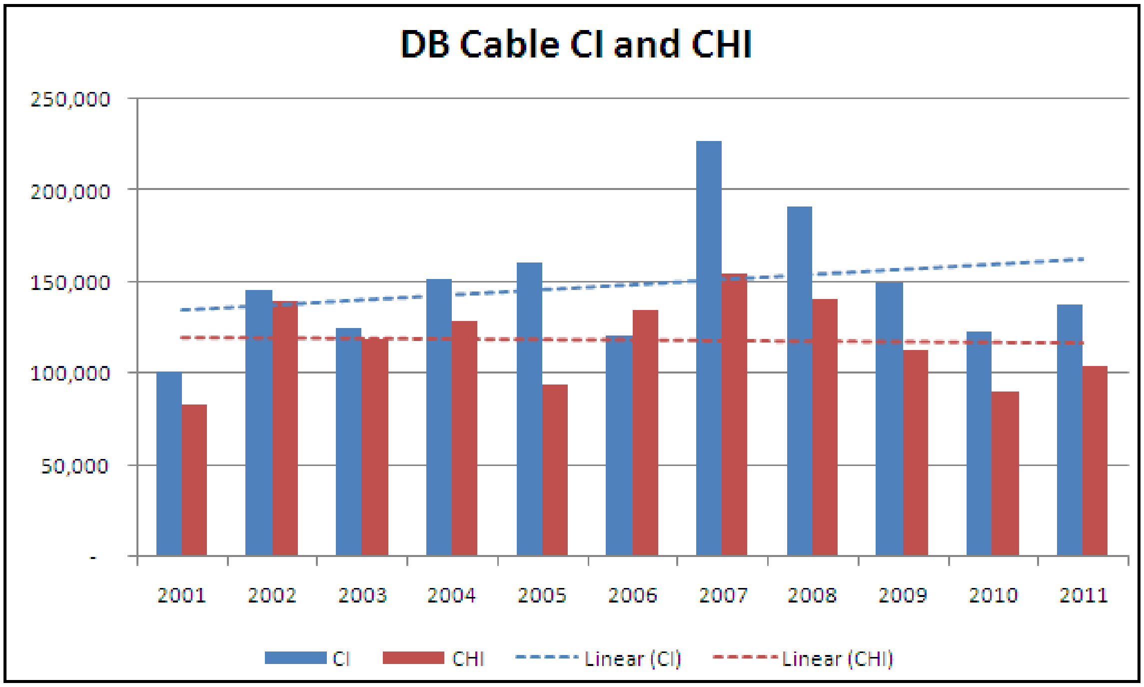
In some cases, when direct buried cables are decommissioned, it is not feasible to remove them from the earth due to factors such as municipal road moratoriums. Although there is no particular study indicating the long-term effects of these cables in the ground, due diligence and environmental responsibility dictates that when possible, the cables should be removed and disposed of. Installing cables in conduit would allow THESL to always remove failed and/or decommissioned cables.

1.5 Reliability

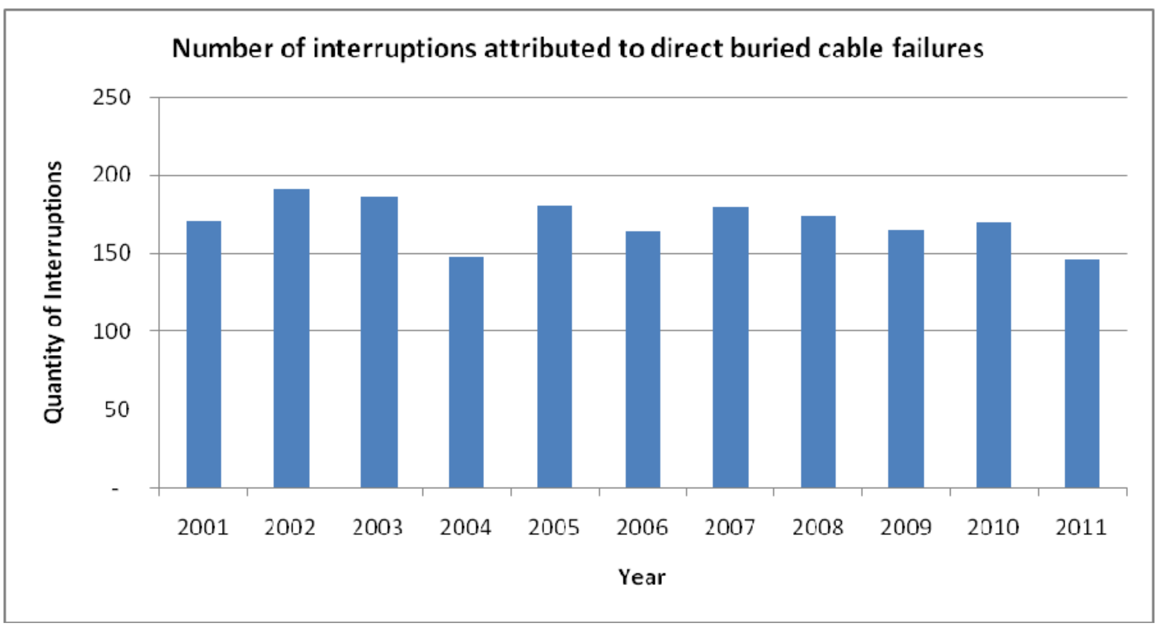
The effects of accelerated hydrothermal aging (which include water and electrical-treeing) on THESL's direct buried cables have started to become more and more apparent and have resulted in a decline in system reliability. Customer Interruptions (CI) have shown an overall increasing trend since 2001. This is illustrated in Figure 42. The total number of sustained interruptions or outages has exhibited a slightly decreasing trend over the past ten-year period, as seen in Figure 43. The slightly decreasing trend can be attributed to the direct buried cable replacement projects that started in 2007 and continued through to 2011. Over the same period, the number of sustained interruptions (due to direct buried cable) per kilometer of direct buried cable remaining in the system has been increasing. This is illustrated in Figure 43a, which also contains a trend line showing that direct buried cables are failing at an increasing rate. /C

/C

Figures 44 and 45 compare the CI and CHI impacts due to direct buried cables against the entire underground distribution system (including all primary cables). These figures both illustrate that the majority of interruptions attributed to underground system infrastructure have been attributed specifically to direct buried cable.

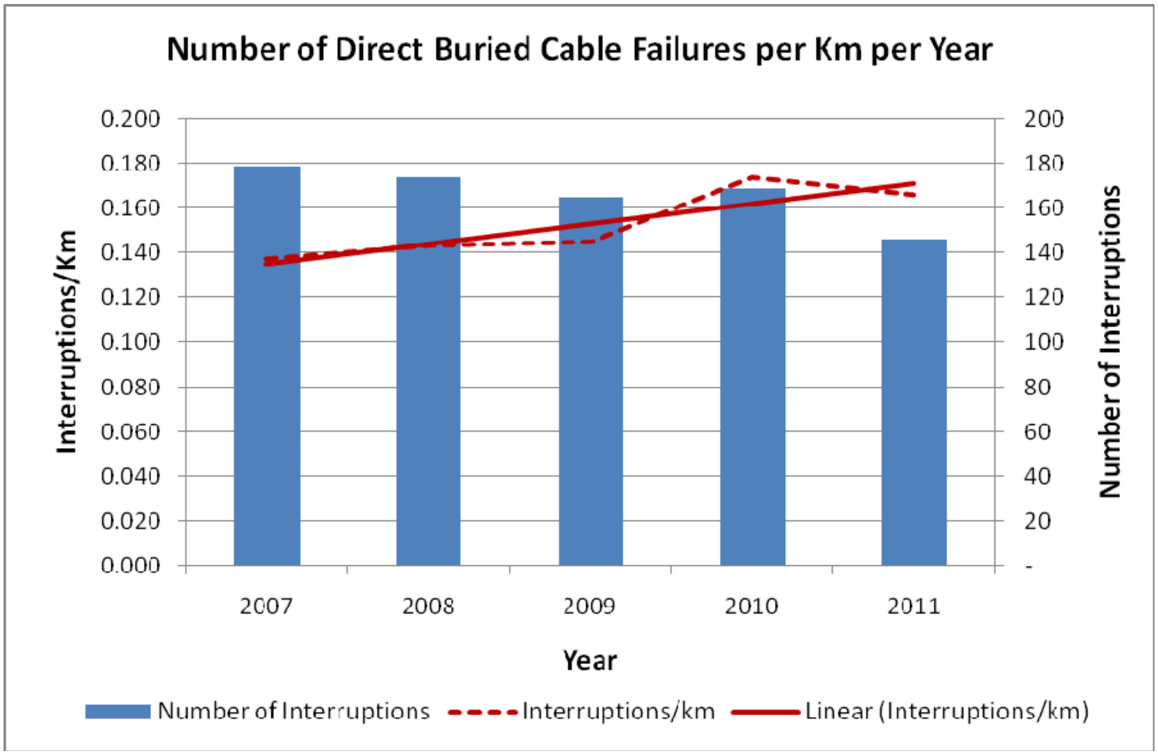


1 **Figure 42: Customer Interruptions (CI) and Customer Hours Interrupted (CHI) due to outages**
2 **attributed to direct buried cable failures.**



/C

3 **Figure 43: Number of interruptions attributed to direct buried cable failures. Each**
4 **interruption increases the Feeders Experiencing Sustained Interruptions (FESI) count.**



/C

Figure 43a: Number of sustained interruptions, attributed to direct buried cable failures, per kilometer of direct buried cable remaining in the system.

The process for locating and repairing a failed segment of direct buried cable, described at the beginning of this section, can be quite lengthy. Table 1 lists significant outages over the past ten years that were caused by direct buried cable failures. The table includes the system average interruption duration index (SAIDI) contributions of each of these failures. In one case, customers were out of power for more than a day.

Table 1: Examples of direct buried cable failures that caused significant outages

Year	Feeder	District	Outage Duration (Hours)	SAIDI Contribution (Hours)
2002	NY51M3	North York	6.42	0.0162
2007	NYSS68-F7	North York	6.68	0.0001
2008	NYSS68-F9	North York	7.37	0.0001
2010	ETLFF1	Etobicoke	27.68	0.0080
2010	NY51M6	North York	19.18	0.0006
2010	NY55M25	North York	13.55	0.0005

/C

Figure 5 provides a closer look at the typical environment in which direct buried cables are exposed over the duration of their service. More images of the difficulties and disruptions associated with direct buried cables are provided in Appendix B.

Table 3: Installation/rejuvenation costs of new 1/0 Al TR-XLPE cable and repair costs due to an unplanned outage for a single-phase circuit

	Installation / Rejuvenation Costs				Repair Due to Outage			
Option	Material / Injection Cost (per meter)	Electrical Labour Cost (per segment)	Civil Cost (per metre)	Total Installation/ Rejuvenation Cost (1)	Electrical Material and Labour Cost	Civil Cost	Total Costs	Total Costs per metre
1.Performing reactive work on the feeder (i.e. replace XLPE with strand-filled TR-XLPE)	$13.41	$1,822.24	$240.18	$27,181.33 (3)	$4,922.37 (2)	$1,244 (per splice-pit) (3)	$6,166.04	$6,166.04
2. Rejuvenate existing XLPE direct buried cables via cable injection	20.01	$3,352.08	$522.50	$57,603.08	$4,922.37 (2)	$1,244 (per splice-pit) (3)	$6,166.04	$6,166.04
3. Replace existing XLPE direct buried cables with new strand-filled TR-XLPE direct buried cables	$13.41	$1,822.24	$240.18	$27,181.33	$4,922.37 (2)	$1,244 (per splice-pit) (3)	$6,166.04	$6,166.04
4. Replace existing XLPE direct buried cables with new strand-filled TR-XLPE cables in concrete-encased ducts (5)	$13.41	$2,162.90	$380.40	$41,544.32	$6,171.12 (4)	N/A	$6,171.12	$61.71

/C

Table Notes

1) The total installation assumes 100m segment and cable length.

2) Each faulted cable will require two splices; this price reflects the cost of two splices plus labour.

3) This is assuming that the fault is located on the first try and only one splice pit is required, otherwise multiple pits may be needed and accounted for in the repair calculations.

4) This price assumes a 100m length of cable between two cable chambers is being replaced since the entire cable run of a ducted cable needs to be replaced after a fault.

5) 2x3 duct configuration /C

From Table 3 it can be seen that the initial capital cost associated with Option 4 is higher than that of Options 1, 2 and 3. Although it appears that the repair costs of Option 4 are slightly /C higher than those of Option 3, it should be noted that these costs only account for the repair of a single faulted section. Typically, when an aged direct buried cable fails once, other failures will begin to occur on the same segment. Based on field experience, if three or more insulation failures occur on a single cable segment that feeder is flagged as unreliable and a recommendation is made to rebuild the entire area associated with that cable segment.

Here, two recent examples of repeated failures on the same segment of direct buried cable are presented; in both cases the entire cable segment now needs to be replaced. The first example is that of a direct buried segment of feeder NYSS53M7. The 35 meter segment has failed nine times since 2008, with four of the failures occurring in January and February of 2012. Field crews have also reported that the insulation of this cable segment is severely damaged to the point that it is visually noticeable. Thus this feeder has been flagged as one which needs immediate attention.

The second example is the case of feeder SCNAE5-M29. In 2009 a segment of this feeder between two transformer stations was flagged due to poor reliability. Some remediation was performed and the feeder trend started to show signs of improvement therefore the jobs and sub-jobs originally assigned to this feeder were deferred. However, the feeder started to fail again in the fall of 2011 and further remediation actions were taken. This did not improve the reliability of this segment of the feeder. The repeated failures deteriorated the dielectric insulation to the point that recently, when field crews attempted to transfer load in order to upgrade pad-mounted switchgear, the cable segment failed.

Unfortunately this is a common scenario experienced by various utilities in the industry as reported by Jack H. Lawson in his paper, *Utility URD Cable Experience* [Ref 12 – App A]

Using the data in Table 3 it can be seen that the cost of repairing the direct buried cable segment along feeder NYSS53M7 – four times in January and February – carried a cost $24,662.40. Additional costs were incurred to address the previous failures, and further costs

/C

will be incurred to reactively replace the entire 35-metre segment. Had this cable segment been concrete encased, after the first fault the entire segment would have been replaced with a new segment for a cost of $ 6,171.12. /c

It is therefore fair to conclude that the repair costs associated with direct buried cable failures could be as high as four times those which are indicated in Table 3. Furthermore, the cables in /c concrete-encased ducts will have their asset life renewed (when they are replaced) and will be able to last longer and provide more reliable service compared to the direct buried cables that are not only weakened due to age, but also due to the added splices during repairs. Hence, among the options discussed, Option 4, proactive replacement of direct buried cable with cable in concrete-encased ducts, is the most prudent option.

2) Air Insulated Pad-mounted Switchgear

THESL considered five options to mitigate the reliability and safety risks associated with this equipment:

a) Accelerated maintenance frequency
b) Reactively replace a failed unit with a similar unit
c) Install a moisture barrier at the base of each switch
d) Reactively replace a failed unit with a Pad-Mounted Enclosed (PME) unit
e) Proactively replace with non air insulated pad-mounted switchgear

Option 1: Accelerated Maintenance Frequency

Air-insulated pad-mounted switches are maintained on an annual basis. Maintenance involves visual inspection and infrared and ultrasonic scanning of the live switchgear unit to determine the presence of excess contamination buildup, hot spots and corona discharge (partial electrical discharge in the air). Corrective work resulting from maintenance activities involves carbon dioxide (CO_2) washing of the energized unit to remove dirt and other contaminants while maintaining power supply to customers. Carbon dioxide (CO_2) washing is a process whereby dry ice pellets are propelled at a high velocity by a compressed air gun. Upon impact, the dry ice creates a micro-thermal shock (caused by the extreme cold temperature of -79º C) that breaks the only one of these options that addresses the failure mode associated with air-insulated pad-mounted switches.

3) Avoided Risk Cost

The effectiveness of the Underground Infrastructure segment can be further highlighted by determining how much cost is avoided by executing this work immediately as opposed to executing it in 2015. These avoided costs include quantified risks, taking into account the assets' probability of failure, and multiplying this with various direct and indirect costs associated with in-service asset failures, including the costs of customer interruptions, emergency repairs and replacement.

Carrying out work on this asset class immediately instead of deferring to 2015 will result in an estimated avoided risk cost of $209 million. This figure shows that there are substantial /C economic benefits from executing this work immediately. In addition to the avoided risk cost, approximately 67,500 CI and 60,000 CHI are expected to be mitigated by the time the Underground Infrastructure segment is completed in (compared to a "do-nothing" or "run-to–fail" approach). Further explanation is provided in Appendix F.

Estimated Risk Cost. The final results are provided in Table 1. Note that a negative Project Net Cost in the avoided risk calculation indicates project benefit. /C

Table 1: Avoided Estimated Risk Cost for Underground Infrastructure Segment

Business Case Element	Cost (in Millions)
Present Value of Project Net Cost in 2015 (PV(PROJECT$_{NET_COST}$(2015))	-$147
Project Net Cost in 2012 (PROJECT$_{NET_COST}$(2012))	-$356
Avoided Estimated Risk Cost = (PV(PROJECT$_{NET_COST}$(2015)) – PROJECT$_{NET_COST}$(2012))	**$209**

/C

ICM Project – Underground Infrastructure and Cable

Paper Insulated Lead Covered (PILC) Cable – Piece Outs and Leakers Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | PILC Piece-Outs and Leakers Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $22.5 M to $9.4 M, a reduction of $13.1 M
- Revised number of Piece Out and Leaker Repairs proposed for 2012/2013 to 10, with jobs for 2014 to be addressed in Phase Two
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Bridgman to High Level PILC Feeder Replacement job divided into separate civil and electrical work phases, with civil work to proceed in 2013
- Corrected numerical and typographical errors

Figure 1: Leaking PILC Cable (January 18, 2012)

This segment includes ten discrete jobs to repair and replace Paper Insulated Lead Covered (PILC) cable in 2012 and 2013, ~~and 2014~~ at an estimated cost of $9.4M. **/UF, US** **/UF, US**

Each cable chamber in each job must be inspected to determine if any deficiencies, other than the known leaking cables and cables requiring piecing out, have occurred since the last inspection.[1] Leaks can occur along the cable itself or on the lead sleeves encapsulating cable splices. As part of the work, cables will be placed and racked in a way such that the center of the cable chamber remains clear of cable for safe access and egress. In some limited cases, a leaking PILC cable can be repaired with the replacement of the lead sleeve over the splice.

[1] As discussed more fully below in Section III, "piecing out" refers to the process of extending a cable in a chamber, usually by adding an additional piece of cable, such that it has the correct length to allow placement on cable racks, thereby permitting ample clearance for personnel entering a cable chamber, and also providing proper support to prevent damage to the cable.

II DESCRIPTION OF WORK

1. Bridgman to High Level PILC Feeder Replacement

1.1. Objectives

After the near miss incident that occurred on a feeder connecting Bridgman to High Level stations on December 15, 2011, and explained in detail in Section III-1.1, all the PILC cables connecting these two stations and housed in the same civil infrastructure were inspected by THESL personnel. The results of these inspections show that many of the cables are leaking beyond the point of repair. Faults in these cables have taken a HONI transformer out of service six times in the past one and a half years which is not a sustainable approach for continuity of service, and it is also putting HONI assets at risk at the station.

The objective of this job is to address THESL's safety and operational issues, as well as concerns about HONI's equipment.

1.2. Scope of Work

The total work required by the Bridgman to High Level PILC feeder replacement includes replacement of eight feeders that run between Bridgman and High Level Station. The scope of work identified for 2013 consists of necessary civil work. The feeders are A31BH, A32BH, /US A37BH, A38BH, A43BH, A44BH, A45BH and A46BH. Since all these cables are single phase, 1500kcmil, a total of 24-1500kcmil cables, over a distance of 455m is needed. This equates to a total distance of 10.9 kilometres of new 1500kcmil cable. Because of the lack of suppliers of lead-based PILC cable today, along with the hazards associated with leaking PILC cable, the 1500kcmil PILC cable will be replaced with 1500kcmil TRXLPE cable. This cable is a larger diameter and to accommodate this cable, the civil infrastructure needs to be rebuilt. The modern standard 1,500kcmil TRXLPE cables will not fit in the existing three-inch ducts, so the /US duct banks and cable chambers must be rebuilt. This required civil work is the proposed phase of work for 2013, with an estimated cost of $3.9M. /UF, US

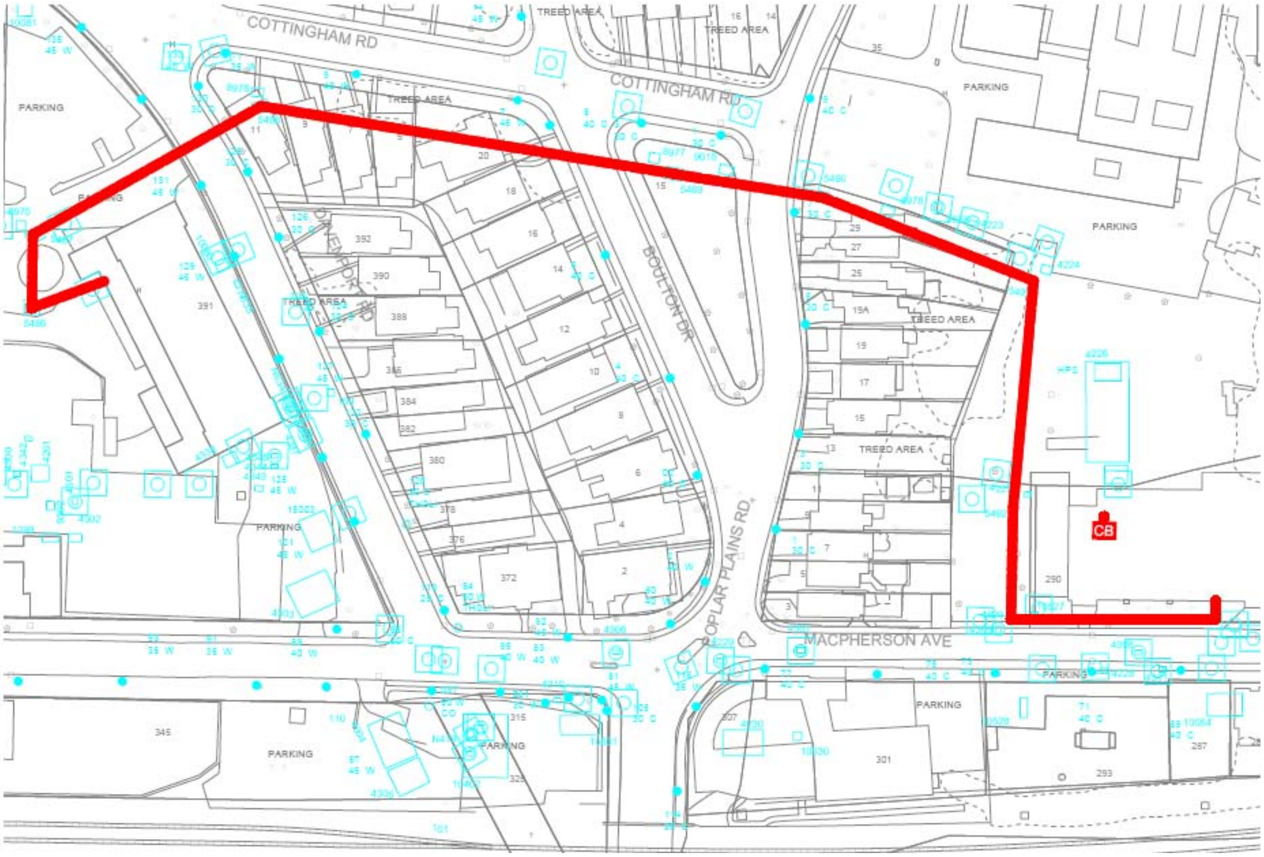


Figure 2: Project Map and Locations

Table 2: Required Capital Costs

Job Estimate Number	Job Title	Job Year	Total Estimated Cost ($M)
27177	Bridgman to High Level PILC Feeder Replacement—Phase 1—Civil	2013	3.9

/UF, US

Figure 5: Leaking Oil from PILC Cables Connecting Bridgman to High Level Stations (January 18, 2012)

2. Piece Out and Leaker Repairs

2.1 Objectives

There are nine jobs in this segment to piece out rebuilt cable chambers and repair leaking PILC /US
cable in 2012 and 2013, ~~and 2014~~ at an estimated cost of $5.5M. The discrete jobs are listed, /UF, US
and locations depicted, in Table 3 and Figure 6, below, respectively.

Table 3: Piece Out and Leaker Jobs

Job Estimate Number	Job Title	Units	Job Year	Total Estimated Cost ($M)	
21216	Carlaw Station Piece Out and Leakers	24	2013	0.51	/US
21217	Leaside Station Piece Out and Leakers	21	2013	0.18	/UF, US
21218	Esplanade Station Piece Out and Leakers	12	2013	0.11	/US
21219	Glengrove Station Piece Out and Leakers	15	2012	0.29	
21220	Cecil Station Piece Out and Leakers	17	2012	0.20	
21221	Duplex Station Piece Out and Leakers	41	2012	0.61	
21222	Main Station Piece Out and Leakers	31	2012	0.58	
19798	Windsor Station Piece Out and Leakers II	8	2013	2.24	
19554	Terauley Station Piece Out and Leakers	49	2012	0.76	/US
~~24688~~	~~Bridgman Station Piece Out and Leakers~~	~~17~~	~~2014~~	~~0.17~~	
~~24703~~	~~Gerrard Station Piece Out and Leakers~~	~~12~~	~~2014~~	~~0.10~~	
~~24706~~	~~Basin Station Piece Out and Leakers~~	~~3~~	~~2014~~	~~0.05~~	
~~24711~~	~~4kV Stations Piece Out and Leakers~~	~~103~~	~~2014~~	~~1.15~~	
2012 – 2013 Total				**5.5M**	/UF

Figure 8: Before — Cable Chamber Requiring Piece Outs at Yonge and Merton (January 16, 2012) /C

Figure 9: After — Cable Chamber showing properly supported cables and splices in a cable rack within the cable chamber (January 18, 2012)

1 **Table 4: Present Value of Options**

Business Case Element	**PV (in Millions)**
Option 1 — Deferral of Repair and Replacement Activities Cost of Ownership **[CO1]**	**$36.16**
➢ Environmental Cost	$5.06
➢ Emergency Repairs—Additional Tool Time	$31.10
Option 2 – De-energize Feeders within Cable Chamber during work activities—Cost of Ownership **[CO2]**	**$3,005**
➢ Cost of Customer Interruptions	$3,000
➢ Environmental Cost	$5.06
Option 3— Repair Leakers and Cables Requiring Piece Outs When Performing Emergency Work –Preset Value **[CO3]**	**$30.38**
➢ 2012 Project Cost	$19.9
➢ 2013 Project Cost	$10.4
~~➢ 2014 Project Cost~~	~~$2.9~~
Option 4— – Proactively Repair or Replace the Affected Cables – Present Value **[CO4]**	**$22.2**
➢ 2012 Project Cost	$17.3
➢ 2013 Project Cost	$5.2
~~➢ 2014 Project Cost~~	~~$1.5~~
Option 1 versus Option 2 PV [CO1-CO2]	**-$2,969**
Option 1 versus Option 3 PV [CO1-CO3]	**$5.8**
Option 1 versus Option 4 PV [CO1-CO4]	**$14.0**

- Assume life cycle (and PV calculation) ends at age 100.
- Assume there is no change in total number of piece out/leakers from year-to-year
- Assume average cable chamber load is 3200kVA (6 feeders, 9MVA, operating at 60% load)
- The time the feeders require to be de-energized is 1 hour

Given

- Total Cable Chambers with piece-out and leakers = 484
- Average PILC Cable Segment =0.157km
- Total Cable Chamber Population = 10,854
- Total Chambers visited = 28,576
- Total Chambers with Piece-out and Leakers visited in 2011 = 1,301
- Average age of PILC cable = 28 years
- Useful Life of PILC Cable = 75 years
- Event Impact = $30/kVA
- Duration Impact = $15/kVA*h

An outage impact is calculated using 3200 kVA for 1 hour.

Outage impact= ($30/kVA)(3,200kVA) + ($15/kVA*h)(3,200kVA*1h) =$144,000 /c

The risk only remains if the cable with the piece-out or leaker does not fail, and is not replaced with a new cable. Therefore, taking the average age of the population of PILC cables, and multiplying the (probability of having a piece-out leaker) x (impact), a risk cost is calculated. This risk is taken from the average age until the population is 100 years old, and done for each cable chamber visited containing a piece out leaker. Finally, the present value in 2012 dollars is taken.

The present value of de-energizing until the cable is 100 years old is $2.3M per chamber. It is /c assumed that a given load cannot be transferred to another feeder because the standby feeder would also run in the cable chamber where work is happening, and be de-energized. Given

1,301 chambers are visited a year, this number is **$3 Billion** if all feeders are de-energized each time a worker is required to enter a chamber.

Option 3 – Repair or Replace Leakers and Cables Requiring Piece Outs when performing Emergency Work

- Assume all 1,301 leakers/piece outs are addressed within a three-year time period.
- Even with staggering of work over a three-year period, do not account for existing risks (environmental/de-energization) from year-to-year.

Because of space constraints in the cable chamber, the emergency work will be completed first and then the repairs of the piece-out and leakers completed second, stretching half the job into premium priced, over-time. Given that the Bridgeman to Highlevel station ties job cannot be completed in this manner, only the piece-out and leakers jobs can be completed on over-time.

Considering the premium over time, and the fact that the dollars of this job are spent over a three-year period, the job costs each year are:

2012 = $ 19,850,950
2013 = $ 10,358,037
~~2014 = $ 2,933,222~~

The present value in 2012 dollars, equates to **$30.4 Million** using 6.06% discount rate.

Option 4 – Proactively Repair or Replace the Affected Cables

- Assume all 1,301 leakers/piece outs are addressed within a three-year time period.
- Even with staggering of work over a three-year period, do not account for existing risks (environmental/de-energization) from year-to-year.

ICM Project | **PILC Piece-Outs and Leakers Segment**

All the dollars of this job are spent over a three-year period. Given the job costs each year:

2012 = $ 17,323,056

2013 = $ 5,179,018

~~2014 = $ 1,466,610~~

The present value in 2012 dollars, equates to $22.2 million using a 6.06% discount rate.

ICM Project – Underground Infrastructure and Cable

Handwell Replacement Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Handwell Replacement Segment

SUMMARY OF CHANGES IN THE UPDATE

- Increased 2012-2013 budget from $26.5 M to $30.3 M, an increase of $3.8 M
- 2014 jobs and spending shown in strike-through
- Corrected numerical and typographical errors

Table 1: Summary of Segment Costs

Project Estimate Number	Project Title	Year	Cost Estimate ($M)	
20178	Handwell Standardization and Remediation	2012	$15.84	/UF
25009	Handwell Standardization and Remediation	2013	$14.45	
~~25011~~	~~Handwell Standardization and Remediation~~	~~2014~~	~~$ 7.17~~	
Total:			**$30.3**	/UF, US

2. Why the Project is Needed Now

Handwells are among the top three structures with the highest number of contact voltage hits as assessed by mobile scanning inspections (See Section III). Common causes include damage from the elements, as handwells are exposed to harsh environmental conditions, third party damage whenever the sidewalk is rebuilt or repaired, degradation of cable insulation, and substandard installation of connections. If left untreated, the public may be exposed to the potential safety risk posed by electric shock through contact voltage from the following sources:

- Contact of exposed conductor with metallic plates and covers;
- Direct contact with exposed conductor; or
- Indirect contact through another medium
  - Concrete structures (including sidewalks)
  - Conductive salt water saturates concrete and a voltage gradient forms
  - Metallic poles

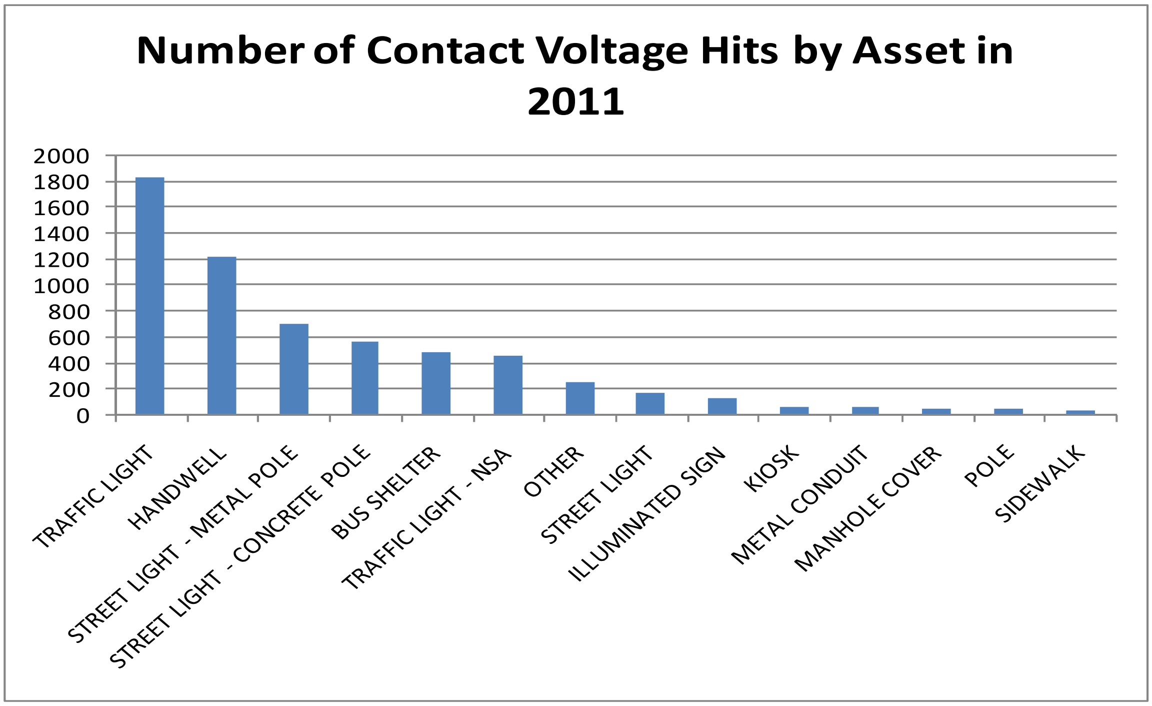


Figure 8 – 2011 Results by Asset Class

Additionally, Table 2 shows the number of energized (greater than 1 volt) handwells detected in THESL's service territory. /c

Table 2 – Number of Energized Handwells /c

Year	Numberof Energized Handwells Detected (>1 Volt)
2009	777 (Note: scanning commenced partway through 2009)
2010	1,219
2011	1,226
2012	524 (Note: includes results up to the end of March 2012)

/c

Any contact voltage occurrences that are not proactively detected through mobile scanning have the potential to harm members of the public. In 2011, there were eight recorded handwell contact voltage incidents which resulted in claims against THESL. These incidents are listed in Table 3. /C

Table 3 – Contact Voltage Incidents on Handwells (2011) /C

Date	Location	Description of Incident
January 4	Wellesley/Bay	Dog shocked
January 6	Bay/Elm	Dog shocked
January 15	Yonge/St. Clair	Dog shocked
January 21	York/King/Wellington	Person shocked
February 11	644 Danforth Avenue	Dog shocked
March 8	Eglinton/Scarlett	Dog and person shocked
March 26	638 Danforth Avenue	Dog shocked
August 3	56 McGill	Dog shocked

IV PREFERRED ALTERNATIVE

1. Project Description

The Handwell Replacement program will replace the above components which were installed based on previous standards with new components meeting the current standards. This work is intended to enhance public-safety by mitigating the potential risk of contact voltage through ongoing handwell replacements. This approach is preferred, as opposed to deferring the required work to some later date and not mitigating potential safety risks.

This work begins by addressing the highest risk areas in the downtown core due to higher pedestrian traffic and a greater number of handwells with a resulting concentration of contact voltage occurrences. THESL will then begin replacement in other areas of the City with handwells that are identified as not being constructed to current standards. The cost of this approach is an estimated $30.3 million to remediate about 4,665 handwells. This is expected to /UF result in replacement of the vast majority of metal handwells, thereby reducing the potential safety risk of contact voltage to the public.

The alternative to the proposed replacement program would be to replace handwells reactively when specific instances of contact voltage are identified, or if they fall within the scope of a related distribution project. While this option would defer capital expenditures, it will also result in a higher potential public safety risk. As the existing handwells continue to age and the condition of the cables within them continues to deteriorate, an increase in contact voltage occurrences is expected, further compounding the risk.

Moreover, even if this work is deferred in the short term, the existing handwells eventually will require replacement due to their deteriorated condition. Reactive replacement costs may also be higher for locations identified during contact voltage scans due to the costs of after-hours work and delays in permitting. THESL believes that it is prudent to complete this work in the near term in order to address the potential safety risk.

2. Project Scope and Cost

Handwell replacement typically involves the following tasks:

- Excavation and removal of legacy handwells
- Replacement of active handwells with non-conductive units
- Replacement of underground secondary mains cable with a superior, dual-insulation cable
- Remaking all connections in handwells to the current standard

Forecast costs are based on an average a handwell replacement cost of approximately $6,900 per unit and do not include unforeseen locations requiring remediation.

Table 4: Handwells - Summary of Project Costs /C

Project Estimate Number	Project Title	Project Year	Cost Estimate ($M)	
20178	Handwell Standardization and Remediation	2012	$15.84	/UF
25009	Handwell Standardization and Remediation	2013	$14.45	
~~25011~~	~~Handwell Standardization and Remediation~~	~~2014~~	~~$7.17~~	
Total:			**$30.3**	/UF, US

ICM Project – Overhead Infrastructure and Equipment

Overhead Infrastructure Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Overhead Infrastructure Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced budget for 2012-2013 to $64.95 M as compared to $82.45 M, a reduction of $17.50 M
- Reduced number of jobs proposed for 2012-2013 to 76 as compared to 90 as originally filed, with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Replaced Figures 16-18 and 24-26 and Table 3 to include only forced outages
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Corrected numerical and typographical errors

I EXECUTIVE SUMMARY

1. Project Description

1.1. Overview

Overall, the overhead plant of Toronto Hydro Electric System Limited (THESL) covers approximately 53 percent of the total distribution system within the City of Toronto. This document discusses the immediate need to address system-wide issues associated with overhead infrastructure and proposes jobs to replace aged, deteriorated and non-standard equipment. The main body of the document begins by describing the issues associated with THESL's existing overhead plant and the options for addressing them (Section II). This is followed by summary of the work that THESL must perform on poles, transformers, conductors, switches and porcelain hardware in 2012 and 2013 ~~and 2014~~ to improve safety and reliability (Section III).

1.2. Equipment Categories

1.2.1. Wood Poles

Currently, THESL has a total of 106,860 wood poles, of which 11.4 percent are either in poor or very poor condition. This figure breaks down to approximately 2,650 poles in very poor condition, requiring immediate replacement, and about 9,530 poles in poor condition, requiring replacement in the near future (within three years). The Health Index used to assess the condition of wood poles accounts for a variety of degradation factors. These can lead to irreversible damage and include loss of pole strength, cross-arm rot, woodpecker or carpenter ant damage, surface rot at various levels of the pole, pole top feathering, wood loss and mechanical fire damage. Figures 5 through 13 in Section II below illustrate the causes and effects of pole degradation. In an extreme case pole degradation can lead to collapse as shown in Figure A.

Figure A: Fallen Pole on Acacia Road with Rotten Base

Maintaining wood poles in a satisfactory condition is essential for the delivery of reliable service to utility customers; pole failures lead to service disruptions to customers, while weakened poles present risks to THESL crew workers and potential safety risks. As part of the jobs described below, THESL will replace approximately 4,124 poles during 2012-2013. **/ US**

1.2.2. Completely Self-Protected (CSP) Transformers

Completely self-protected ("CSP") internally fused transformers ("CSP transformers") are legacy installations that were put into service prior to amalgamation of the Toronto area's six municipal electric utilities to form Toronto Hydro. CSP transformers contain fusing inside the transformer tank and are typically mounted on 35-foot poles, as shown in Figure B. Once a CSP transformer has failed in the field or the primary fuse has been activated, it must be replaced. In contrast, the current standard for overhead, pole-mounted transformers (non-CSP transformers) requires

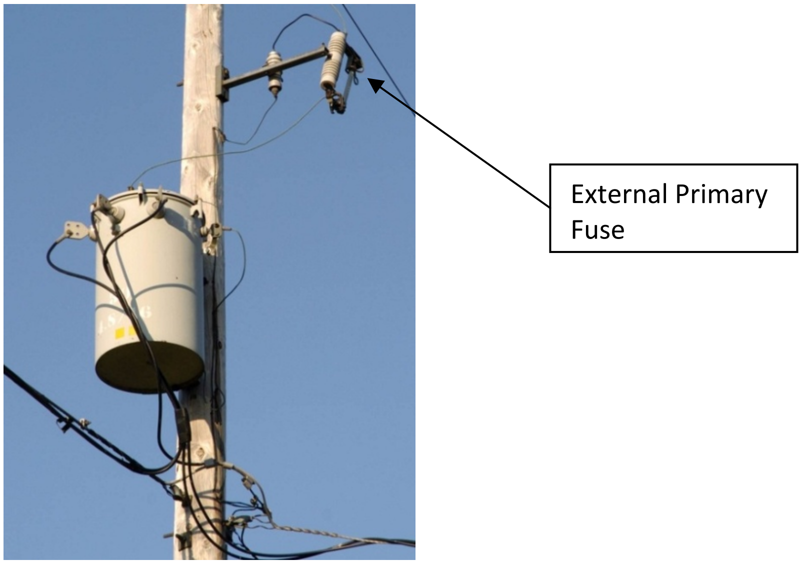


Figure C: Standard Non-CSP Transformer

CSP transformers have been failing at an increased rate resulting in poor reliability. In addition, the average repair time for CSP transformers is higher than for standard non-CSP transformers because when the internal fuse operates on a CSP transformer, the entire transformer must be replaced. For standard non-CSP transformers, in about half the outages, transformer replacement is not required because THESL can address the outage by replacing the external fuse while leaving the transformer in place. As a result, standard non-CSP transformer outages have a significantly lower impact on Customer Hours of Interruption than CSP transformer outages (See Section II).

THESL plans to proactively replace 985 CSP transformers with standard non-CSP transformers in /C
conjunction with other overhead capital work conducted the 2012 to 2014 period. The drive to improve the reliability and safety of THESL's distribution system has necessitated voltage conversion and rehabilitation of deteriorated assets throughout the city. CSP transformers encountered within the areas designated this work will be replaced with standard non-CSP transformers.

1.2.3. Overhead Conductors

Overhead conductors play a vital role in delivering power from sources of supply to points of consumption. THESL faces two key issues with respect to overhead conductors: insufficient ampacity from undersized conductors, resulting in inefficient feeder utilization and operational constraints; and bare conductor that is susceptible to outages from tree contact.

Load growth in the system necessitates upgrades to undersized conductor to avoid complications during the restoration of feeders. Furthermore, the overhead conductor asset class is also the most susceptible to tree contact interruptions due to the lack of conductor insulation and proximity to mature trees. Sustained interruptions caused by tree contacts on the trunk portion of the feeder have risen by 60 percent from 2010 to 2011.

The replacement of undersized conductors with the current standard will allow for greater amounts of load to be transferred during outages. Implementing this option would improve operational flexibility by permitting system controllers to more effectively restore power through sectionalizing or feeder load transfers. This will lead to more efficient restoration of power to customers.

THESL plans to upgrade of undersized conductor as part of other overhead capital work by integrating this initiative into jobs identified under as part of the Overhead Infrastrucure Capital Segment (See Section II). /US

Upgrading bare conductors with tree-proof conductors will improve reliability and mitigate the /C
risk of further outages as result of tree contact on feeder trunks. Investment in tree-proof conductors also will help control future tree trimming costs. Runnymede TS and Leaside TS have had the largest number of outages related to tree contacts and these outages have had the highest impacts at the station level. Feeders from Runnymede TS and Leaside TS require the upgrade of a total of 61 kilometres from bare insulated overhead conductor to 556.5

Figure E: Broken Porcelain Insulator

THESL intends to replace 400 porcelain insulators yearly with the approved polymer standard in each of 2012 and 2013 ~~and 2014~~. Typically, porcelain insulators would be replaced on feeders in locations with deteriorated pole framing hardware including highly contaminated areas such as those close to major highways as well as congested, heavily treed areas, and other areas where the potential for failure is high and where there may be associated safety risks. Replacements would occur as part of other overhead rebuild work identified under the overhead infrastructure jobs below. The cost of this effort is over two years totals $1.04 million. **/UF**

Porcelain pothead terminations also have the potential to fail in a catastrophic manner, releasing porcelain shards and dispersing oil. This can damage other nearby electrical equipment and public property. In addition, the dispersion of oil from the damaged terminations may result in a fire or an environmental hazard. Figure F shows the results of a porcelain pothead failure sending shards of porcelain onto the balcony of a nearby home, shattering the window of the family room and causing damage to the windshield of a nearby police car.

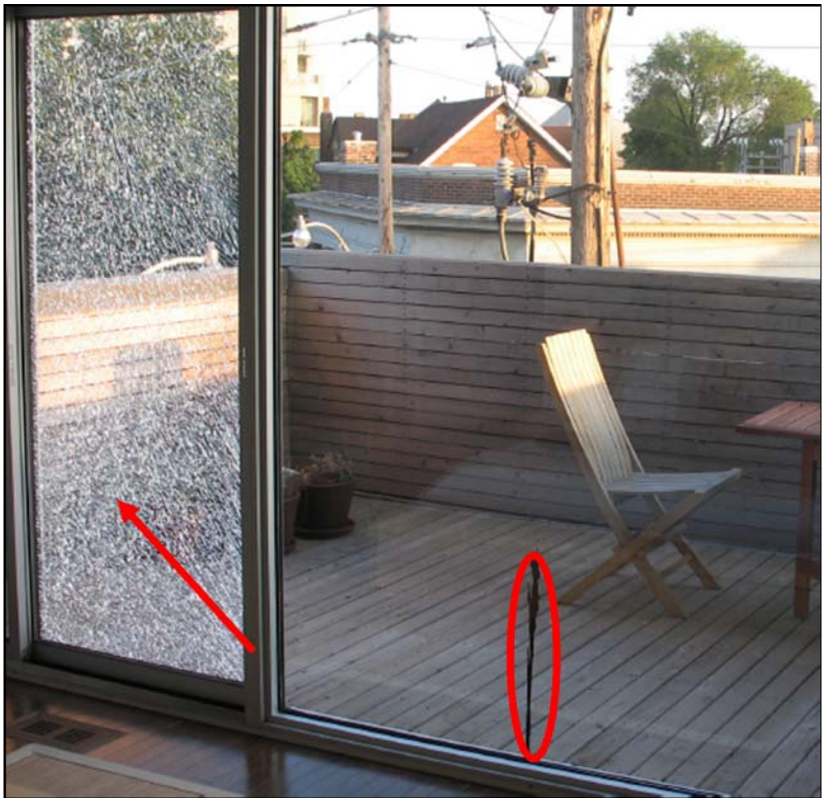


Figure F: Failure Effects of the Porcelain Pothead Terminators

There are approximately 565 porcelain pothead locations. The majority of porcelain potheads are located in the downtown core, with the remaining locations dispersed across the former distribution service areas of Etobicoke and Scarborough. Starting in 2012 and continuing through 2013, THESL plans to replace 50 locations annually, for a two-year total of 100 locations (approximately 18 percent of the total population), by first targeting public thoroughfare areas such as sidewalks, bus stops and school zones. The estimated cost of this effort over two years totals $2.23 million. **/UF, US**

1.3. Job Structure

In Section III below, THESL discusses the specific jobs that it is proposing under this segment in 2012 and 2013 ~~and 2014~~. The main approach used to structure these jobs is to identify

Table 1 – Project Cost

	Project Year	Cost Estimate ($ M)
Overhead Infrastructure	2012	$25.40
Overhead Infrastructure	2013	$39.12
~~Overhead Infrastructure~~	~~2014~~	~~$20.11~~
	Job Total	**$64.52**
Reconciliation for job cost changes < $100,000 and rounding		**$ 0.43**
	Reconciled Total	**$64.95**

/UF

2. Why the Project is Needed Now

This segment is intended to address safety and reliability issues associated with aged, deteriorated and non-standard equipment types described above. With respect to safety, the failure modes associated with the equipment types described above create potential risks for THESL crews and public at large. Only by beginning to eliminate these equipment types can THESL begin to reduce these potential risks.

In terms of reliability, the general trend shows that overhead system reliability has deteriorated over the five-year period from 2007 to 2011. More specifically, overhead switches, insulators, and lighting arrestor failures have increasingly contributed to system outage levels. These causes account for 69 percent of the Customer Interruptions (CI) and 58 percent Customer Hours Interrupted (CHI) of the total Overhead Equipment failures in 2011. The impacts of overhead equipment on Defective Equipment CI and CHI Contributions are shown in Figures G and H.

Average Interruption Duration Index (SAIDI). From a SAIFI perspective, overhead outages account for 46 percent, 56 percent and 39 percent of the Defective Equipment-related outages in 2009, 2010 and 2011, respectively. In terms of SAIDI, overhead outages account for 41 percent, 44 percent and 34 percent of the Defective Equipment-related outages for 2008, 2009 and 2010 respectively.

There are many critical issues regarding the condition of overhead assets which should be addressed immediately. These issues have implications both for reliability and safety as discussed in the following paragraphs.

3. Why the Proposed Project Is the Preferred Alternative

For each equipment category discussed in Section II below, THESL presents the range of options considered as alternatives to the proposed project. Where viable alternative replacement options exist, they are explored. For example, wood poles can be replaced with concrete poles. THESL considers this option, but concludes that, except in very limited circumstances, using concrete poles would be inferior to using wood pole owing to the cost and characteristics of concrete poles as explained below in Section II.

For most equipment categories, however, the available options reduce to two: replacing the /C
equipment over 2012 and 2013 as proposed or deferring replacement to a future date. In /US
circumstances where the equipment being replaced is no longer standard owing to safety and reliability issues (e.g., CSP transformers or porcelain insulators), THESL has adopted a new standard equipment type that addresses these issues. Thus, in these circumstances, the preferred replacement technology is already determined, only the timing of replacement remains to be decided. To consider the benefits of the proposed replacement timing versus deferral, THESL performed the Business Case Evaluation attached as Appendix 1.

In the Business Case Evaluation, the Overhead Infrastructure Segment represents an “in-kind” replacement project in which the existing overhead assets are being replaced with new in 2015 were brought back to a present value and the difference between this value and the Project Net Cost quantified for 2012 was taken as the Avoided Estimated Risk Cost. The final results are provided in Table 1.

Table 1: Avoided Estimated Risk Cost for Overhead Infrastructure Project

Business Case Element	Estimated Cost ($ M)	
Present Value of Project Net Cost in 2015 (PV(PROJECT$_{NET_COST}$(2015))	$ 222	/C
Project Net Cost in 2012 (PROJECT$_{NET_COST}$(2012))	$ 111	
Avoided Estimated Risk Cost = (PV(PROJECT$_{NET_COST}$(2015)) – PROJECT$_{NET_COST}$(2012))	**$ 111**	/C

Based on the safety and reliability benefits from completing this segment and the demonstration in the Business Case Evaluation that undertaking this segment now as opposed to 2015 has a lower net costs, the proposed segment is the preferred alternative. It is the least cost alternative to customers.

For these reasons, the preferred option, in most cases, is to replace aging wooden poles, which have reached the end of their useful lives, with new wooden poles.

2.1.3. Wood Poles Selected for Replacement

The pole replacement program is an initiative aimed at replacing poles that are in very poor and in poor condition. Pole replacements are also included in project areas targeted for overhead work due to poor reliability performance and other ongoing issues with equipment condition.[1] Currently about 2.5 percent of THESL poles are in very poor condition, which represents about 2,650 poles. Of these, 14.8 percent, or about 393 poles, are located on the trunk portion of feeders. In addition, 8.9 percent of poles are in poor condition, which represents 9,530 poles. Of these, about 17.7 percent are located on the trunk portion of feeders, which represents 1,683 poles. Figure 18 illustrates the increasing number of poles in poor and very poor condition from 2010 to 2013. If these poles are not replaced now, they will continue to /us deteriorate and pose safety and reliability risks. Deferral of replacement to future years will only increase the number of poles in poor and very poor condition requiring replacement.

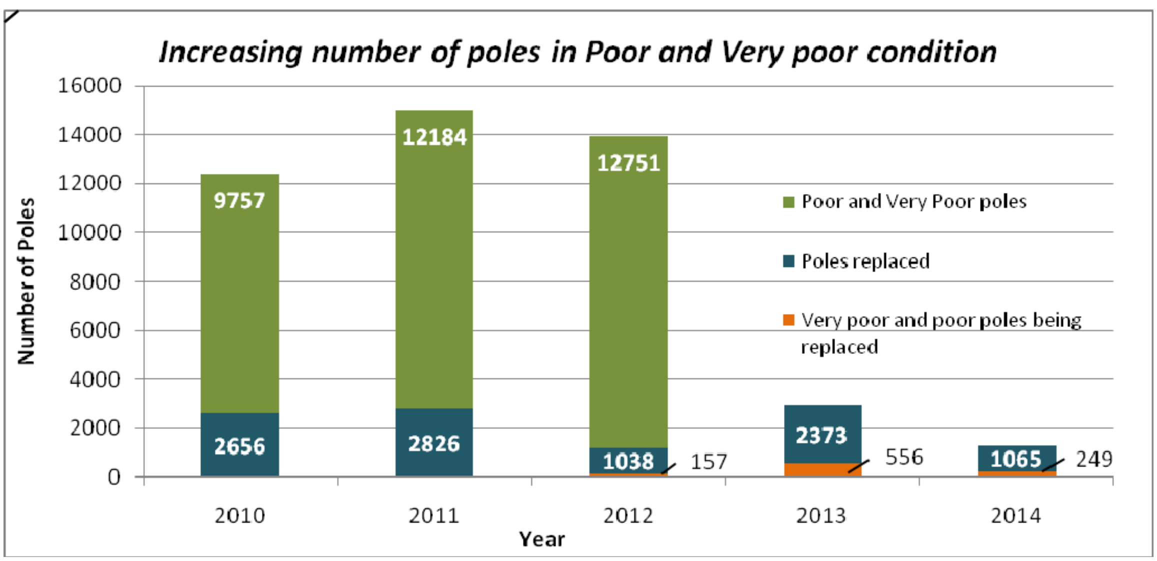


Figure 18: Increasing Number of Poles in Poor and Very poor Condition

[1] If THESL is replacing all of the wood poles in an area, it may also replace some poles in fair condition, to avoid having to return to the area and do spot replacements in the next few years. Poles in fair condition, however, are not targeted by the replacement program.

As mentioned previously, outages due to pole failures take a long time to restore (Refer to Figure 16). If the pole causing the outage is located on the trunk portion of a feeder, the outage can impact also as many as 3,000 customers. For these reasons, a wood pole replacement program is necessary to address pole failures before they occur and expose customers to lengthy outages.

Poles replacement priority is determined by pole Health Index information obtained as part of the ACA, by a pole testing program and by field assessments conducted by experienced field crew members and engineers. The poles that are identified for replacement are typically located on the Worst Performing Feeders, except for poles that are identified as Danger and Caution poles through an external contractor, which can be located anywhere.

THESL plans to replace approximately 4,124 poles during 2012-2013 (Refer to Table 2) at an average cost of about $11,854. The total cost of the pole replacement program is $48.89 million. This cost covers all of the costs normally associated with replacing a pole, but does not include the cost of replacing additional equipment located on the pole. /US /UF

Table 2: Pole replacement Program

POLE REPLACEMENT PROGRAM			
Year	**2012**	**2013**	~~**2014**~~
Poles	1,195	2,929	~~1,314~~

/US

The replacement of poles is the most practical way to ensure the continued integrity of the distribution system. This would enhance the safety of the public and THESL workforce and avoid pole failures, as well as related customer claims. A reduction in pole replacement expenditures to address end-of-life equipment will ultimately result in a continued rise in poor overhead reliability.

Maintaining poles in satisfactory condition and replacing them when required is essential for the delivery of reliable service to utility customers. Should this work be further deferred, the

the standard non-CSP transformer procedure. The longer stick allows for a greater working distance for the crew worker from the transformer and the potential risk of the lid blowing off during re-energization. Furthermore, the standard non-CSP also has the external fuse in conjunction with the current-limiting fuse to provide additional protection.

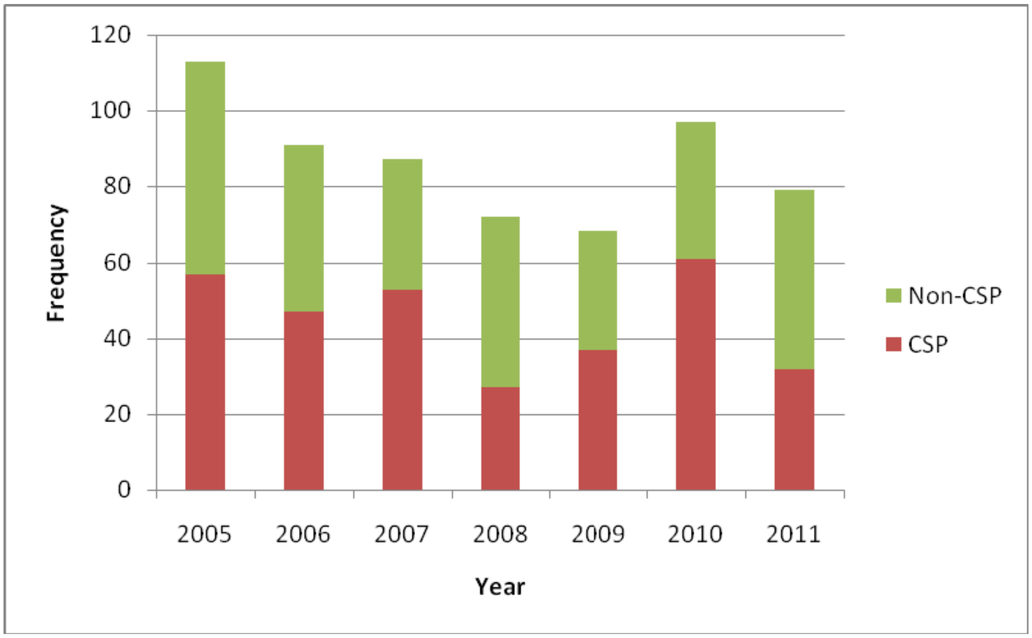
On CSP transformers, the internal fuse is designed to coordinate with the current limiting fuse (CLF), but the effectiveness of this coordination depends on the nature of the internal fault and whether the fuse has cleared properly. For example, a CLF was burning at CSP Transformer T13102 on feeder 85M23 on July 05, 2004 and became a potential safety risk for crews at the scene. As another example, on March 18, 2010, a crew arrived to find a lid blown off at CSP Transformer T8040 on feeder SS58-F1. The concern for this crew was operating on such a CSP with an 8-foot grip all stick. Incidents such as these create potential safety risks which can be avoided with standard non-CSP transformers.

THESL estimates that CSP transformers comprise only 9.2 percent of all overhead transformers. As shown in Table 3 and Figures 24 - 26, however, CSP transformers contribute disproportionately to both the frequency and the duration of outages.

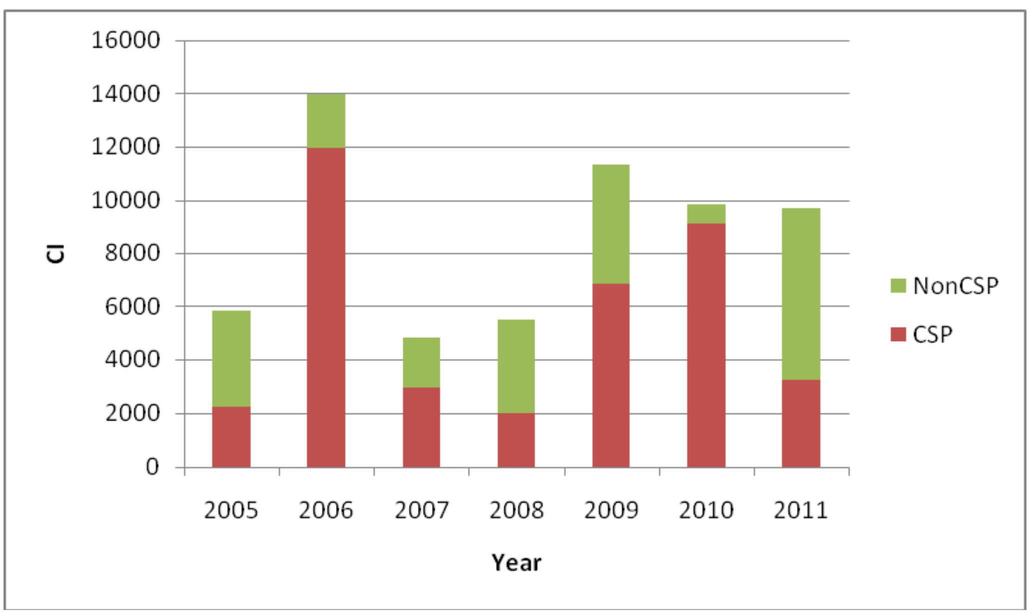
Table 3: 2005-2011 Transformer Forced Outages

	Frequency		**CI**		**CHI**	
Year	CSP	Non-CSP	CSP	Non-CSP	CSP	Non-CSP
2005	57	56	2209	3630	4923	4925
2006	47	44	11937	2042	8197	3727
2007	53	34	2929	1914	5872	3229
2008	27	45	1998	3513	1843	4872
2009	37	31	6820	4490	4062	2709
2010	61	36	9126	701	8777	2354
2011	32	47	3226	6477	2774	4900

/C



1 **Figure 24: Summary of Forced Outages Due to Transformers** /c



2 **Figure 25: Summary of Forced CI Due to Transformers** /c

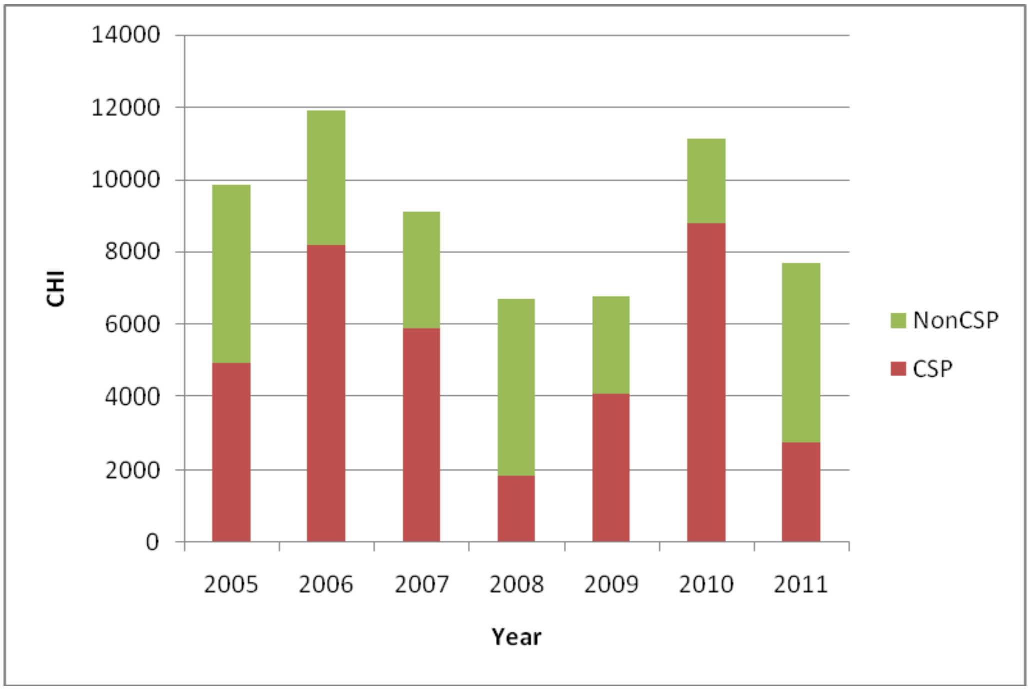


Figure 26: Summary of Forced CHI Due to Transformers /C

Standard non-CSP transformers take approximately 195 minutes to replace. This is slightly longer than the 180 minutes to replace CSP transformers, because the standard non-CSP transformers require an additional 15 minutes to install the external fuse. However, because the standard non-CSP transformers are replaced approximately half as many times as CSP transformers, standard non-CSP transformer outages have a significantly lower impact on Customer Hours of Interruption. Table 4 shows this decrease in outage duration. As this table clearly demonstrates, the standard transformer provides increased reliability compared to its CSP counterpart, due to its lower average restoration time.

Table 4: CSP vs Standard Non-CSP Transformer Outage Duration Comparison

	Standard Installation	CSP Installation	Standardization Improvement
Minutes Out Due to Blown Fuse (Typical)	15(0.5) + 195(0.5) = 105[1]	180	42%

Note: [1]The value of 105 minutes is based on a typical replacement time of 15 minutes for the external fuse and 195 minutes for the replacement of both the transformer unit and fuse.

standard non-CSP transformers. THESL plans to replace 985 CSP transformers with standard /C non-CSP transformers as part of other conversion and rehabilitation work from 2012 to 2013. This replacement is expected to reduce the number of CSP transformers operating past their /US useful lives and reduce the number of CSP transformers remaining to be replaced.

Each proposed CSP replacement with a standard non-CSP transformer includes replacement of the existing pole with a taller pole and installation of all associated external fusing hardware as shown in Figure 20.

THESL proposes to replace CSP transformers as part of other overhead capital work by integrating this initiative into regular work for rebuild jobs identified as part of the Overhead Infrastructure segment. Replacing this asset as part of an overhead rebuild is the most efficient approach because it allows THESL to undertake this work when crews are already in the area replacing other overhead infrastructure. All CSP transformers in the areas identified for overhead infrastructure rebuild will be replaced.

Option (b): Proactive Replacement of all CSP transformers with Standard Transformers

Proactive replacement of all CSP transformers with standard transformers would require that this work be carried out independently of other proposed overhead distribution conversion and rehabilitation activities. This would not be the lowest cost option as it would forego the savings associated with replacing CSP transformers and other distribution equipment at the same time as is proposed in Option (a). Not only does the approach presented in Option (a) result in lower cost, it also concentrates CSP replacements in areas where distribution rehabilitation is most needed because these are the areas where other overhead work is already planned.

Option (c): Reactively Replace Failed CSP Transformers with New CSP Transformers

Maintaining the status quo and reactively replacing CSP transformers as they fail would mean that CSP transformers will continue to fail at an increasing rate. As shown in Figures 24 to 26, CSP transformer failures had a disproportionate impact on transformer outages from 2005 to 2011. The failure rate for CSP transformers decreased from 2010 to 2011 because of an

/C

maximum capacity is overloaded. This is the minimum criteria established to undertake sectionalizing during feeder restoration in the event of an outage. Based on a bus load growth factor of one percent annually, THESL projects 24 feeders in the 27.6kV overhead distribution system will be overloaded in 2012 and expects this number to continue to rise beyond 2013 ~~and 2014~~. Figure 30 shows the projected peak loads and percentage utilization for these 24 feeders in 2012, based on one percent bus load growth.

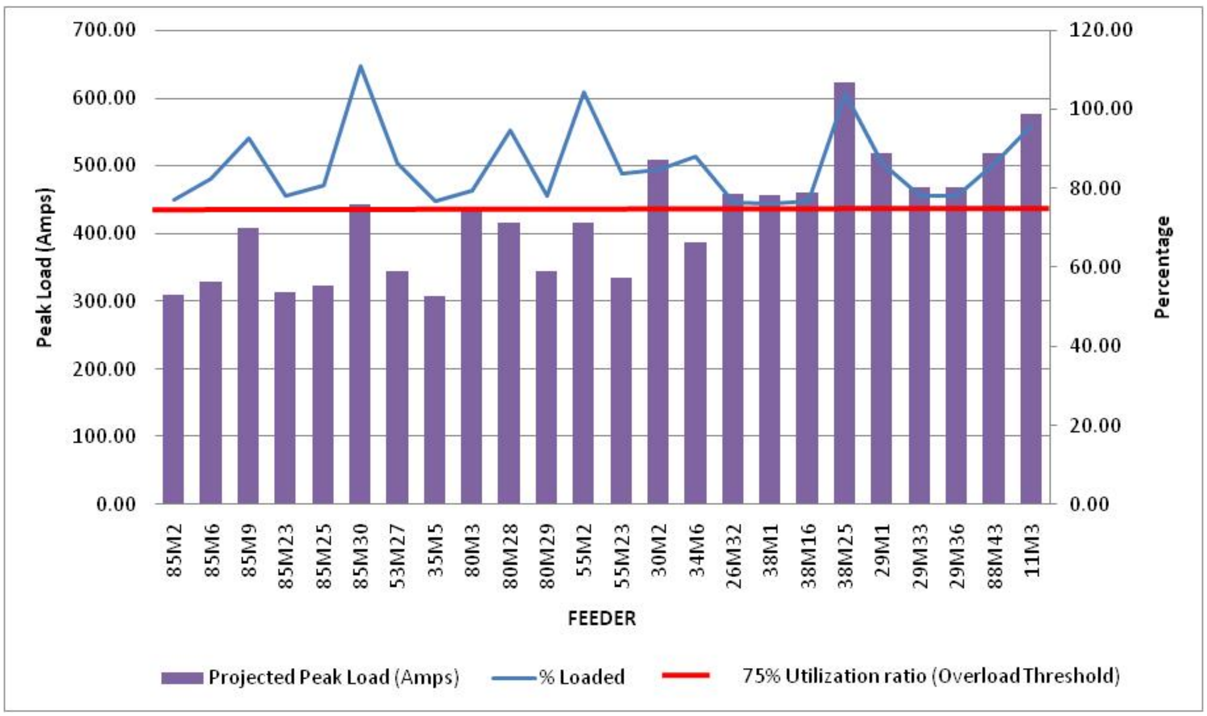


Figure 30: Projected Overloaded Feeders

Undersized conductors impede efficient service restoration. During a fault condition, load is typically transferred from one feeder to another, in order to restore as many customers as possible, as quickly as possible. When a fault occurs on a feeder, the feeder receiving the transferred load will be required to carry a higher load than under normal conditions.

Feeder utilization is defined as the actual loading of the feeder in relation to its maximum rated capacity. The greater the utilization value for a given feeder, the less flexibility there is for power system controllers to shift a desired amount of load to a feeder. Feeder load transfers

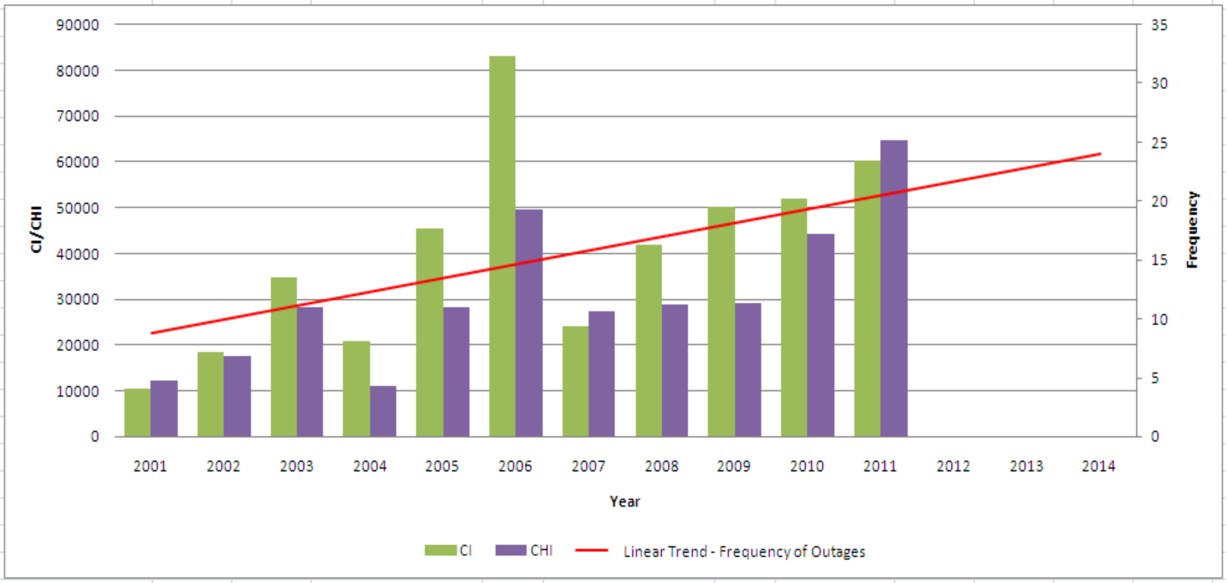


Figure 34: 2001-2011 Forced tree outages on trunk portions of feeder

Figure 35 and Table 9 (below) present a breakdown of the 12 feeders in Runnymede TS and Leaside TS that were affected by tree-related outages on the feeder trunk circuit. There is approximately 61 kilometres of bare conductor on these 12 feeders. The proportion of such bare conductor on the trunk varies between two to 50 percent. /c

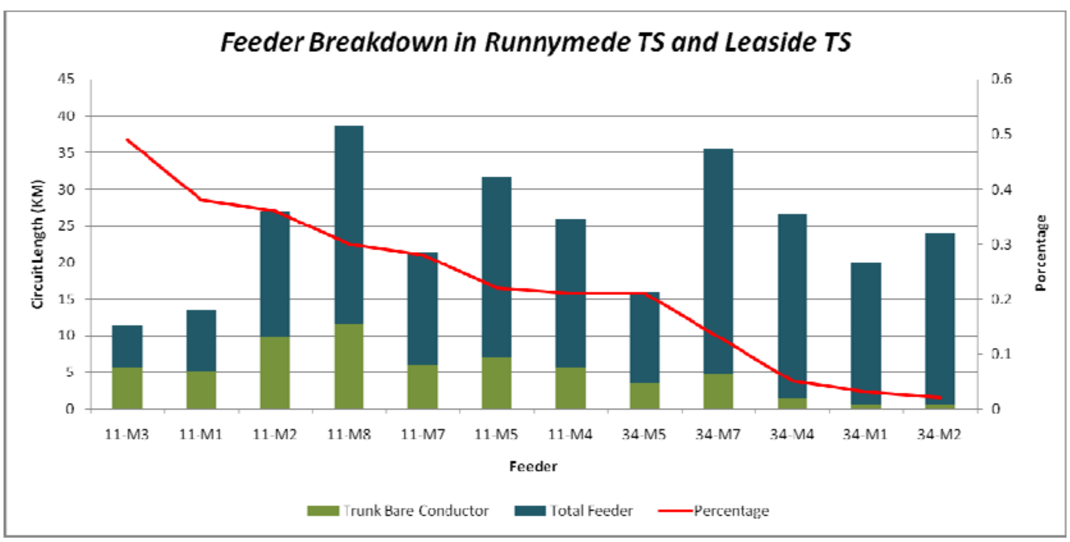


Figure 35: Runnymede TS and Leaside TS feeder breakdown

Table 9: Runnymede TS and Leaside TS feeder breakdown

Feeder	Trunk Bare Conductor (kilometres)	Total Feeder (kilometres)	Percentage (%)
11-M1	5.1136	13.48179	38
11-M2	9.7512	26.9035	36
11-M3	5.5771	11.32926	49
11-M4	5.5373	25.95147	21
11-M5	6.9671	31.56462	22
11-M7	5.898	21.34093	28
11-M8	11.4738	38.69671	30
34-M1	0.5	19.91791	3
34-M2	0.5555	23.86875	2
34-M4	1.417	26.64363	5
34-M5	3.3918	15.91608	21
34-M7	4.7133	35.59178	13
TOTAL	**60.9**	**291.21**	**21**

Tree contacts on a feeder trunk circuit will result in an outage that impacts all customers connected to the feeder, and cause the station circuit breaker to lock out. Figure 36 shows the total number of customers on each of the 12 identified feeders from Runnymede TS and Leaside TS. Thus, on each of these feeders, approximately 2,800 customers on average would experience a forced outage should there be tree contact with the feeder trunk. Tree contacts on certain feeders such as 11-M8 and 11-M5 would have the greatest impact because of the number of customers they serve and the amount of bare conductors on their trunks. /C

As previously stated, there are 96 feeders on which a portion of the conductor is undersized (less than 556.5 kcmil). These undersized portions total 82 kilometres of undersized conductor located on the trunk portions of THESL's 27.6 kV distribution system. Anticipated load growth on feeders with undersized conductor will exacerbate load transfer challenges during feeder restoration. Of the 96 feeders with undersized conductor, nine of them will be overloaded in 2012 (utilization ratio of greater than of 75 percent). The nine feeders that are both overloaded and have undersized conductor are shown on Figure 33. These nine feeders have approximately seven kilometres of undersized conductor that inhibits effective load restoration. These nine feeders need to be upgraded to THESL's standard size of 556.5 kcmil immediately.

THESL plans to upgrade undersized conductor as part of other overhead capital work by integrating this initiative into jobs identified below in Section III. /US

Option (b) Feeder reconfiguration, as part of other capital work, to balance overloaded circuits and relieve strain due to undersized conductor

Feeder reconfiguration capital projects allow for permanent load shifting and phase balancing to reduce the existing overall state of feeder operating loads. It includes permanent switching operations, switch relocations and installations, and other asset installations or upgrades such that operating loads are manageable and suitable points for load transfer exist to improve operating flexibility. This approach can alleviate excess loads on feeders with undersized conductor. However, depending on the specific feeder analysis, the options for reconfiguration on any given overloaded feeder may require intensive capital work to install, upgrade, or relocate assets. The cost of reconfiguration would likely be significantly greater than the $220,000 cost to replace the seven kilometres of undersized conductor on overloaded feeders in Option (a).

In 2012 and 2013, THESL plans to replace a total of 683 porcelain in-line disconnect and air-break gang-operated switches. The yearly breakdown is as follows: 210 locations in 2012 and 473 in 2013. The replacements will be targeted at 4kV and 27.6kV locations across the system (4kV switches will be replaced with 27.6kV units in voltage conversion projects). The proposed replacements represent approximately five percent of THESL's installed overhead switch population. /US /US

<u>Option (b): Replace All In-Line Disconnect and Manual Air-Break Gang-Operated switches on the overhead distribution system with SCADA-Mate R2 switches</u>

The functions of these switch types cannot be eliminated as they are required for the operability of the distribution grid. SCADA-Mate R2 switches can be used instead of these switch types to perform the necessary functions. The SCADA-Mate switches are faster and remotely operable, which will reduce restoration times, improve SAIDI and allow THESL to better manage service interruptions during outages. While this option could address the safety and reliability issues associated with these switches, it is not feasible because of the number of units involved. The cost and outage time required for this option would be prohibitive.

<u>Option (c): Allow the In-Line Disconnect and Manual Air-Break Gang-Operated switches to fail and replace them on a reactive basis</u>

Though this option slowly reduces the number of In-Line Disconnect and Manual Air-Break Gang-Operated switches on the system by attrition, it does nothing to address the potential safety risk associated with the switches and their failure. Deferring the replacements of the end-of-life switches is also not an option as the health of the switches will only get worse over time and lead to longer restoration times. This is not a feasible option because it does not address the problems posed by these switches.

2.5. Porcelain Hardware

2.5.1. Issues with Porcelain Hardware

Porcelain insulators are a potential safety concern because their failures can result in shards of jagged debris falling from the overhead distribution system. They are also a reliability concern

With regard to arresters and terminators, many utilities in North America are switching over from porcelain to polymer due to reasons enumerated earlier in this document. Porcelain post insulators mounted on steel, concrete and word structures have experienced cascading mechanical failures due to impact loads because of the rigidity of the structures. In THESL's experience, probably due to pressure-fitted mountings, the failure mode of arresters and terminators is typically explosive, which leads to safety concerns for both crews and the public.

Deferral of porcelain insulator replacement would increase the potential risk to public and worker safety as the equipment continues to age and failure rates climb. Porcelain potheads are legacy standards associated with PILC cables. Current work practices require the use of XLPE cables with polymer terminations for most applications since they are lighter, have improved electrical and thermal properties and require less specialization for termination and splicing. Deferral of this work would prolong the use of PILC, which is increasingly difficult to source and requires worker specialization that is difficult to maintain.

The current practice would be to reactively replace failed porcelain insulators, and porcelain potheads with the current approved polymer standard. Waiting for failures to occur before replacing these items will continue to expose the public and THESL workers to potential safety risks.

2.5.2. Options for Addressing Porcelain Hardware

The following options were considered in mitigating the risks associated with these assets:

(a) Proactively replace porcelain equipment with the approved polymer standard
(b) Reactively replace porcelain equipment with the approved polymer standard

<u>Option (a): Proactively replace porcelain equipment with the approved polymer standard</u>

Under this option, THESL proposes to replace 400 porcelain insulators yearly with the approved polymer standard in each of 2012 and 2013 ~~and 2014~~. Typically, porcelain insulators will be replaced as part of other overhead rebuild work identified overhead infrastructure jobs shown below in Section III. The estimated cost of this effort over two years totals $1.04 million. /UF

Currently there are approximately 54,100 porcelain insulators in the overhead distribution system located across all of the THESL distribution service area.

THESL will be replacing porcelain insulators on feeders in locations with deteriorated pole framing hardware including highly contaminated areas such as those close to major highways as well as congested, heavily treed areas and other locations where the potential for failure is high and where there may be associated safety risks.

There are approximately 565 porcelain pothead locations. The majority of porcelain potheads are located in the downtown core, with the remaining locations dispersed across the former distribution service areas of Etobicoke and Scarborough. Starting in 2012 and continuing to 2013, THESL plans to replace 50 locations annually, for a two-year total of 100 locations **/UF, US**
(approximately 18 percent of the total population), by first targeting public thoroughfare areas such as sidewalks, bus stops and school zones. The estimated cost of this effort over three years totals $2.23 million. **/UF**

Option (b): Reactively replace porcelain equipment with the approved polymer standard

In Option (b), THESL would reactively replace porcelain insulators and potheads with the current approved polymer standard for each asset when they fail.

Option (a) is preferred because it better addresses the associated safety and reliability issues. As this equipment poses reliability and potential safety concerns, the sooner it is removed from the system the less likely it is to cause outages, injuries and property damage. Option (b), reactive replacement, also would result in a higher unit cost for replacement. Unit costs would be higher because crew members will be required to make replacements on an incident by incident basis.

2.6. Avoided Risk Costs from the Overhead Infrastructure Segment

The effectiveness of the Overhead Infrastructure segment can be further highlighted by determining how much cost is avoided by executing this work immediately as opposed to executing it in 2015. These avoided costs include quantified risks, taking into account the assets' probability of failure, and multiplying this by the various direct and indirect costs associated with in-service asset failures, including the costs of customer interruptions, emergency repairs and replacement.

Carrying out immediate work on this asset class will result in an avoided estimated risk cost of $111 million, which represents the avoided cost of executing the work immediately as opposed /UF to deferring until 2015. This figure shows that there are substantial economic benefits from executing this work immediately. These results are further explained within the Appendix section. In addition to the avoided risk cost, by the time the Overhead Infrastructure segment is completed in 2014, approximately 30,000 CI and 18,500 CHI can be mitigated when compared to a run-to-fail approach.

IV DESCRIPTION OF WORK

1. LISTING OF ALL JOBS

1.1. 2012 Jobs

Job Estimate Number	Job Title	Year	Cost Estimate ($, millions)	Section Reference
20572	Magellan / Giltspur OH Rebuild	2012	$1.62	3
20892	Arrowsmith Overhead Rebuild	2012	$0.76	4
20873	Riverside Dr VC Part #2	2012	$1.34	5
23677	Chipping Crossburn 53M10 OH Rebuild	2012	$0.28	40
20875	George Andersen and Culford Rd. Overhead Rebuild	2012	$1.63	40
24668	Rebuild Broadlands MS Area with VC	2012	$1.34	6
16616	Manby TS Load Transfer to Horner TS	2012	$0.95	8

/UF

Job Estimate Number	Job Title	Year	Cost Estimate ($, millions)	Section Reference
19581	Replacement of non-standard and overloaded transformer	2012	$0.53	41
19454	X11524 Replacement manual switch with SCADA, EYA11L	2012	$0.07	42
19453	X11525 Replacement manual switch with SCADA, EYA12L	2012	$0.07	42
19455	X11526 Replacement manual switch with SCADA, EYA14L	2012	$0.08	42
19792	X12158 Replacement of manual tie switches with SCADA 53-M7	2012	$0.53	42
19892	X12176 Replacement of manual tie switches with SCADA 53-M5	2012	$0.38	42
19894	X12182 Replacement of manual tie switches with SCADA 34M5, 34M6 34M7	2012	$0.20	42
19452	X10449 Replacement of manual switch with SCADA EYA13L	2012	$0.07	42
18456	E11374 SCADA Installation 34M6	2012	$0.79	42
17801	E10387 Bermondsey SCADA	2012	$0.29	42

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Job Estimate Number	Job Title	Year	Cost Estimate ($, millions)	Section Reference
20391, 19965	E11088 North York SCADA 53M10 Area A	2012	$0.31	42
24060	E12744 - Bell Line Conversion	2012	$0.08	42
21531	Overhead Rebuild R43M28	2012	$0.80	9
24666	80M6 Feeder OH Enhancement	2012	$0.99	10
24598,	E12436 – NY80M6 Feeder OH	2012	$1.14	10
19871	Replacement of CSP Transformer	2012	$1.42	11
20946	W12462 – 3 Phase Extension along Rockford	2012	$0.27	45
20684	W12397 - Safety Alert SMD-20 Switch Replacement	2012	$0.50	7
20565	FESI CSP and Conductor Replacement	2012	$4.41	40
20578	E12358 OH Rebuild of sections of the Overhead Distribution on NY51M21, Part 1	2012	$1.58	13
20595	E12361 OH Rebuild of sections of the Overhead Distribution on NY51M21, Part 2	2012	$0.83	13
20848	E12459 Banbury/Post Rd OH Rehab: NY34M6, NY53M24, NY51M21	2012	$0.26	13
20774	E12433 Conversion feeder SCKHF2 to 27.6kV	2012	$0.90	14
21457	E13110 NYSS68-F9 OH Rebuild at Pleasant View	2012	$0.54	48
20881	E12457 - CSP Transformer and Pole Replacement	2012	$0.44	50
2012 Overhead ICM TOTAL			**$25.40**	

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1 **1.2. 2013 Jobs**

Job Estimate Number	Job Title	Year	Cost Estimate	Section Reference
20416	X12318 34M1 SCADAmates Installation	2013	$0.17	42
20659	W12383-OH Switch Replacements to SCADA Controlled Switches	2012	$0.21	42
22598	W13271 3 Feeder Riser SCADA Switch Installations Hydro RoW	2013	$0.29	42
21190	E12508 OH Rebuild of the Overhead Distribution on NY80M4 Phase 1	2013	$1.79	15

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Job Estimate Number	Job Title	Year	Cost Estimate	Section Reference
21193	E12509 OH Rebuild of the Overhead Distribution on NY80M4 Phase 2	2013	$1.08	15
21785	E13153 Rebuild of the Overhead Distribution on NY51M8	2013	$1.69	16
19775	X13109- 34M6 -Replacement of non –standard CSP transformers and conductor	2013	$0.97	17
20939	W12442 - FESI Rebuild and CSP Replacement Ph#1 NY85M1	2013	$1.39	18
21517	W13113 - FESI Feeder Rehab and CSP replacement Ph#1	2013	$0.71	20

/UF

Job Estimate Number	Job Title	Year	Cost Estimate	Section Reference
21518	W13115 - FESI Feeder Rehab and CSP replacement PH#2	2013	$0.50	20
21639	W13130 - Refurbish OH Feeder - Epsom Downs	2013	$1.35	21
21690	W13131 - Refurbish OH Feeder Falstaff Area Ph#2	2013	$1.40	21
22184	W13198 – Refurbishment of trunk feeder – Regent Road and Wilson Avenue	2013	$1.24	22
22208	W13205 – Refurbish Feeder Laterals Phase 1 of 2	2013	$1.21	22
22180	W13204 - Elynhill_Ellerslie_Betty Ann_ Park Home Ph#2 Overhead Rehab NY80M1	2013	$0.80	25
21920	W13185 - 80M1 Carney Rd Distribution Rehab	2013	$0.70	25
22037	W13188 - 80M1 Finchhurst Dr and Fleetwell Crt OH Rebuild	2013	$0.15	25
22041	W13189 - 80M1 Stafford Rd and Cloebury Crt	2013	$0.19	25
21876	W13182 - Rehab Eldora_Kensington_Elmview 80M1	2013	$0.13	25
21998	Clarkhill Glenborough Park Ancona Overhead Rebuild	2013	$0.64	25

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ICM Project | Overhead Infrastructure Segment

Job Estimate Number	Job Title	Year	Cost Estimate	Section Reference
22173	80M1 Ellerslie_Betty Ann_ Park Home Ph#1 OH rehab	2013	$0.58	25
23567	W13351 FESI Rebuild and CSP Replacement Ph#2 (NY85M1)	2013	$2.01	18
24161	W13376 Voltage Conversion Rennie Park (TOB1RK)	2013	$1.59	26
20296	OH Rebuild Spenvalley Dr and Surrounding Area	2013	$0.69	43
22203	E12570 - NY53M25 Rehabilitation of the OH Distribution on	2013	$1.20	27
21578	E11742 - Rehabilitation of the OH Distribution on SCNA47M13	2013	$0.42	27
20773	W12123 - Churchill/Wynn OH Rehab and VC (SS60-F2 to 80M1)	2013	$1.02	28
20412	W12306 - FESI NY55M25 OH Feeder Equipment Rehab	2013	$0.91	45
21999	W13167 – Clayson/Bartor Trunk Feeder Reconfiguration and Refurbishment	2013	$1.10	46
22229	E12574 Overhead Rehabilitation of SCREF3	2013	$0.83	48
21569	W13122 – FESI Refurbish OH Feeder (30M10)	2013	$0.50	23
23430	P03 Evans Avenue and Royal York Rd, Reconfiguration of Feeders	2013	$0.80	49

/UF

Job Estimate Number	Job Title	Year	Cost Estimate	Section Reference
22245	W13211 - Goulding MS F1 and F2 VC Ph#1	2013	$1.20	31
22248	W13216 - Goulding MS F1 and F4 VC Ph#2	2013	$0.99	31
24951	Danger and Caution pole replacement	2013	$1.86	2
20456	Spenvalley OH Rebuild	2013	$1.12	3
20499	W12339/P03 FESI CSP and Conductor Replacement on YK11M1 off Weston Road and Jane Street	2013	$0.85	40
20379	CSP and Conductor Replacement	2013	$1.02	40
24669, 24851, 24881	Rebuild Broadlands MS Area with VC	2013	$2.13	6
19785	X12156 Replacement of the manual tie switches with SCADA 53-M8	2013	$0.30	42
19837	X12163 Replacement of manual tie switches with SCADA 53-M6	2013	$0.52	42
19806	W12089-Remote SCADA Switch Install Bathurst TS	2013	$0.09	42
22850	E12890 - NY80M6 Feeder OH Enhancement Phase 3	2013	$0.37	10
23696	W12669 – Martin Ross and Flint Rebuild NY85M7	2013	$0.41	12
2013 Overhead ICM Total			**$39.12**	

/UF

~~1.3. 2014 Jobs~~

~~Job Estimate Number~~	~~Job Title~~	~~Year~~	~~Cost Estimate~~	~~Section Reference~~
~~24169~~	~~E14319-New SCADA Switch on 43M24~~	~~2014~~	~~$0.20~~	~~4.43~~
~~24139~~	~~E14318-New SCADA Switches on NY51M3~~	~~2014~~	~~$0.19~~	~~4.43~~
~~22994, 22995~~	~~E14136 OH Upgrade SCNAR43M24 Hollis Milne Birchmount~~	~~2014~~	~~$0.88~~	~~4.30~~
~~22958~~	~~E14117 OH Rebuild R43M28 Aylesworth Kennedy~~	~~2014~~	~~$.75~~	~~4.30~~
~~23978~~	~~E14286 OH Rebuild and Voltage Conversion of NYSS64F2 from Ruddington MS~~	~~2014~~	~~$0.94~~	~~4.31~~
~~22859~~	~~W14073 - 55M31 OH Rebuild at intersection Steels Ave W and Weston RD.~~	~~2014~~	~~$0.80~~	~~4.44~~
~~22960~~	~~38M27 North Queen conductor Upgrade~~	~~2014~~	~~$0.21~~	~~4.33~~
~~23089~~	~~W14150 - OH Feeder Rehab - Milvan / Penn~~	~~2014~~	~~$1.02~~	~~4.34~~
~~23093~~	~~OH Feeder Rehab - Finch / Weston / Toryork~~	~~2014~~	~~$0.64~~	~~4.34~~
~~23873~~	~~W14278-Overhead Rebuild Duplex/Church/Parkview~~	~~2014~~	~~$0.72~~	~~4.25~~
~~23364~~	~~OH Feeder Rehab - Alexdon, Chesswood, Champagne~~	~~2014~~	~~$0.54~~	~~4.45~~
~~24129~~	~~W14320 - Ardwick Overhead Spot Replacement~~	~~2014~~	~~$0.49~~	~~4.35~~

ICM Project | Overhead Infrastructure Segment

Job Estimate Number	Job Title	Year	Cost Estimate	Section Reference
24166	W14326 - Nabenby Overhead Rebuild	2014	$0.93	4.35
24218	W14329 - P03 Gracedale Blvd. Overhead Rebuild Finch TS NY55M27	2014	$0.62	4.35
24257	W14333 - Aviemore Dr. Overhead Rebuild Finch TS	2014	$0.60	4.35
24269	W14334 - Duncanwoods Dr. Overhead Rebuild Finch TS	2014	$0.58	4.35
24295	W14340 – Lindylou Overhead Rebuild	2014	$1.12	4.35
23878	W14276 OH Feeder Rehab –Signet, Weston, Fenmar (NY55M1)	2014	$1.97	4.36
24320	W14343-Voltage Conversion RB-F3 Phase 1	2014	$0.45	4.37
24321	W14344-Voltage Conversion-Westmount MS RB-F1	2014	$0.60	4.37
24333	W14345-Voltage Conversion-Westmount MS Phase 1	2014	$0.48	4.37
24052	W14306 - 85M5 - McAllister Rd. Overhead Rebuild	2014	$0.30	4.39
24089	W14315 - 85M5 – Carmichael Ave. OH rebuild and conductor upgrade	2014	$0.71	4.39
23979	W14285 - Pellatt OH and UG lateral Rebuild	2014	$0.24	4.39
24007	W14289 - OH Rebuild off Gary Avenue	2014	$0.80	4.39
23361	30M7 OH Upgrade and ETRF2 OH VC	2014	$2.04	4.40
23312	E14170 Rouge Park OH Rebuild Phase and VC of 3 SCXGF3	2014	$0.62	4.49

~~Job Estimate Number~~	~~Job Title~~	~~Year~~	~~Cost Estimate~~	~~Section Reference~~
~~23323~~	~~W14181 - Kingsway MS – OH Voltage Conversion (ETEF1)~~	~~2014~~	~~$0.66~~	~~4.48~~
~~2014 Overhead ICM Total~~			~~$20.11~~	

2. Pole Replacement of Level 4 and 5 Poles (Danger and Caution poles)

2.1. Objectives

The purpose of this job is to replace poles that have been identified as level 4 and 5 poles (Danger and Caution poles) by an external contractor "Ontario Pole Inspection Services". This contractor uses different method of inspection to determine the pole condition such as sound and bore inspection and software engineered to determine remaining pole strength. The poles are tested at different points to identify pole-top feathering, cross-arm rot, cracks, surface rot at ground level, above ground level and below ground level. Poles tested receive a score from 0 to 5. A score of 0 means that there is no evidence of pole damage and a score of 5 indicates that the pole is in very bad condition. A level 4 pole is one that should be replaced in a short period of time to avoid failures. A level 5 pole is a pole that should be replaced as soon as possible.

2.2. Scope of Work

The scope of work for this job is to replace 275 poles that have been identified in level 4 and 5 (Danger and Caution poles). The replacement of the poles will occur across the City of Toronto. There is a back-log of poles in level 4 and 5 condition that require replacement. In 2010, testing of 83 poles with an average pole Health Index (HI) score of 28, indicating that the poles are in /C
very poor condition. For 2011 there are 192 poles with an average HI score of 15, falling under /C
the category of poles in very poor conditions. The poles require immediate replacement in order to prevent pole failures.

2.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
24951	Danger and Caution pole replacement	2013	$1.86
		Total:	**$1.86**

/UF, US

3. Magellan / Giltspur / Lomar / Spenvalley Overhead Rebuild

3.1. Objectives

The purpose of this job is to rebuild sections of the distribution feeder 55M25 in the Magellan / Giltspur / Lomar area. The primary overhead distribution plant on 55M25 requires short-term targeted rehabilitation in order to address reliability concerns (Refer to Figures 58 and 59). 55M25 has experienced seven sustained interruptions in the past year.

3.2. Scope of Work

The scope of work for this job is to rebuild the existing overhead distribution to THESL standards in the area along Magellan/Giltspur / Lomar. This job will address aging and non-standard assets such as poles, switches, CSP transformers, insulators and undersized conductor in areas that have failed or have a high probability of failing in the near future. The number of sustained outages has increased with a high proportion due to faults on the overhead plant. These sustained outages have significantly impacted the number of customers affected at over 20,000 customers interrupted in 2011. An immediate rebuild targeting end of life and non-standard equipment will likely reduce the probability of future outages and improve the reliability to the customers in this neighbourhood. Deferral will increase the risk of future outages on these aging assets that have a high probability of failure.

3.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
20572	Magellan / Giltspur OH Rebuil	2012	$1.62
20456	Spenvalley OH Rebuild	2013	$1.12
		Total:	**$2.74**

/US

4. Arrowsmith Overhead Rebuild /US

4.1. Objectives

The purpose of this job is to rebuild the existing overhead distribution system in the Arrowsmith area with standardized equipment. Outages on this portion of the distribution system are /US attributable to overhead equipment failures and contacts by animals. The primary overhead distribution plant requires immediate targeted rehabilitation in order to address reliability concerns

4.2. Scope of Work

Figure 60 shows the increasing trend of outages on 35M12, particularly due to overhead equipment such as defective transformers; disconnect switches, lightning arrestors, and conductor.

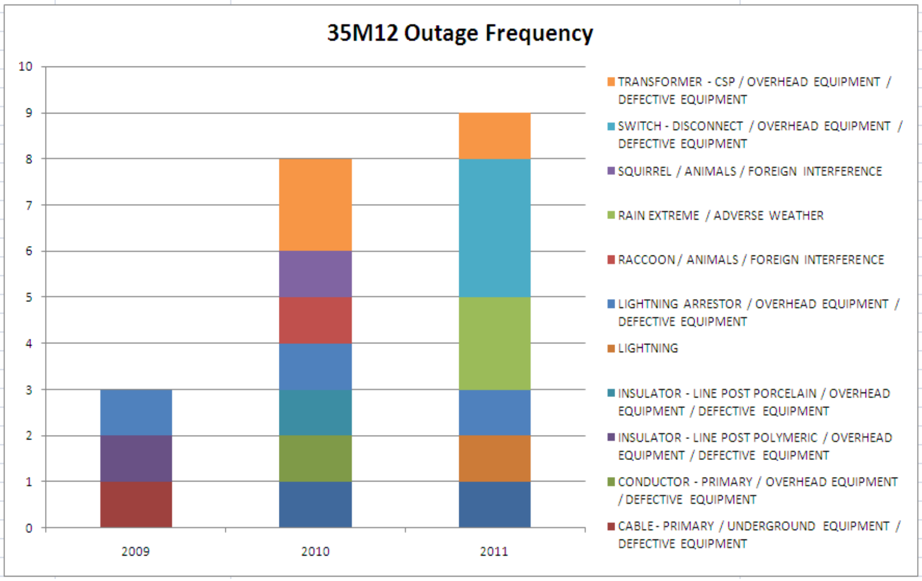


Figure 60: 35M12 Outage Frequency

The overhead plant surrounding Arrowsmith Avenue Drive consists of deteriorating equipment. The scope of work for this job is to rebuild the overhead infrastructure on feeder 35M12 specifically in the area of Arrowsmith Avenue Drive. The job will include the replacement of poles porcelain equipment, overhead transformers to adjust to current THESL standards. /C

4.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
20892	X12460 - Arrowsmith Overhead Rebuild	2012	$0.76
		Total:	**$0.76**

/US

/UF

6.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)	
24668	Rebuild Broadlands MS Area with VC	2012	$1.34	/UF
24669	Rebuild Broadlands MS Area with VC	2013	$0.16	/UF, US
24851	Rebuild Broadlands MS NYSS59 Area with VC-Ph2	2013	$1.75	
24881	Rebuild Broadlands MS SS59 Area with VC-Ph2 -Install Poles	2013	$0.22	
		Total:	**$3.47**	

7. Safety Alert SMD-20 Switch Replacement

7.1. Objectives

The purpose of this job is to replace SMD-20 Switches whose pin assembly had been modified from the original design at various locations around Etobicoke.

7.2. Scope of Work

The scope of work is to remove 81 porcelain switches that were identified to have their pin assembly modified and replace with new polymer type SMD-20 units at different locations in the South end of Etobicoke.

Switches containing this modification have been primarily found in the South end of Etobicoke. The modification was to limit the travel of the fuse when the switch was in an opened position so that the fuse would not swing open fully (approximately 180 degrees) and potentially contact other apparatus that may be below it. The problem is that the pin may limit the travel of the fuse such that there will be inadequate air clearance between the top of the fuse and the top of the switch needed to prevent arcing. The primary concern is that the modification may cause arcing that could compromise the safety of people in the vicinity as well as THESL field crews. Limiting the fuse travel may also further interfere with other activities such as using the loadbreak tool or fuse replacement. A further concern with these switches is the porcelain construction which has been identified as a safety issue as well as reliability problem considering the high failure rate observed with porcelain insulated switches.

MANBY (230KV/27.6KV) TS	Firm Capacity (MVA)				YEAR										
	Present		Future												
	100%	95%	100%	95%	2010*	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
B&Y	63	60	63	60	68	68	69	70	71	71	72	73	73	74	74
Q&Z (Bus load includes load supplied to Hydro One)	63	60	63	60	61	61	61	62	63	63	64	65	65	66	67
V&F	112	106	112	106	94	97	99	100	101	102	103	104	105	107	108
Total of all Buses	238	226	238	226	223	226	228	231	234	236	238	241	243	246	249
Surplus MVA					15	12	10	7	4	2	0	-3	-5	-8	-11
%Loading (Load/2010 firm Cap)					94	95	96	97	98	99	100	101	102	103	105

Manby TS: B-Y Bus requires load relief in 2011

Manby TS: Q-Z Bus requires load relief in 2014

Figure 61: Loading Capacity

In order to transfer the proposed load, THESL must run two feeders north from Horner TS to pick up the Manby TS loading. This requires civil construction at Horner TS egress and along the east side of Kipling Avenue. The scope of work for this job involves three new poles including two feeder risers, eight cable chambers, two kilometres of underground cable, and eight switches.

8.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
16616	Manby TS Load Transfer to Horner TS	2012	$0.95
		Total:	**$0.95**

/UF

9. Overhead Rebuild on feeder SCNAR43M28

9.1. Objectives

The objective of this job is to rebuild the overhead infrastructure on feeder SCNAR43M28 with the replacement of deteriorated poles, porcelain infrastructure (insulators and switches), CSP

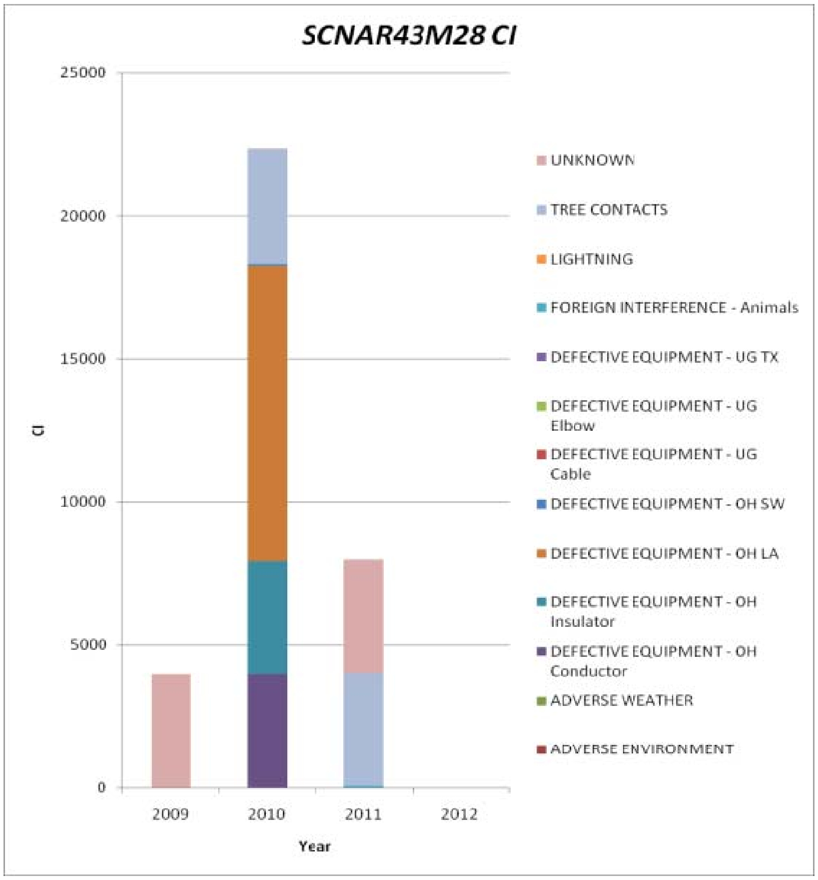


Figure 64: SCNAR43M28 CI

Figures 63 and 64 show the impact of Customers Hours Interrupted and Customers Interrupted (CI) (CHI) for tree contact and porcelain switches.

This job will take place in the area bounded by Midland Avenue, Warden Avenue, St. Clair Avenue and Lake Ontario.

9.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
21531	E13111Overhead Rebuild SCNAR43M28	2012	$0.80
		Total:	**$0.80**

/UF

this heavily-treed area in order to prevent further outages due to tree contact. The area for job 2466 is bounded by Kenneth Avenue, Bishop Avenue, Estelle Avenue and Sheppard Avenue East. The area for job 24598, 22850 is bounded by Bayview Avenue, Empress Avenue, Dudley Avenue and Sheppard Avenue East.

10.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
24666	E11243 – 80M6 Feeder OH Enhancement	2012	$0.99
24598,	E12436 – NY80M6 Feeder OH Enhancement Phase 3 NY80M6	2012	$1.14
22850	E12890 - NY80M6 Feeder OH Enhancement Phase 3	2013	$0.37
		Total	**$2.50**

/UF

11. Overhead Rebuild on feeder 35M1

11.1. Objectives

The objective of this job is to reduce the probability of outages due to the failure of CSP transformers and non-standard equipment on feeder 35M1. The non standard equipment had been the major contributor to the rise in the number of sustained outages on this feeder from seven outages in 2009 to nine outages in 2010 and then to 15 outages in 2011. The significant decline in the reliability of this feeder indicates the need to address it in 2012 to improve service to the 1,854 customers that it serves.

11.2. Scope of Work

As shown in Figure 66, there were 15 sustained interruptions in 2011. In the first three months of 2012, the feeder has already experienced five outages. There is an urgent need to upgrade deteriorating assets on this feeder, which have contributed the increase in CHI from 420 in 2009 to 74,383 in 2010 and 13,997 in 2011.

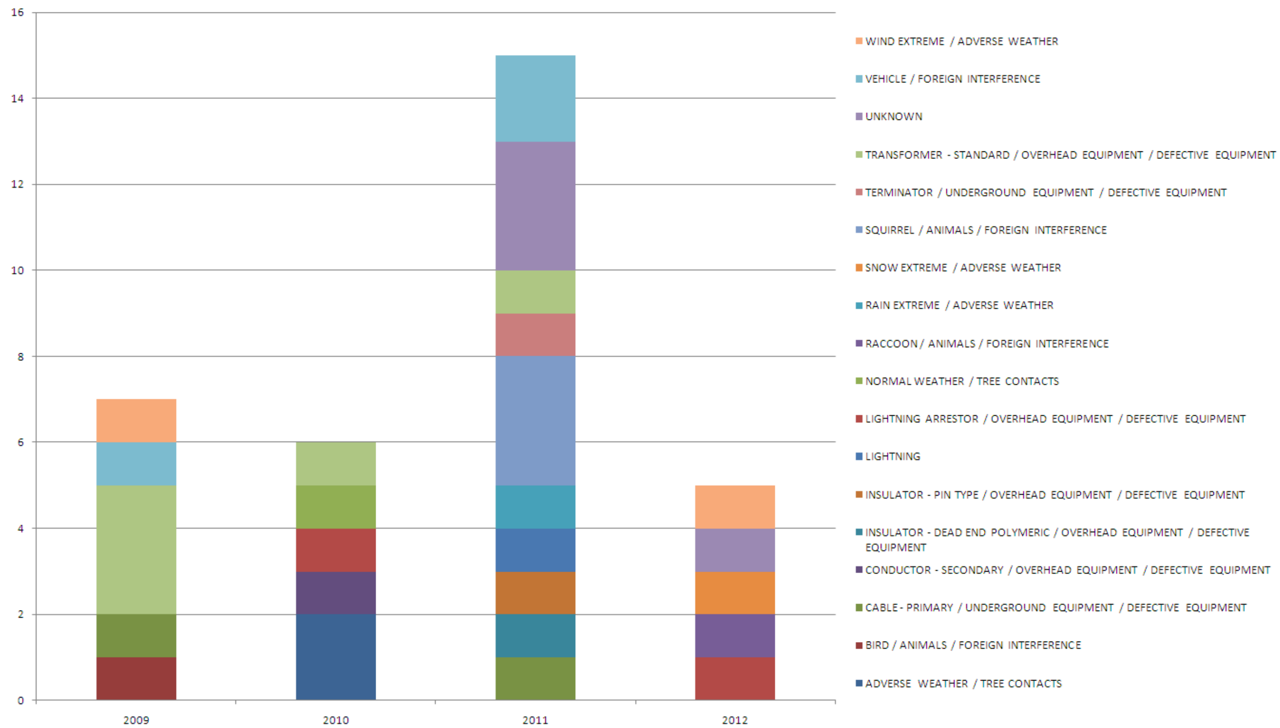


Figure 66: 35M1 Outage Frequency

The scope of this job is to replace the non-standard equipment on the feeder. This job will target CSP transformers, aging poles, porcelain switches and lightning arrestors, and will install tree proof conductor in areas of the feeder that are heavily treed. Animal guards will be installed to reduce any faults that may occur from animal interference.

11.3. Required Capital Costs

Job Estimate Number	Project Phase	Year	Estimated Cost ($M)
19871	X12175 Replacement of CSP Transformer	2012	$1.42
		Total:	**$1.42**

/UF

12. Martin Ross and Flint Road Overhead Rebuild

12.1. Objectives

The objective of this job is to rebuild the overhead distribution system in the area of Martin Ross Avenue and Flint Road due to the deteriorating condition of the assets that are past their useful lives. This job will replace non-standard and deteriorating equipment that pose a potential safety risk to the public and THESL personnel.

12.2. Scope of Work

Feeder NY85M7 has experienced eight outages in the past year. There is an urgent need to upgrade deteriorating assets on this feeder to avoid further outages.

The scope of this job is to replace the non-standard equipment on the feeder. This job will target CSP transformers, aging poles, porcelain switches and will install tree proof conductor in areas of the feeder that are heavily-treed. Animal guards will be installed to reduce any faults that may occur from animal interference.

12.3. Required Capital Costs

Job Estimate Number	Project Phase	Year	Estimated Cost ($M)
23696	W12669 – Martin Ross and Flint Rebuild NY85M7	2013	$0.41
		Total:	**$0.41**

/UF, US

13. Overhead Rebuild of Sections of Feeders NY34M6, NY53M24, NY51M21

13.1. Objectives

The purpose of this job is to replace old and deteriorating overhead assets and undersized conductors on sections of the feeders with newer and more reliable lines and equipment that metres from Berkindale Drive to OH Harrison, 455 metres along Harrison Road and 508 metres along Heathcote Avenue E-W and South (ends 27F3 NOP).

13.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
20578	E12358 OH Rebuild of sections of the Overhead Distribution on NY51M21, Part 1	2012	$1.58
20595	E12361 OH Rebuild of sections of the Overhead Distribution on NY51M21, Part 2	2012	$0.83
20848	E12459 Banbury/Post Rd OH Rehab: NY34M6, NY53M24, NY51M21	2012	$0.26
		Total:	**$2.67**

/US

14. Voltage conversion on feeder SCKHF2 /C

14.1. Objectives

The purpose of this job is to transfer the load supplied by 13.8kV overhead distribution feeder SCKHF2 to the 27.6kV feeder. This will allow THESL to dismantle and remove all 13.8kV overhead lines in the area and enable the decommissioning of the Brimley Sheppard Municipal Station built in 1965.

14.2. Scope of Work

The scope of work is to convert the overhead load supplied by SCKHF2 on Brimley Road to SCNAH9M23. Brimley Sheppard (KH) MS station was built in 1965. Both transformer and 13.8kV breakers are very old. To enable decommissioning of the station and distribution equipment and to modernize the electrical distribution equipment in the area, THESL proposes to convert the distribution fed from this Municipal Station with the modern 27.6kV equipment built to current standards.

14.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
20774	E12433 Conversion feeder SCKHF2 to 27.6kV	2012	$0.90
		Total:	**$0.90**

/UF, US

15. OH Rebuild of the Overhead Distribution on NY80M4

15.1. Objectives

The purpose of this work is to rebuild the overhead distribution on this feeder, in the area of Yonge Street and Cummer Avenue, with the replacement of porcelain insulators, lightning arresters, non-standard CSP transformers and other end-of-life assets.

15.2. Scope of Work

As seen in Figure 68, this feeder has experienced nine outages in 2011 and there have already been 2 sustained outages in the first three months of 2012. The number of outages along the feeder indicates the poor performance of the assets associated with it. The frequent outages underscore the urgency for this remedial job.

Proactive replacement of these assets is expected to cost less than reactive replacement when they fail. The deferral of this work would likely lead to deteriorating reliability with a high risk of increased outage frequency and duration. Potential safety risk to THESL crews and the public also would increase if the job is deferred. /C

17.2. Scope of Work

The scope of work includes the replacement of poles, overhead conductors, non-standard CSP transformers, switches, porcelain insulators and arresters in the areas primarily between Mount Pleasant Road, York Mills Road, Eglinton Avenue East and The Donway West. /US

17.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
19775	X13109- 34M6 -Replacement of non – standard CSP transformers and conductor	2013	$0.97
		Total	**$0.97**

/UF

18. Rebuild and CSP transformer replacement

18.1. Objectives

The objective of this job is to replace the aging and non-standard primary overhead distribution equipment on feeder 85M1, which has a high probability of future outages, in order to improve reliability. Feeder NY85M1 had sustained eight interruptions during the past year (FESI-8) predominately caused by failing equipment and foreign interference on the overhead plant. The area is primarily comprised of non-standard poor performing assets such as CSP transformers, undersized conductor, deteriorating poles, porcelain insulators, arrestors and switches. These two jobs are expected to address the issues that are contributing to the poor reliability of the feeder, and improve the safety and reliability of this feeder.

1 **18.3. Required Capital Costs**

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
20939	W12442 - FESI Rebuild and CSP Replacement Ph#1 NY85M1	2013	$1.39
23567	W13351 FESI Rebuild and CSP Replacement Ph#2 (NY85M1)	2013	$2.01
		Total	**$3.40**

/UF

/US

/US

20. WPF Feeder Rehabilitation on NY80M8

20.1. Objectives

The purpose of this job is to rehabilitate feeder NY80M8 by replacing poles that were identified in poor conditions, non-standard CSP transformers, conductors and porcelain insulators.

20.2. Scope of Work

The scope of work for these jobs involves the replacement of bare overhead conductor with tree-proof conductor along the feeder's overhead line. In addition to this, the job will replace CSP transformers and poles. New telcon drop wire with a cone installed over the primary bushing will be installed on the new transformers. Non-standard or deteriorated hardware at the pole and transformer locations including porcelain insulators and porcelain arrestors will be replaced by new units that conform to current THESL standards. The streets where these replacements will take place are on Bathurst Street, Finch Avenue West, Wilmington Avenue, Virgilwood Drive, Dubbyne Court, Purbrook Court, Transwell Avenue, Peckford Road, Robson Place, Kenton Drive, Dallas Road, Lister Drive, Pinnard Court and Dornfell Street.

21. Overhead Feeder Refurbishment on NY55M28

21.1. Objectives

The objective of these jobs is to rebuild the plant on NY55M28. It will replace the aging and non-standard primary overhead distribution equipment and the XLPE lateral services with tree retardant cable to improve reliability.

21.2. Scope of Work

The scope of work for these jobs is to replace poles, overhead primary conductor and non-standard CSP transformers. Also, poor performing assets such as porcelain insulators and arrestors will be replaced as well. In addition, undersized primary overhead conductor will be replaced to standard size. In areas where underground laterals are serviced with early vintage XLPE cable, it will be replaced with standard tree retardant cable.

21.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
21639	W13130 - Refurbish OH Feeder - Epsom Downs	2013	$1.35
21690	W13131 - Refurbish OH Feeder Falstaff Area Ph#2	2013	$1.40
		Total	**$2.75**

/UF

22. Refurbishment of trunk feeder and laterals on NY85M10

22.1. Objectives

The objective of this job is to rebuild and replace the aging and non-standard primary overhead distribution equipment on feeder NY85M10 in order to improve reliability. These jobs also will replace XLPE lateral services with tree retardant cable to improve reliability.

22.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
22184	W13198 – Refurbishment of trunk feeder – Regent Road and Wilson Avenue	2013	$1.24
22208	W13205 – Refurbish Feeder Laterals Phase 1 of 2	2013	$1.21
		Total	**$2.45**

/UF

23. Overhead Feeder Refurbishment on ETR30M10

23.1. Objective

The objective of this job is to replace the non-standard and aging equipment that pose a high risk of failure on feeder ETR30M10 from Horner TS. The feeder has experienced poor reliability due to failing equipment since 2009 and refurbishment work will target high risk equipment to mitigate the risk of future outages.

23.2. Scope of Work

The scope of work is to replace all non-standard and aged poles, porcelain insulators and switches, and steel brackets in the job area between Royal York Road, Kipling Avenue, Dundas Street and Evans Avenue. Animal guards and insulated drop wires will be installed at strategic locations to reduce the probability of a fault due to animal interference. Fuse coordination work is included where necessary to reduce outage impacts.

23.3. Required Capital Costs

Job Estimate Number	Job Phase	Year	Estimated Cost ($M)
21569	W13122 – FESI Refurbish OH Feeder (30M10)	2013	$0.50
		Total:	**$0.50**

~~24. OH Rebuild Duplex, Church, Parkview NY80M3 (W14278)~~

~~24.1. Objectives~~

~~The objective of this job is to rebuild a portion of NY80M3 in order to improve the service reliability to customers connected on this feeder in the vicinity of Yonge Street and Finch Avenue (Refer to Figure 73 for number of interruptions). The overhead equipment on feeder NY80M3 is reaching end of life and in many areas the assets are non-standard. Over the last few years the most prevalent cause of outages on this feeder was component failure. In addition, fusing the unfused lateral connections to the trunk will mitigate the impact of an outage to the entire feeder that would otherwise affect all 614 residential and commercial customers on it.~~

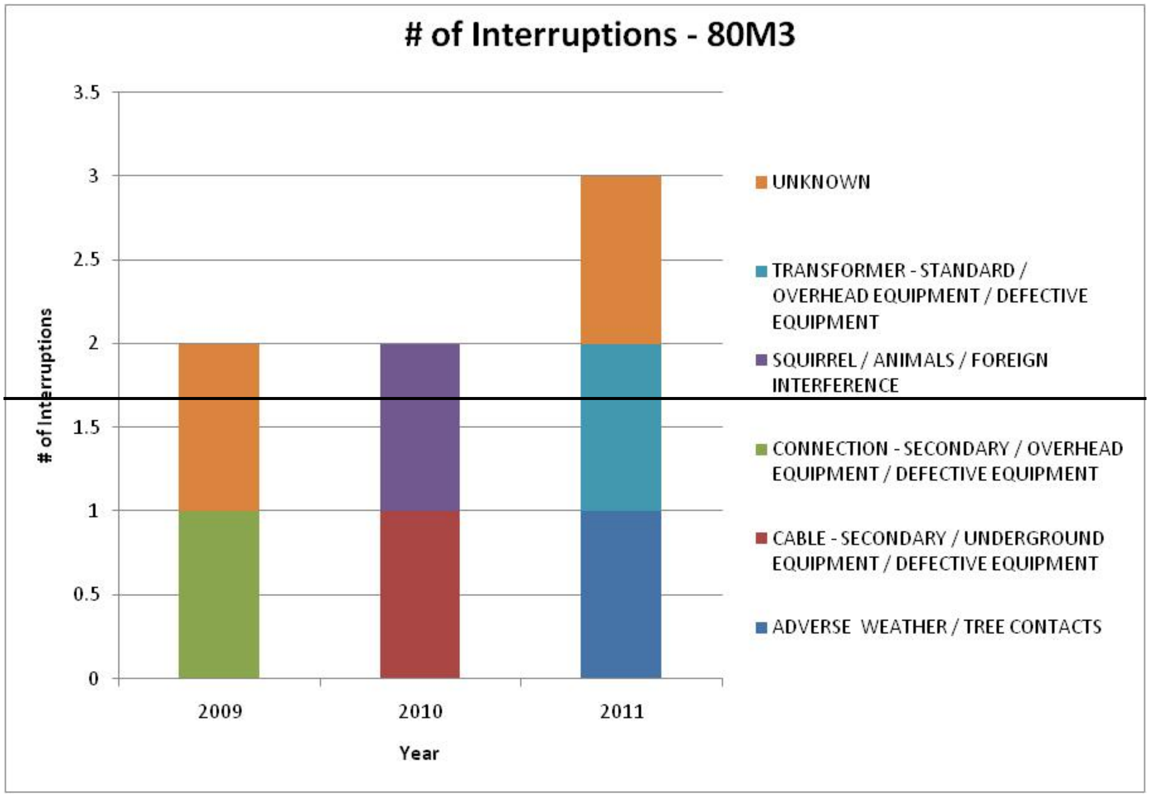


Figure 73: Number of Interruptions on NY80M3

24.2. Scope of Work

The scope of work consists of replacing non-standard and aging equipment on feeder NY80M3 that have a high probability of future failure. The equipment slated for replacement will be aging poles and CSP transformers. THESL will also install tree proof conductor in heavily treed areas and improve the feeder's configuration by installing additional fusing on lateral portions that are currently connected to the trunk without protection.

~~24.3. Required Capital Costs~~

~~Job Estimate Number~~	~~Project Phase~~	~~Year~~	~~Cost ($, millions)~~
~~23873~~	~~W14278 Overhead Rebuild Duplex/Church/Parkview~~	~~2014~~	~~$0.72~~
		~~**Total:**~~	~~**$0.72**~~

25. Overhead Rebuild and Feeder Rehabilitation on NY80M1 /C

25.1. Objectives

The purpose of these jobs is to improve operational reliability and refurbish power supply by rehabilitating aging distribution infrastructure on feeder NY80M1.

25.2. Scope of Work

Feeder 80M1 has sustained 15 outages during the past year with three outages having already taken place in 2012. Most of the assets are approaching end-of-life and many are non-standard. The majority of the outages of this feeder have been caused by overhead equipment, see Figure /C 74.

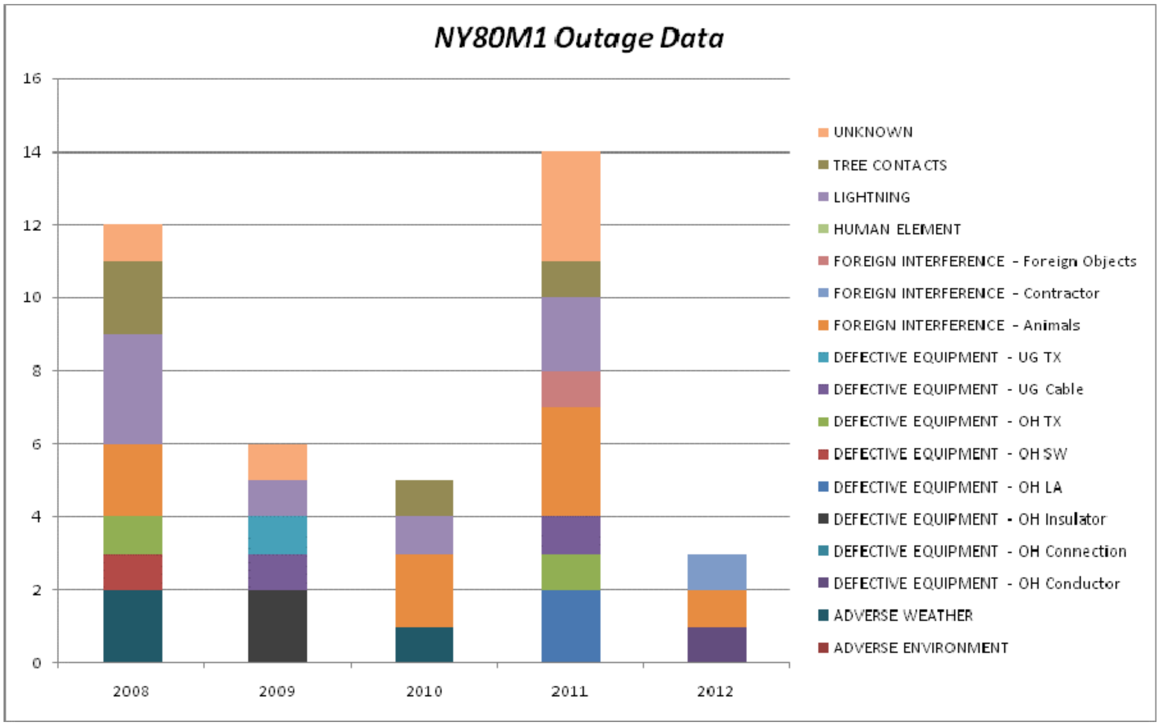


Figure 74: NY80M1 Outage Data

Information on the condition of the feeder has come in through feeder patrols. NY80M1 possesses non-standard equipment and assets past their useful lives, which pose a potential safety risk to THESL personnel and the public. /C In addition to this, the increase of outages and the duration of the outages have greatly impacted customers. Figures 75 and 76 show the breakdown of the CI and CHI on this feeder. Tree contact has been one of the main contributors to CI and CMO. For this reason bare conductor will be replaced by tree-proof conductor in areas that are heavily-treed with follow-up tree trimming.

The scope of work for these jobs is to replace end-of-life and non-standard assets, which include poles in poor condition and porcelain insulators that have contributed to high CI and CHI, CSP transformers will be replaced to current standard allowing proper animal guard installation to prevent future animal contacts. The job area is bounded by Bathurst Street, Blake Avenue, Talbot Road and Park Home Avenue.

25.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
22180	W13204 – Elynhill_Ellerslie_Betty Ann_ Park Home Ph#2 Overhead Rehab NY80M1	2013	$0.80
21920	W13185 – 80M1 Carney Rd Distribution Rehab	2013	$0.70
22037	W13188 – 80M1 Finchhurst Dr and Fleetwell Crt OH Rebuild	2013	$0.15
22041	W13189 – 80M1 Stafford Rd and Cloebury Crt	2013	$0.19
21876	W13182 – Rehab Eldora_Kensington_Elmview 80M1	2013	$0.13
21998	W13187 - Clarkhill Glenborough Park Ancona Overhead Rebuild	2013	$0.64
22173	W13197 - 80M1 Ellerslie_Betty Ann_ Park Home Ph#1 OH rehab	2013	$0.58
		Total	**$3.19**

/C

26. Voltage Conversion on Rennie Park MS

26.1. Objectives

The objective of this job is to extend 38M29 along Morningside Avenue to enable conversion from 4kV to 27.6kV in order to prepare Rennie Park MS (RK) for decommissioning. This substation and its associated overhead equipment consist of end of life and non-standard equipment. A decision has been made to decommission the substation instead of replacing costly breakers and power transformers to support the obsolete equipment on the feeders it supplies. This will avoid the cost of switchgear replacement. A voltage conversion on these feeders will upgrade the equipment to current system standards and will reduce the risk of future outages on equipment considered to have a high probability of failure.

26.2. Scope of Work

This job will convert all components necessary to migrate to 27.6kV. Components that will be replaced/upgraded are CSP transformers, poles, under–sized conductor and tree proof conductor in heavily treed areas. The job is located in the vicinity of Morningside Avenue and Ellis Avenue. /C

26.3. Required Capital Costs

/C

Job Estimate Number	Project Phase	Year	Estimated Cost ($M)
24161	W13376 Voltage Conversion Rennie Park (TOB1RK)	2013	$1.59
		Total:	**$1.59**

27. Rehabilitation of the Overhead Distribution System

27.1. Objectives

The objective of these jobs is to rebuild the overhead distribution on these feeders by replacing deteriorated poles, porcelain insulators, lightning arresters, non-standard CSP transformers and bare conductors with tree proof in treed areas. The work addresses issues found by the feeder patrol and are based on components that are considered a safety issue or have a high probability of failure in the near future. The jobs will take place near the intersection of Victoria Park Avenue, Highway 401, Don Mills Road, Lawrence Avenue East, Port Union Road, Sheppard Avenue West, Kingston Road and Meadowvale Road.

NY53M25 has experienced five outages in the last 12 months and has a WPF rating of 198. SCNA47M13 has experienced six outages in the last 12 months and has the very high WPF rating of 5, underscoring the urgency of this job. /c

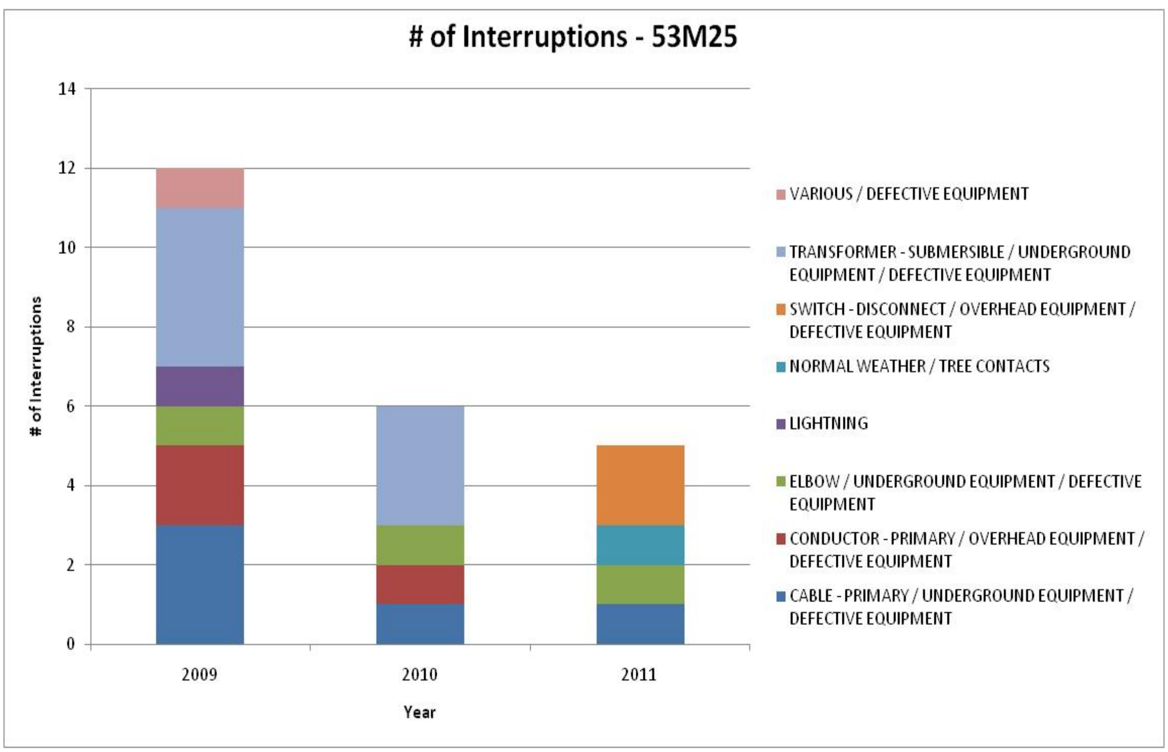


Figure 77: Number of interruptions in 53M25

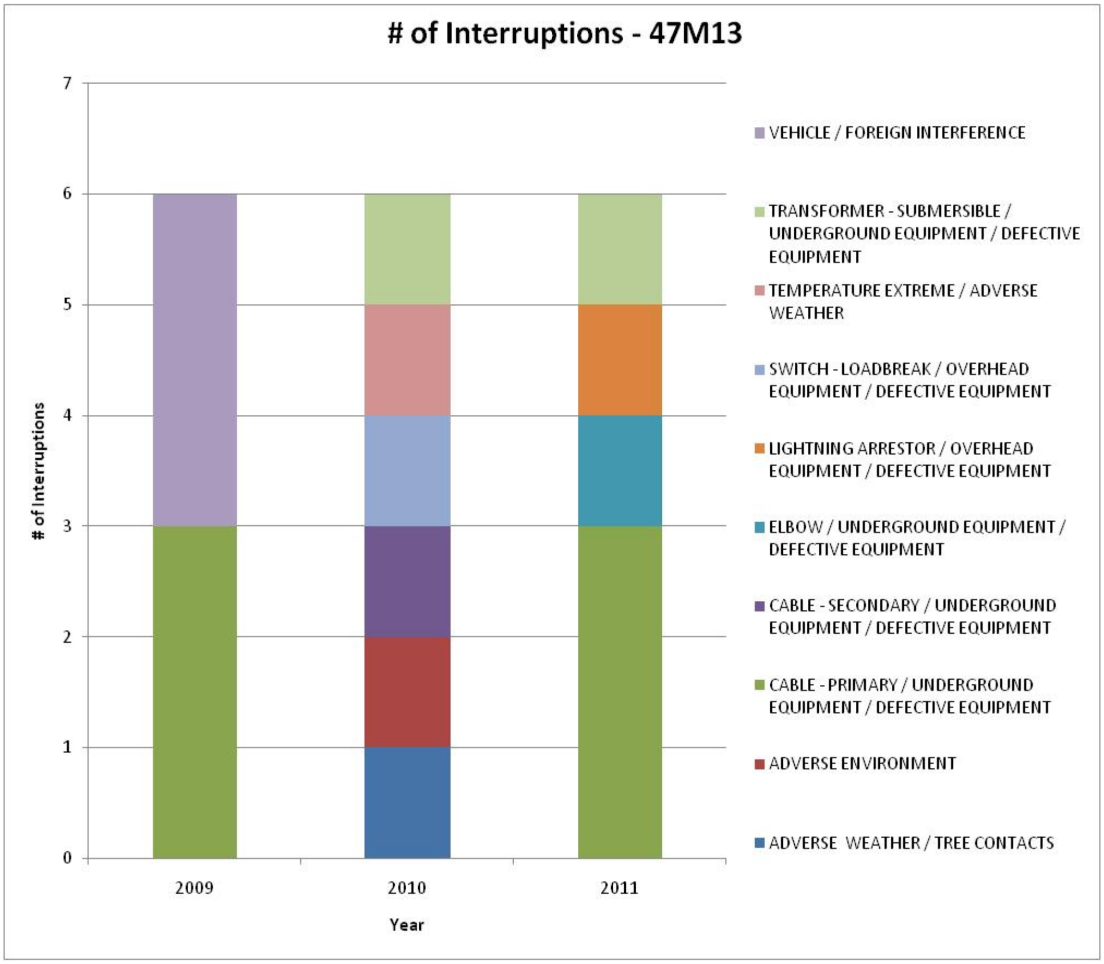


Figure 78: Number of interruptions in 47M13

27.2. Scope of Work

The scope of work is to replace non-standard and end-of-life components such as non-standard porcelain insulators and arrestors. These assets are considered to have a high probability of failure and in some cases pose a potential safety risk to the public and field crews. The average /C Health Index score of the poles addressed in these jobs is 50.1 (poor). Undersized primary overhead conductors will be upgraded to standard size.

27.3. Required Capital Costs

/C

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
22203	E12570 - NY53M25 Rehabilitation of the OH Distribution on	2013	$1.20
21578	E11742 - Rehabilitation of the OH Distribution on SCNA47M13	2013	$0.42
		Total:	**$1.62**

28. Overhead Rehabilitation and Voltage Conversion of feeder NYSS60F2

28.1. Objectives

The purpose of this job is to partially convert feeder NYSS60F2 from Churchill MS from 4kV to 27.6kV. This work will also address service reliability problems due to the poor condition plant supplied by 4kV feeder NYSS60F2 (Churchill MS).

28.2. Scope of Work

As shown in Figure 79, SS60F2 had more frequent outages in 2011 compared to 2009.

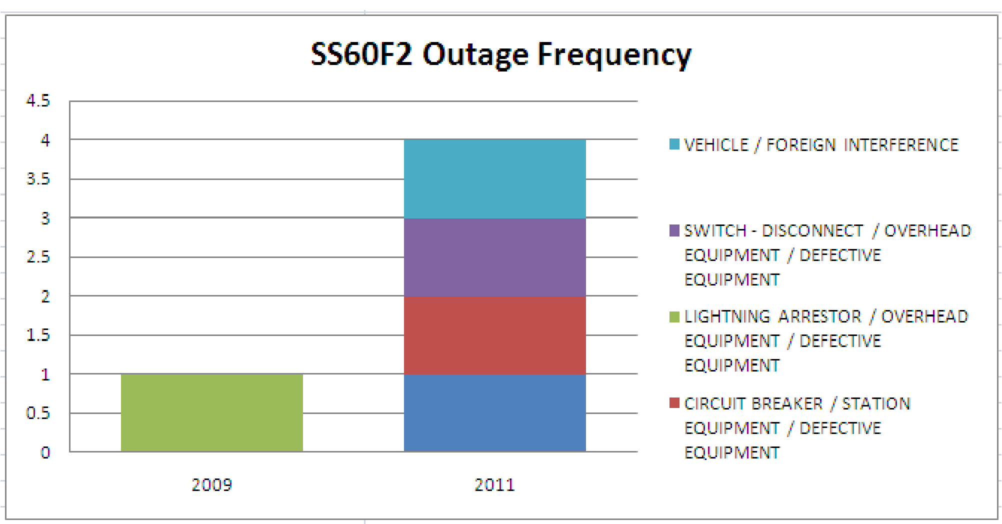


Figure 79: SS60F2 Outage Frequency

Churchill MS was originally built in 1961 and voltage conversion has begun to address obsolete construction standards and deteriorated plant conditions. NYSS60F2 is in poor condition. It consists of old, defective poles as well as non-standard overhead assets such as porcelain insulators, porcelain switches, conductors, pole heights, porcelain lightning arrestors, animal guards, and transformers.

The scope of work includes converting the 4 kV system (Churchill MS, NYSS60-F2) to a 27.6kV distribution system, utilizing NY80M1 on Wynn Road, Hosham Avenue, Hounslow Avenue, Yorkview Drive, Muirkirk Road, Wallbridge Court, Fleetwell Court and Finchurst Drive. Poles, single-phase pole-top transformers, single-phase banked pole-top transformers, three-phase pad-mounted transformers and overhead primary and secondary lines will be replaced as part of this work.

28.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
20773	W12123 - Churchill/Wynn OH Rehab and VC (SS60-F2 to 80M1)	2013	$1.02
		Total	$1.02

/C

~~29. Overhead Feeder Upgrade~~

~~29.1. Objectives~~

~~The objective of this job is to replace the undersize conductors of the main trunk of feeders SCNAR43M24 and SCNAR43M28 with THESL standard 556.5 kcmil conductor. The job mainly involves the replacement of undersized conductor, but in some locations poles that have been identified as being in poor condition will be replaced and new overhead transformers will be installed to avoid the impact upon customers in the future.~~

29.2. Scope of Work

During load transfers, especially at peak load time, the undersized sections tend to be overloaded. This job will create a full capacity on the feeder's main trunk.

Feeder SCNAR43M24 is ranked 75th in WPF list and feeder SCNAR43M28 is ranked 16th in WPF. These jobs are expected to enable quick load transfer in the event of contingencies. When completed, these jobs will likely improve restoration time and the reliability profile of the feeder to the benefit of customers in the job area.

The scope of work for this job is to replace the undersized conductor on feeder SCNAR43M24 in the areas of Hollis Avenue, Milne Avenue, part of Mack Avenue and Birchmount Road. This will establish a full capacity feeder main and transfer ties with SCNAR43M23 and SCNR43M28. Undersized conductor will also be replaced on feeder SCNAR43M28 in the areas of Kennedy Road, Aylesworh Avenue, Highview Avenue and Aylesford Drive. This will establish a full capacity feeder main and transfer tie with SCNAR43M30.

29.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
22994, 22995	E14136 OH Upgrade SCNAR43M24 Hollis Milne Birchmount	2014	$0.88
22958	E14117 OH Rebuild SCNAR43M28 Aylesworth Kennedy	2014	$0.75
		Total:	**$1.64**

~~30. Overhead Rebuild and Voltage Conversion on Ruddington MS~~

~~30.1. Objectives~~

~~The purpose of this work is to convert a 4kV primary distribution system that was built in the early sixties to 27.6kV. These lines are fed by Ruddington MS (SS64), which contains transformers and circuit breakers that are past their useful life. There is a high risk of damage to other equipment if the oil circuit breakers were to fail catastrophically. These jobs will enable conversion of Ruddington MS. They are expected to lower the risk of outages with the replacement of the aged assets and reduce system losses.~~

~~30.2. Scope of Work~~

~~The scope of work for this job is to convert the primary distribution of all overhead feeders from Ruddington MS. The job will cover replacing overhead transformers along Bayview Avenue and the installation of overhead conductor on Manorcrest Drive, Winlock Park and Feldbbar Court.~~

~~30.3. Required Capital Costs~~

~~Job Estimate Number~~	~~Job Title~~	~~Year~~	~~Estimated Cost ($M)~~
~~23978~~	~~E14286 OH Rebuild and Voltage Conversion of NYSS64F2 from Ruddington MS~~	~~2014~~	~~$0.94~~
		~~Total:~~	~~$0.94~~

31. Goulding MS Voltage Conversion

31.1. Objectives

The purpose of this job is to convert the existing 4kV feeders NYSS47F1 and NYSS47F2 from Goulding MS to 27.6kV with the final objective of decommissioning the station. Goulding MS was originally built in 1967.

31.2. Scope of Work

The scope of work is to expand existing 27.6kV feeders NY80M2 and NY80M10 to replace NYSS47F1 and NYSS47F2 that have been in service for over 40 years. The expansion of these feeders includes new overhead conductor, poles and transformer. The job area is bounded by /C Hilda Avenue, Theresa Avenue, Moore Park Avenue and Tefley Road.

31.3. Required Capital Costs

/C

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
22245	W13211 – Goulding MS F1 and F2 VC Ph#1	2013	$1.20
22248	W13216 – Goulding MS F1 and F4 VC Ph#2	2013	$0.99
		Total	**$2.19**

~~32. North Queen Conductor Upgrade~~

~~32.1. Objectives~~

~~The objective of this job is to upgrade the undersized conductor to a standard conductor for the feeder trunk circuit. An undersized conductor limits transfer capacity and can become a potential safety risk if overloaded for sustained periods of time.~~

~~32.2. Scope of Work~~

~~The scope of this work is to replace the undersized 3/0 OH primary located on the feeder trunk with 556.5 kcmil ASC. Non-standard and aging equipment such as porcelain insulators and poor condition poles will also be replaced.~~

~~32.3. Required Capital Costs~~

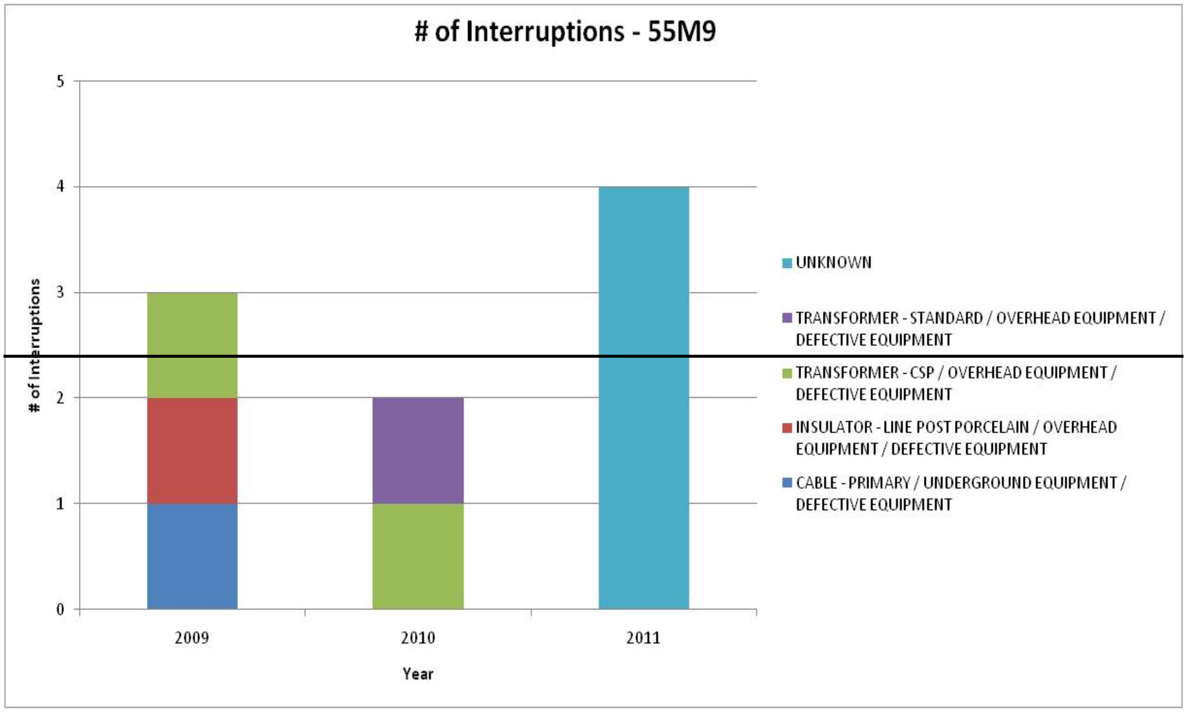
~~Job Estimate Number~~	~~Project Phase~~	~~Year~~	~~Estimated Cost ($M)~~
~~22960~~	~~38M27 North Queen conductor Upgrade~~	~~2014~~	~~$0.21~~
		~~**Total:**~~	~~**$0.21**~~

~~33. Overhead Feeder Rehabilitation on NY55M9~~

~~33.1. Objectives~~

~~The purpose of this job is to replace defective poles and non-standard equipment along Milvan Drive, Penn Drive, Finch Avenue West, Toryork Drive and Weston Road on feeder NY55M9.~~

~~As shown in Figure 80, NY55M9 experienced 4 outages in 2011. Approximately 65% of the outages over the last ten years were due to overhead related faults and recent feeder patrol reports have shown that most of the poles in the job area are aged, feathered at the top and are at the risk of cracking, breaking and toppling over. Non-standard equipment on the overhead distribution was also identified by feeder patrols. Approximately 20 percent of the overhead related faults in the last ten years are related to defective insulators, terminators and arrestors.~~



~~Figure 80: 55M9 number of interruptions~~

~~33.2. Scope of Work~~

~~The scope of work is to refurbish the overhead lateral distribution system on feeder NY55M9 by replacing defective poles and non-standard equipment (including insulators, brackets, arrestors), replacing CSP transformers with appropriately sized equivalents and upgrading spans of undersized primary lines (predominantly single-phase) including "open bus" secondary lines identified on the NY55M9.~~

33.3. Required Capital Costs

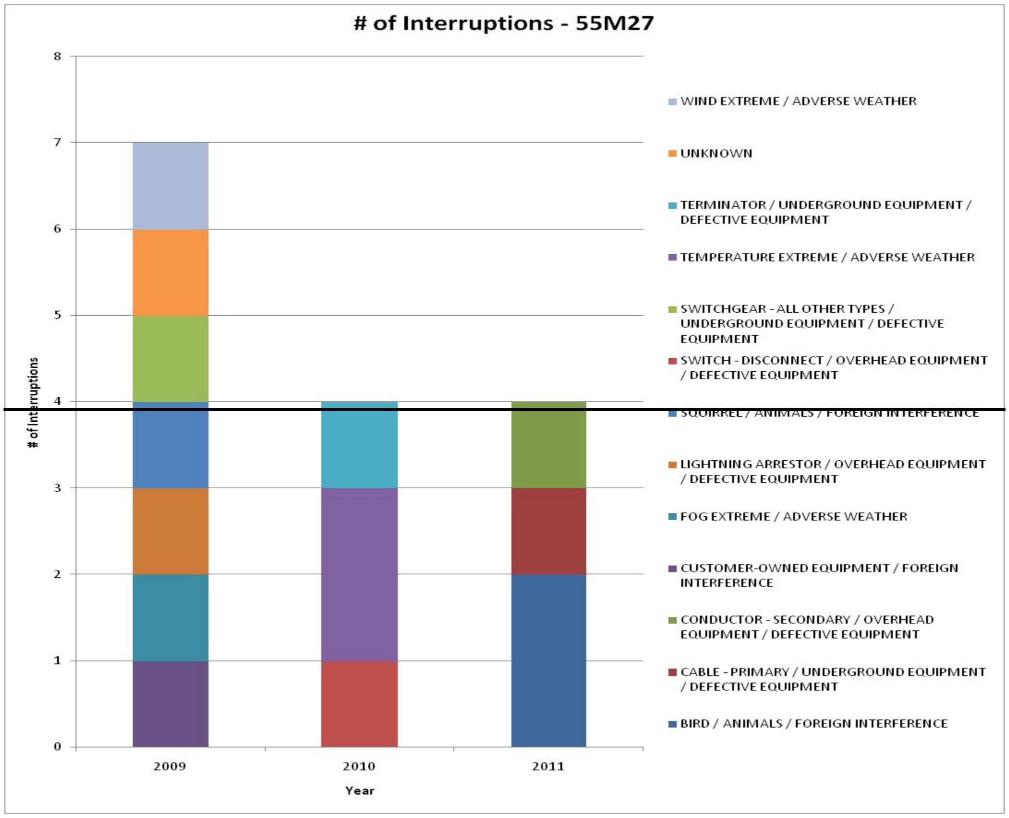
Job Estimate Number	Job Title	Year	Estimated Cost ($M)
23089	W14150 – OH Feeder Rehab – Milvan / Penn	2014	$1.02
23093	OH Feeder Rehab – Finch / Weston / Toryork	2014	$0.64
		Total	**$1.66**

34. Overhead Rebuild and Spot Replacement on NY55M27

34.1. Objectives

This job will replace non-standard CSP transformers, porcelain insulators and poles in poor or very poor condition on feeder NY55M27 in the vicinity of the intersection of Finch Avenue West and Islington Avenue in order to improve reliability. The objective of this job is to address areas of this feeder that have experienced outages and could have a high probability of outages in the future. As seen in the chart below, over the last three years the majority of the outages were due to failing equipment and interference on the overhead plant. Replacing end of life and non-standard equipment, which has a high probability of failure and may create a potential safety risk to the public and field crews, will improve the reliability and safety of this feeder.

NY55M27 has sustained four interruptions during the past year. Due to the quantity of end of life components on the feeder, five jobs, separated for reasons of administrative convenience and geography, were developed to rebuild overhead plant over the 2012 -2014 period. In this job package, job W14320 executes spot replacements along Ardwick Drive, job W14326 rebuilds the Nabenby Avenue area, job W14329 rebuilds the Gracedale Boulevard area, job W14333 rebuilds the Aviemore Drive area, job W14334 rebuilds the Duncanwoods Drive and job W14340 rebuilds the feeder along Lindylou Road.



~~**Figure 81: 55M27 number of interruptions**~~

~~34.2. Scope of Work~~

~~The scope of this work is to replace end-of-life and non-standard assets, considered to have a high probability of failure in the near future. The assets to be replaced include CSP transformers, end of life poles, porcelain insulators, and conductor. Historically, the predominant mode of failure has been due to equipment failure and foreign interference in the overhead plant.~~

34.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
24129	W14320 – Ardwick Overhead Spot Replacement	2014	$0.49
24166	W14326 – Nabenby Overhead Rebuild	2014	$0.93
24218	W14329 – P03 Gracedale Blvd. Overhead Rebuild Finch TS NY55M27	2014	$0.62
24257	W14333 – Aviemore Dr. Overhead Rebuild Finch TS	2014	$0.60
24269	W14334 – Duncanwoods Dr. Overhead Rebuild Finch TS	2014	$0.58
24295	W14340 – Lindylou Overhead Rebuild	2014	$1.12
		Total	**$4.33**

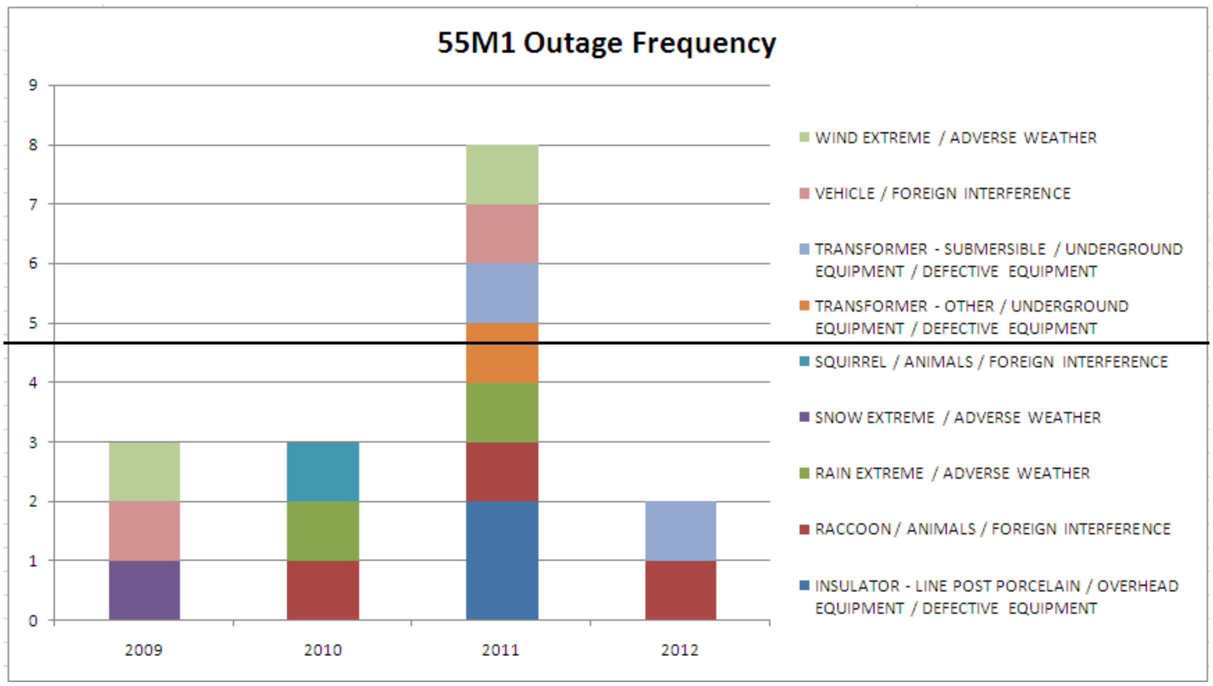
35. Overhead feeder Rehab- Signet, Weston, Fenmar

35.1. Objectives

The purpose of this job is to refurbish the OH distribution system by replacing defective poles and non-standard equipment on feeder 55M1 in the area of Steeles Avenue and Weston Road. Interference on the overhead plant has accounted for most of the outages on the feeder since 2009 and has caused the rise in the number of outages from three in 2009 and 2010 to eight in 2011 with two outages already recorded in the first quarter of 2012. This equipment is subject to failure in adverse weather which increases the urgency to rehabilitate the feeder in 2012 so as not to repeat, or worse exceed, the CHI levels (1,358 hours) experienced in 2011.

~~35.2. Scope of Work~~

~~As shown in Figure 82, 55M1 had a consistent trend of sustained interruptions with eight outages in 2011. Two outages have already affected this feeder within the first three months of 2012.~~



~~Figure 82: 55M1 Outage Frequency~~

~~This work will replace defective poles, poor performing CSP transformers and under-sized conductor, as well as install tree poof conductor in tree area. This rehab of overhead infrastructure is intended to mitigate the continuing deterioration of this feeder.~~

~~35.3. Required Capital Costs~~

~~Job Estimate Number~~	~~Project Phase~~	~~Year~~	~~Estimated Cost ($M)~~
~~23878~~	~~W14276 OH Feeder Rehab –Signet, Weston, Fenmar (NY55M1)~~	~~2014~~	~~$1.97~~
		~~Total:~~	~~$1.97~~

~~36. Voltage Conversion – Westmount MS~~

~~36.1. Objectives~~

~~The objective of these jobs is to convert the distribution infrastructure from Westmount MS to 27.6kV. The distribution and station equipment is old and approaching end-of-life and the switchgear must be replaced. This voltage conversion job will upgrade the system by removing obsolete and aging equipment and thereby allow for the eventual decommissioning of the Westmount MS station once all three feeders that it serves have been converted to 27.6kV.~~

~~36.2. Scope of Work~~

~~The scope of work consists of replacing all the 4KV equipment with standard 27.6KV equipment. All equipment will be transferred over to adjacent 27.6kV primary feeders wherever they exist and new 27.56kV feeders will be extended to customers currently out of reach. There are three jobs each converting a feeder from Westmount MS: RB-F1, RB-F2, and RB-F3. At the completion of these jobs Westmount MS will be decommissioned. By completing the 4kV conversion of the distribution plant, THESL will avoid the need to replace obsolete station equipment in the near future.~~

1 ## ~~36.3. Required Capital Costs~~

~~Job Estimate Number~~	~~Project Phase~~	~~Year~~	~~Estimated Cost ($M)~~
~~24320~~	~~W14343-Voltage Conversion RB-F3 Phase 1~~	~~2014~~	~~$0.45~~
~~24321~~	~~W14344-Voltage Conversion-Westmount MS-RB-F1~~	~~2014~~	~~$0.60~~
~~24333~~	~~W14345-Voltage Conversion-Westmount MS Phase 1~~	~~2014~~	~~$0.48~~
		~~**Total:**~~	~~**$1.54**~~

/C

/C

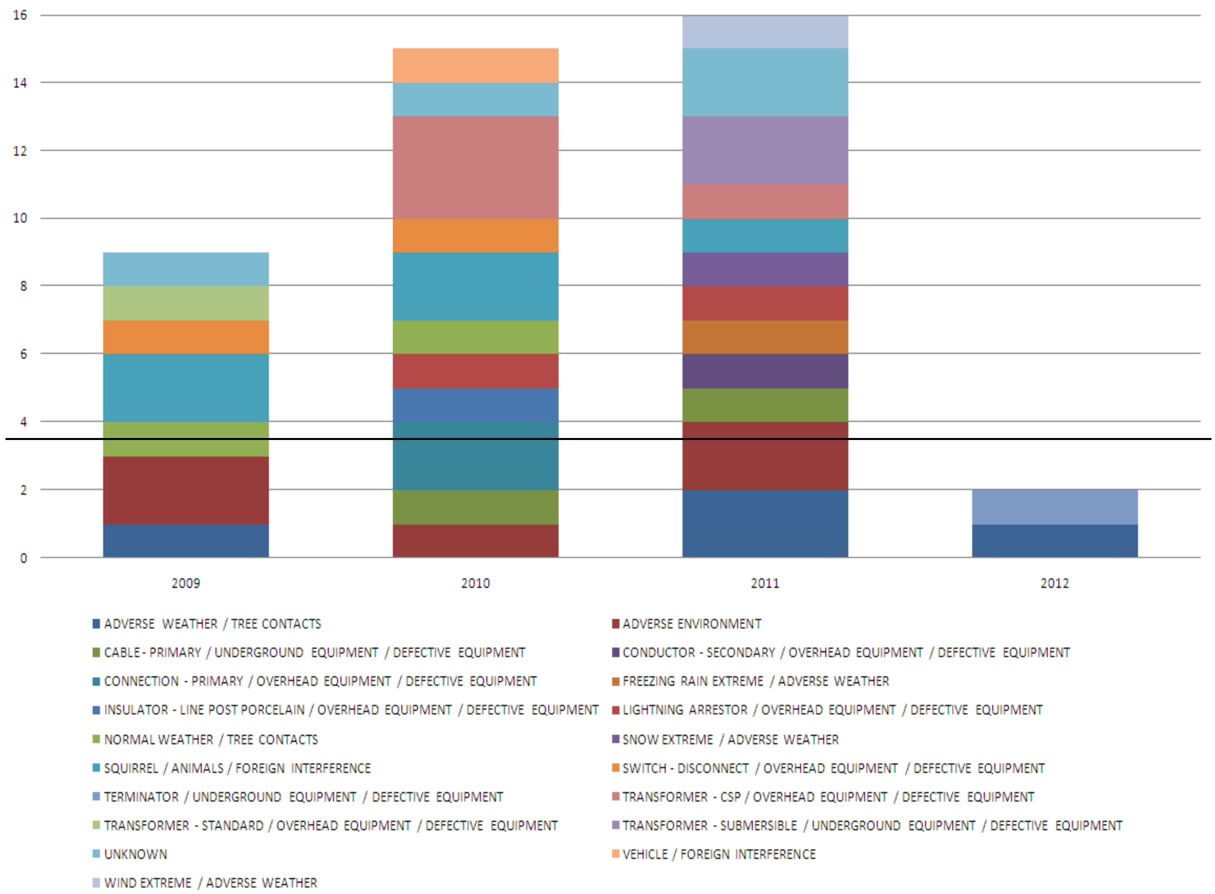
~~38. Overhead Rebuild on NY85M5 and NY55M23~~

~~38.1. Objectives~~

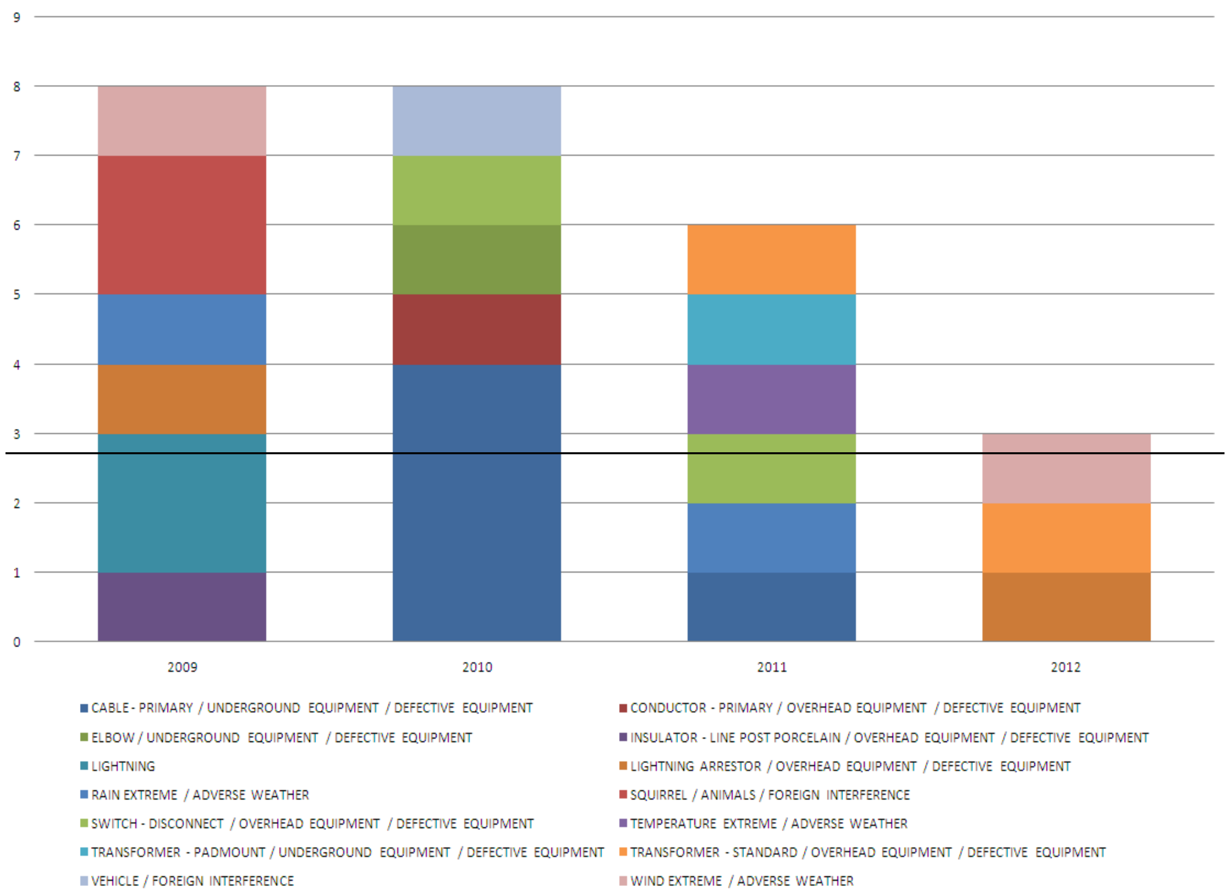
~~The purpose of these jobs is to replace old, poorly performing non-standard overhead distribution equipment and poles in poor condition on feeder NY85M5 and NY55M23. The jobs also involve upgrading undersized conductors on the primary conductor going through Carmichael Avenue, Allard Avenue, and to Wilson Avenue from NY85M25.~~

~~38.2. Scope of Work~~

~~As shown in Figures 83 and Figure 84, NY85M5 and NY55M23 have shown evidence of deteriorating reliability in the past three years. NY85M5 had 15 and 16 outages in 2010 and 2011, respectively, or an average of more than one outage every month. NY55M23 has experienced at least six failures per year over the last three years and has already had three sustained outages within the first three months of 2012.~~



1 ~~**Figure 83: 85M5 Outage Frequency**~~



~~**Figure 84: 55M23 Outage Frequency**~~

~~These areas are primarily comprised of poorly performing, non-standard assets including CSP transformers, porcelain insulators and arrestors. The scope of work requires the replacement of end-of-life and non-standard assets. Within the boundaries of this job, all overhead primary conductors, end-of-life poles and CSP transformers will be replaced with current standard equipment. This job replaces poles, switches, insulators, pole-mounted transformers and upgrades the overhead primary conductor to 556.5 kcmil and the replacement of underground XLPE #1 Solid Cable in concrete encased ducts.~~

~~More specifically, the primary overhead distribution on McAllister Road, Carmichael Avenue, Pellatt Avenue, and Gary Avenue will be upgraded.~~

~~38.3. Required Capital Costs~~

~~Job Estimate Number~~	~~Job Title~~	~~Year~~	~~Estimated Cost ($M)~~
~~24052~~	~~W14306 - 85M5 - McAllister Rd. Overhead Rebuild~~	~~2014~~	~~$0.30~~
~~24089~~	~~W14315 - 85M5 – Carmichael Ave. OH rebuild and conductor upgrade~~	~~2014~~	~~$0.71~~
~~23979~~	~~W14285 - Pellatt OH and UG lateral Rebuild~~	~~2014~~	~~$0.24~~
~~24007~~	~~W14289 - OH Rebuild off Gary Avenue~~	~~2014~~	~~$0.80~~
		~~Total~~	~~$2.06~~

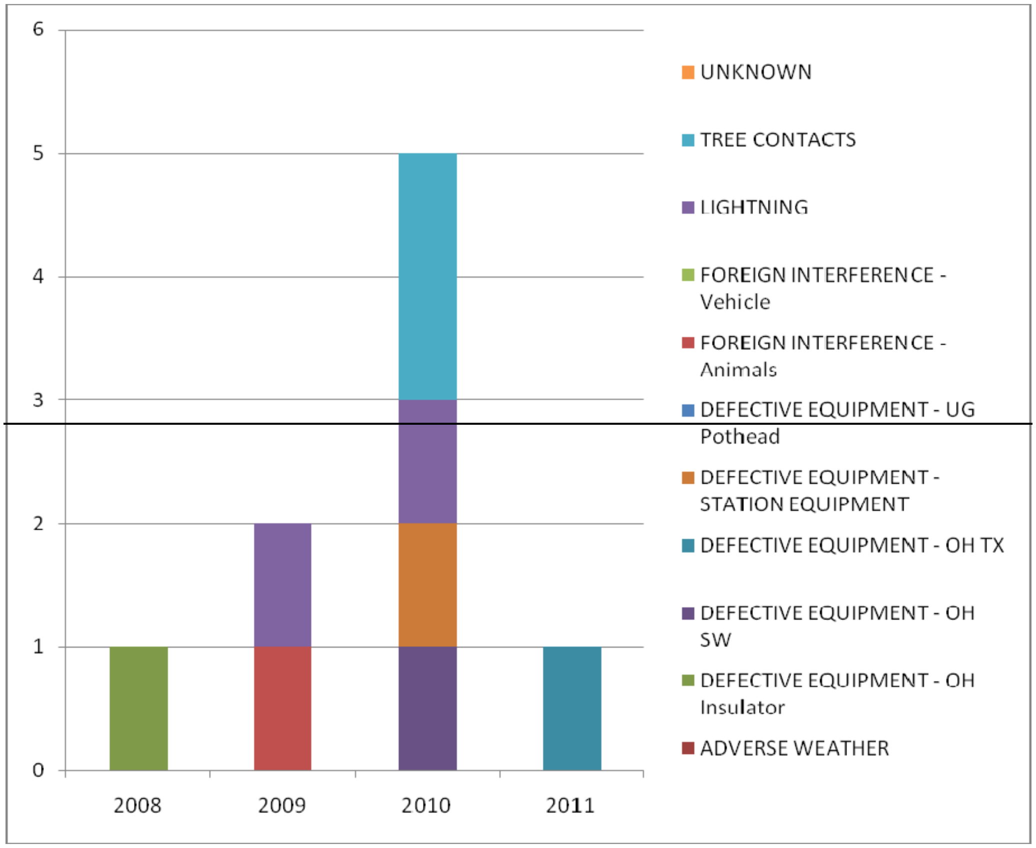
~~39. Overhead Upgrade on feeder ET30M7 and Voltage Conversion on feeder ETRF2~~

~~39.1. Objectives~~

~~The purpose of this job is to upgrade the feeder ET30M7 from Horner TS and partially convert Brown’s Line and Burlingame MS from 4kV to 27.6kV. Brown’s Line MS and Burlingame MS were originally built in the 1950s and 1960s. They were built to obsolete construction standards and are in deteriorated condition. The assets being replaced by this job are in the area bounded by Thirtieth Street, Valermo Drive, Brown’s Line, and Horner Avenue.~~

~~39.2. Scope of Work~~

~~ETRF2 is currently identified as a FESI-4 feeder, with a worst performing feeder rank of 433. The feeder’s condition has been deteriorating according to reliability data. A vast majority of the faults were specifically caused by weather and tree contacts. Tree-trimming in this area is scheduled for 2012 and 2013 to address such issues. Further improving the WPF status of ETRF2 and reducing the probability of failure requires replacing assets in poor condition and installing proper fusing.~~



~~**Figure 85: ETRF2 Outage Frequency**~~

~~The scope of work is to install primary and secondary conductor, new poles and transformers to accomplish the upgrade from 4 kV to 27.6 kV.~~

~~39.3. Required Capital Costs~~

~~**Job Estimate Number**~~	~~**Project Phase**~~	~~**Year**~~	~~**Estimated Cost ($M)**~~
~~23361~~	~~30M7 OH Upgrade and ETRF2 OH VC~~	~~2014~~	~~$2.04~~
		~~**Total:**~~	~~**$2.04**~~

40. Worst Performing Feeder (WPF) Overhead Rebuilds

40.1. Objectives

THESL has an ongoing WPF program, which is aimed at improving system reliability and asset performance by addressing those feeders that most impact reliability. The goal of this job is to improve system reliability and asset performance through a complete overhead rebuild of the primary distribution system in the areas listed below, which includes the refurbishment of poor condition poles, transformers, porcelain insulators, lightning arrestors, and the upgrade of conductor. The WPF feeders being addressed in these jobs have shown a trend of deteriorating reliability and have experienced a significant number of outages.

40.2. Scope of Work

Toronto Hydro has introduced a Worst Performing Feeder (WPF) program. It is intended to improve system reliability and asset performance by adjusting our planned asset replacement program, with the intent of eventually eliminating these problem feeders from the WPF list. The WPF program covers those feeders which have high numbers of Customer Interruptions (CI) and corresponding Customer Minutes Out (CMO). The top 40 worst performing feeders, as well as FESI-7 and FESI-12, are targeted for improvement.[4] Based on 2007 data, FESI-7 feeders contribute 37 percent of SAIFI and 32 percent of SAIDI. Going forward, as these feeders improve, THESL plans to continue work on adjacent groups of WPF (e.g., FESI-5). The scope of work for the selected jobs below targets the replacement of all aging and non-standard equipment that has a high probability of future failure and poses potential safety risks for the public and field crews. Based on historical reliability statistics these jobs focus on the probability /C of outages due to foreign interference and include replacing CSP transformers and bare conductor with tree proof conductor at heavily-treed locations.

[4] FESI-X refers to those feeders that have had X or more sustained interruptions (more than one minute) within one year.

40.3.1. W12351 FESI CSP and Conductor Replacement (Multiple Locations)

This job executes spot replacements of poles, transformers, conductors and animal guards at a total of 127 locations on this feeder distributed among Battersea Crescent, Blandonan Road, Bluebell Gate, Brome Road, Bryn Road, Cleo Road, Circle Ridge, Clubine Avenue, Cirillo Court, Cornelius Parkway, Crioline Road, Delria Drive, Donofree Road, Dorsey Drive, Duval Drive, Erie Stret, Euphrasia drive, Falstaff Avenue, Govedale Avenue, Gracefield Avenue, Haverhill Avenue, Jay Street, Joyce Parkway, Keele Street, Kinkora Drive, Lawrence Avenue West, Macleod Street, Manresa Lane, Maple Leaf Drive, Marianfeld Avenue, North Park Drive Pember Drive, Queens Drive, Quinan Drive, Redberry Parkway, Rollet Drive, Romeo Street, Rustic Road, Sage Road, Treelawn Parkway, Valencia Crescent, Wickford Drive and Wyndale Drive. This feeder had 860 CHI 2011. As shown in Figure 87, this feeder experienced seven outages in 2011. The majority of these outages were due to overhead component failure and interference. It has a high probability of future outages due to aging and non-standard equipment. This job addresses replacement of CSP transformers and upgrades to tree proof conductor in heavily-treed areas. /C transformers and upgrade conductor to tree proof conductor in heavily treed areas where tree contacts are most likely to occur during periods of adverse weather.

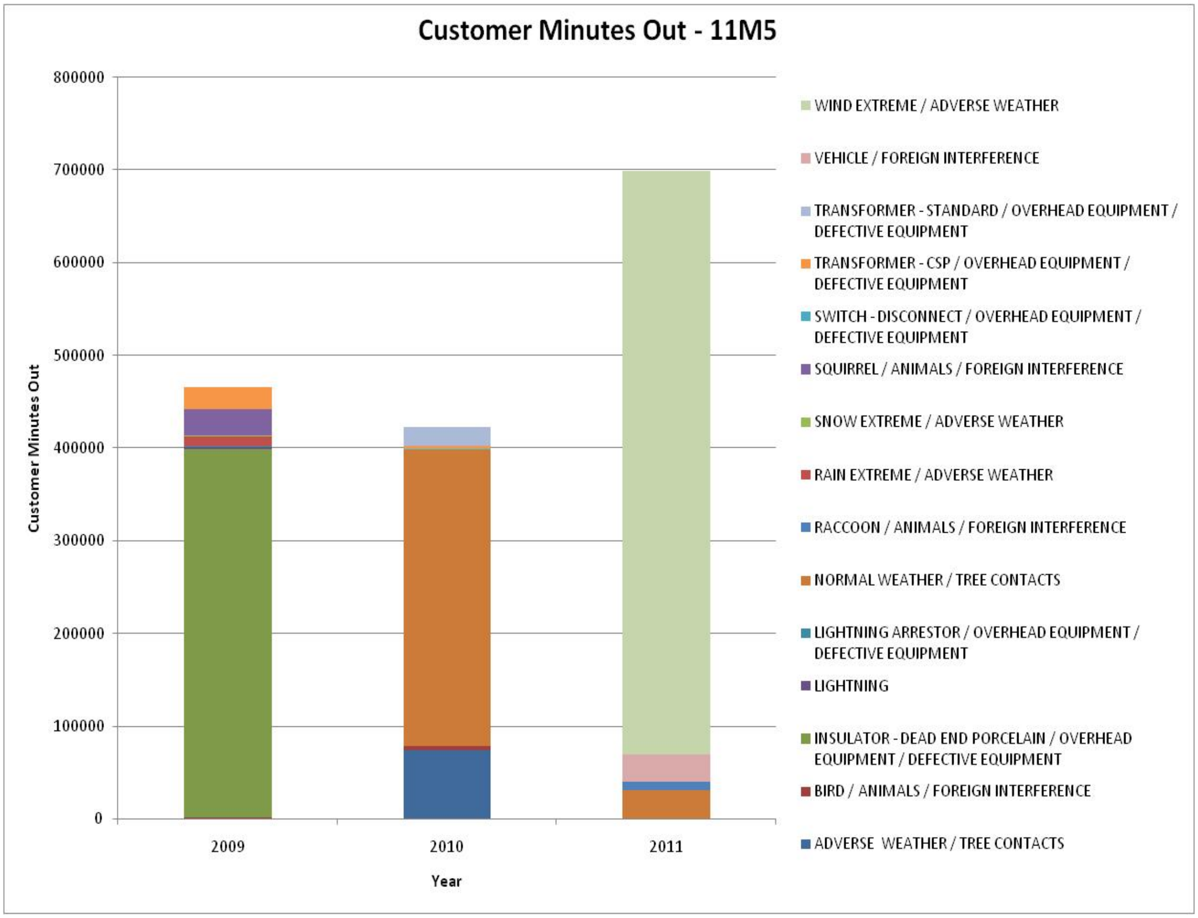


Figure 88: 11M5 Customers Minutes Out

/C

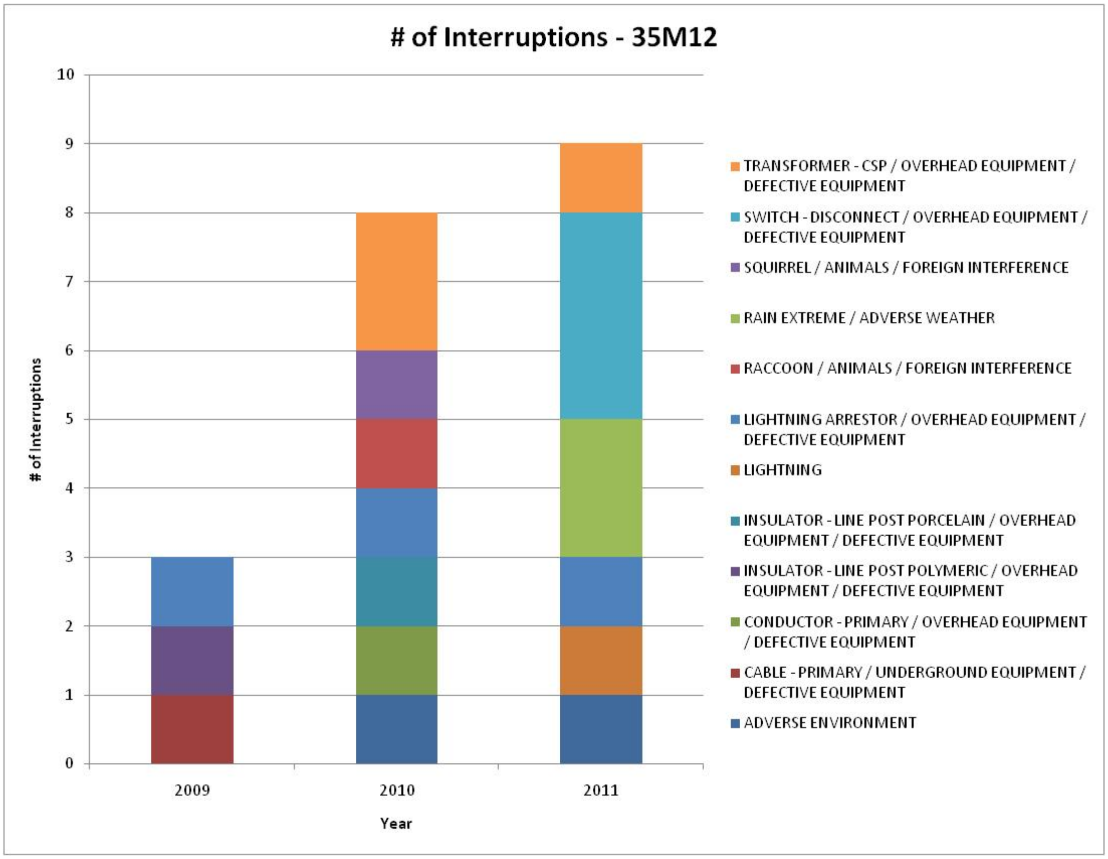


Figure 89: 35M12 Number of Interruptions

40.3.4 E12104 Chipping Crossburn 53M10 OH Rebuild /C

Over the last three years there have been several failures concentrated on the OH distribution on Chipping Road, Park Glen Drive and Crossburn Drive that require rehabilitation of Feeder 53M10 to improve the reliability in this area (See Figure 90). This job will replace defective and non-standard equipment on this feeder.

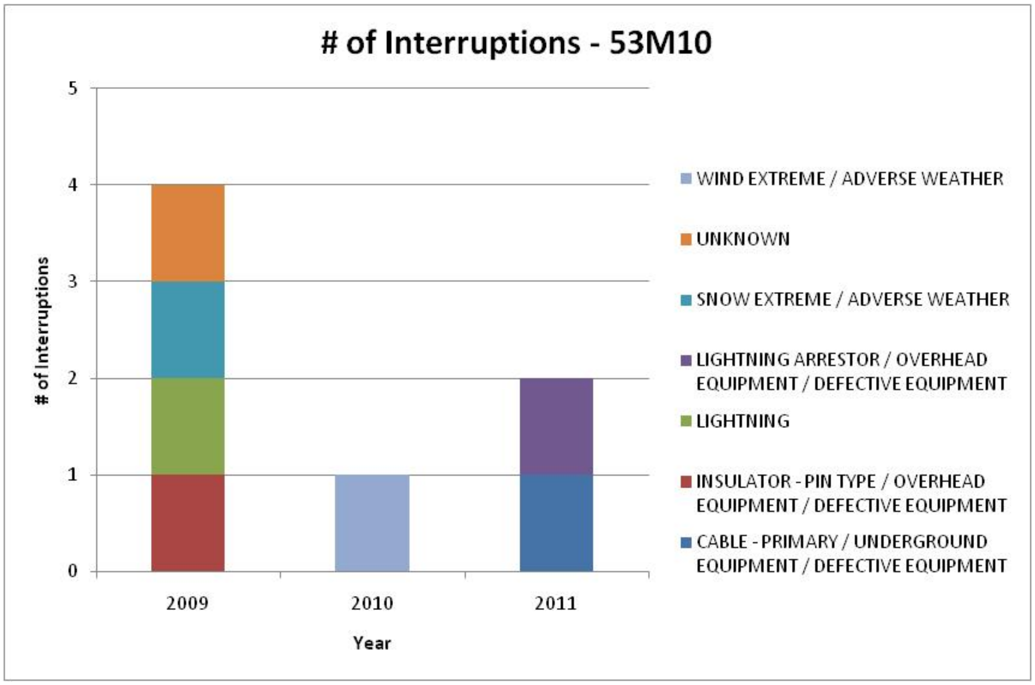


Figure 90: 53M10 Number of Interruptions

40.4. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
20499	W12339/P03 FESI CSP and Conductor Replacement on YK11M1 off Weston Road and Jane Street	2013	$0.85
20565	FESI CSP and Conductor Replacement	2012	$4.41
20379	CSP and Conductor Replacement	2013	$1.02
23677	Chipping Crossburn 53M10 OH Rebuild	2012	$0.28
20875	George Andersen and Culford Rd. Overhead Rebuild	2012	$1.63
		Total:	**$8.19**

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/UF

41. Replacement of non-standard equipment and overload transformers

41.4. Objectives

The objective of this job is to replace poorly performing assets on Feeder YK35M10. The /C replacement of CSP transformers, switches, insulators and arresters will be undertaken under this job to improve reliability. /C

41.5. Scope of Work /C

The scope of work includes the replacement of 131 poles, 7,500m of overhead conductors, 22 /C CSP transformers, 16 switches, porcelain insulators and arresters in the areas primarily between Genesee Avenue, St. Clair Avenue, Rushton Road and Dufferin Street and then between Oakwood Avenue, Kirknewton Road, Hopewell Avenue and Rogers Road.

41.6. Required Capital Costs /C

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
19581	Replacement of non-standard and overloaded transformer on YK35M10	2012	$0.53
		Total:	**$0.53**

/C

42. Installation of SCADA Switches

42.1. Objectives

The purpose of this job is to replace existing manual switches with SCADA-Mate R2 switches as /C well as upgrade existing remote switches with fault sensing software in order to improve restoration time as part of the ongoing investment strategy for reducing Customers Hours Interrupted (CHI). These switches are always installed on the main trunk portion of the feeder. Outages on this portion of the feeder impact many customers. Typically, on residential feeders approximately 3,000 customers will experience a sustained outage from a fault on the feeder trunk.

With the installation of remote fault sensing switches, typically three quarters of the customers will have their power restored within a few minutes. Thus, this provides an effective means of restoring customers quickly. Without remote fault sensing switches, crews will need to patrol the feeder until the root cause of the outage is found. Furthermore, a crew will need to operate the manually switches at multiple locations in order to isolate the faulted section of the feeder and re-supply non-affected portions of the feeder from neighbouring tie feeders. The presence of a remote fault sensing switch is expected to provide to major benefits; namely the ability to /C
provide Power System Controllers with fault location information as well as the ability to remotely open and close various switches quickly.

In some cases, THESL does not have control of opening or closing station circuit breakers. With some feeders, this function is controlled by Hydro One Networks. The installation of a remote fault sensing switch close to the egress of the station would allow THESL Power System /C
Controllers to effectively control power supply to the vast majority of the feeder. This shortens the outage duration since co-ordination with Hydro One Network personnel is no longer required.

The locations for switch installations was based upon installing the switches on feeders with poor reliability, those with no remote fault sensing tie points between two feeders, those with many customers or high load between sectionalizing switches, and those where Hydro One networks control the operation of the breaker. Areas that are targeted for this work include distribution feeders in the Fairbanks TS, Bathurst TS, HornerTS, Manby TS, Cavanagh TS, Malvern TS and Scarborough TS areas.

42.2. Scope of Work

The scope of work for this job is to replace existing manual switches with SCADA as well as /C
upgrading current SCADA switches on the distribution system. These switches are in multiple locations across the THESL grid.

42.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)	
19785	X12156 Replacement of the manual tie switches with SCADA 53-M8	2013	$0.30	/US
19454	X11524 Replacement manual switch with SCADA, EYA11L	2012	$0.07	
19453	X11525 Replacement manual switch with SCADA, EYA12L	2012	$0.07	
19455	X11526 Replacement manual switch with SCADA, EYA14L	2012	$0.08	
19837	X12163 Replacement of manual tie switches with SCADA 53-M6	2013	$0.52	/US
19806	W12089-Remote SCADA Switch Install Bathurst TS	2013	$0.09	
19792	X12158 Replacement of manual tie switches with SCADA 53-M7	2012	$0.53	
19892	X12176 Replacement of manual tie switches with SCADA 53-M5	2012	$0.38	/UF
19894	X12182 Replacement of manual tie switches with SCADA 34M5, 34M6 34M7	2012	$0.20	
19452	X10449 Replacement of manual switch with SCADA EYA13L	2012	$0.07	
18456	E11374 SCADA Installation 34M6	2012	$0.79	
17801	E10387 Bermondsey SCADA	2012	$0.29	/UF
20391, 19965	E11088 North York SCADA 53M10 Area A	2012	$0.31	
20416	X12318 34M1 Scadamates Intallation	2013	$0.17	

/C

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
22598	W13271 3 Feeder Riser SCADA Switch Installations Hydro Row	2013	$0.29
20659	W12383-OH Switch Replacements to SCADA Controlled Switches	2013	$0.21
~~24169~~	~~E14319-New SCADA Switch on 43M24~~	~~2014~~	~~$0.20~~
~~24139~~	~~E14318-New SCADA Switches on NY51M3~~	~~2014~~	~~$0.19~~
24060	E12744 - Bell Line Conversion	2012	$0.08
		Total:	**$4.45**

/UF

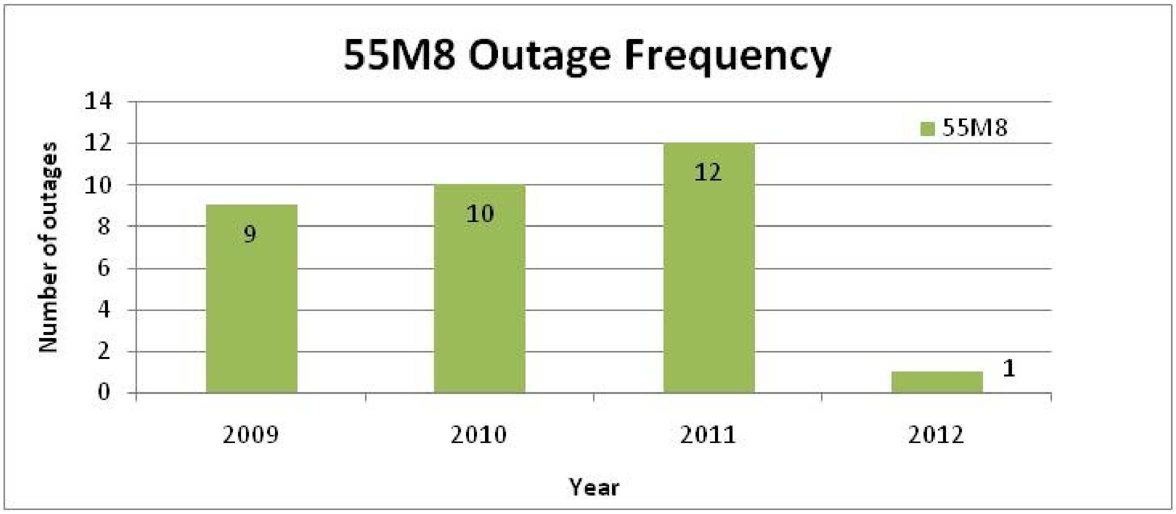
43. Overhead Rebuild on feeder NY55M8 /C

43.1. Objectives

The purpose of this job is to refurbish, rehabilitate and reconfigure feeders NY55M8 from Finch TS. /C

43.2. Scope of Work

As shown in Figure 91, feeder 55M8 shows a consistent or increasing trend of sustained outages over the past three years. /C



/C

Figure 91: Outage Frequency on 55M8 /C

The scope of work is to install new poles as well as replacing non-standard overhead CSP transformers and porcelain equipment to reduce the probability of equipment failure. New animal guards are to be installed at the appropriate overhead locations. /C

43.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
~~22859~~	~~W14073 – 55M31 OH Rebuild at intersection Steels Ave W and Weston RD.~~	~~2014~~	~~$0.80~~
20296	W12270 OH Rebuild Spenvalley Dr and Surrounding Area	2013	$0.69
		Total	**$0.69**

/C
/UF

~~44. Overhead Feeder Trunk Rehabilitation and Reconfiguration~~

~~44.1. Objectives~~

~~The purpose of this job is to refurbish the overhead distribution system of feeder NY85M4 along Alexdon Road, Chesswood Drive Champagne Drive and Toro Road by replacing defective poles and non-standard equipment.~~

~~44.2. Scope of Work~~

~~The scope of work is to refurbish the overhead lateral distribution system on feeder NY85M4 by replacing defective poles, non standard equipment including CSP transformers, upgrading undersized primary conductor and upgrading "open bus" secondary lines.~~

~~Feeder 85M4 has had five outages in the last 12 months. In the last ten years, 55 percent of the sustained outage incidents on the feeder were caused by faults on the overhead system. The asset replacements, fault indicator replacements and system reconfiguration that form this job are needed immediately to improve reliability on the feeder.~~

~~44.3. Required Capital Costs~~

~~Job Estimate Number~~	~~Job Title~~	~~Year~~	~~Estimated Cost ($M)~~
~~23364~~	~~OH Feeder Rehab – Alexdon, Chesswood, Champagne~~	~~2014~~	~~$0.54~~
		~~Total~~	~~$0.54~~

45. Overhead Rehabilitation on feeder NY55M25 and NY80M2

45.1. Objectives

The purpose of these jobs is to replace the non-standard, aged and failing overhead distribution assets to improve the reliability of feeders NY55M25 and NY80M2. This job includes upgrading /c the undersized primary lines on the feeders and providing adequate backup to Rockford Public School.

Over the past year, there were seven sustained power interruptions on feeder 55M25 and six on feeder 80M2. The available Health Index scores for the 50 percent of the poles evaluated in the job area was as low as 38. Defective and non-standard overhead equipment led to the 20,317 CI /C experienced on NY55M25 in 2011. In addition, Rockford Public School does not have adequate back-up. The inadequacy of back-up capacity, exacerbated by the undersized primary lines, was responsible for the increase in outage durations (CHI) from 705 in 2010 to 3,534 in 2011. In the event of a failure on the three-phase circuit currently supplying this customer, lengthy outage durations beyond the CHI experienced in 2011 will likely be experienced because restoration will /C be constrained by the inability to transfer loads to healthy adjacent feeders. The job is expected to improve reliability on these feeders. /C

45.2. Scope of Work

The scope of work for these jobs is to install new poles and replace CSP transformers as well as /C porcelain insulators along NY55M25 and NY80M2. Some 2,800 m of overhead conductors will be replaced along NY80M2 between Fisherville and Rockford to upgrade the line capacity providing adequacy for load transfer as required during contingencies. A normally open switch located at the intersection of Fisherville Road and Rockford Road will tie feeder NY80M2 to NY85M7 providing the required backup to feeder NY80M2 in the job area. /C

45.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
20946	W12462 – 3 Phase Extension along Rockford	2012	$0.27
20412	W12306 - FESI NY55M25 OH Feeder Equipment Rehab	2013	$0.91
		Total	**$1.18**

/c

/c

46. Overhead Rebuild and Trunk Reconfiguration on NY55M21

46.1. Objectives

The purpose of this job is to reconfigure the trunk portion of feeder NY55M21 and to rebuild /c portions of it in the area bounded by Weston Road, Yorkdale Crescent, Aura Lea, and Highbury Road in order to improve reliability. NY55M21 has experienced two sustained power interruptions during the past year. The job addresses aged poles in poor condition, and non- /c standard, poorly performing assets such as CSP transformers, porcelain insulators, arrestors and overhead conductors.

46.2. Scope of Work

The scope work is to replace end-of-life and non-standard assets including all overhead primary conductors, end-of-life poles and CSP transformers. Furthermore, the trunk portion of the feeder will be reconfigured in order to mitigate the impact of potential outages. /c

46.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)
21999	W13167 – Clayson/Bartor Trunk Feeder Reconfiguration and Refurbishment	2013	$1.10
		Total	**$1.10**

/c

~~47. Voltage Conversion of 4kV Etobicoke System~~

~~47.1. Objectives~~

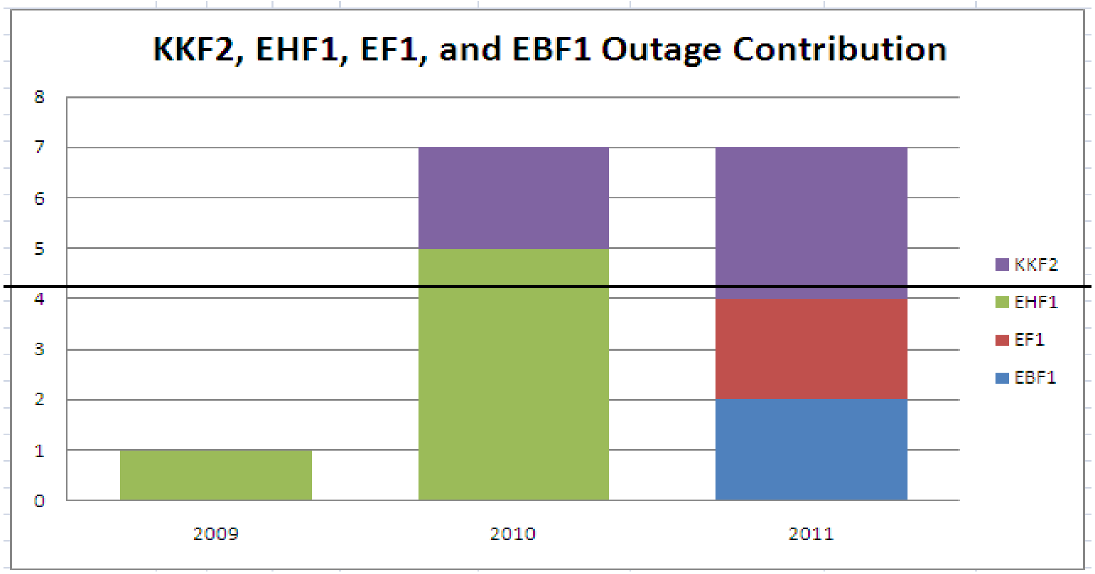
~~The objective of this job is to convert obsolete and non-standard equipment on the 4kV distribution system to the standard 27.6kV service in the Etobicoke area.~~

~~47.2. Scope of Work~~

~~The 4 kV feeders, EBF1, EF1, EHF1, and KKF2 in the area of Kingsway MS, were selected based on outages (as shown in Figure 92 below) and condition of equipment as observed by field crew. The majority of the equipment on this aging system has reached or is approaching end of life and the substation equipment should be replaced or decommissioned. Furthermore, some of the equipment is becoming difficult to purchase due to obsolescence. These jobs will convert all the 4 kV loads to the 27.6kV system and remove any unnecessary equipment. The long term goal is to convert all the customers on the 4kV station feeders and decommission the station.~~

~~The scope of work is to convert all customer loads on the 4kV system to the 27.6kV system usually by a line transfer to an adjacent 27.6kV feeder. In some cases these jobs require additional feeder configuration to accommodate customers that are currently beyond the 27.6kV system. Some trunk lines may be maintained to provide contingency options to 4kV~~

~~feeders that still serve customers. These lines will be removed when they are no longer necessary and the substation has been decommissioned.~~



~~**Figure 92: Outage contribution on KKF2, EHF1, EF1 and EBF1**~~

~~47.3. Required Capital Costs~~

~~**Job Estimate Number**~~	~~**Project Phase**~~	~~**Year**~~	~~**Estimated Cost ($M)**~~
~~23323~~	~~W14181 - Kingsway MS – OH Voltage Conversion (ETEF1)~~	~~2014~~	~~$0.66~~
		~~**Total:**~~	~~**$0.66**~~

48. Overhead Rebuild

48.1. Objectives

The objective of these jobs is to replace end of life and non-standard equipment that has a high probability of future failure and could possess a potential safety risk for the public and field /C crew. These jobs will focus on the replacement of equipment such as poles, porcelain/glass

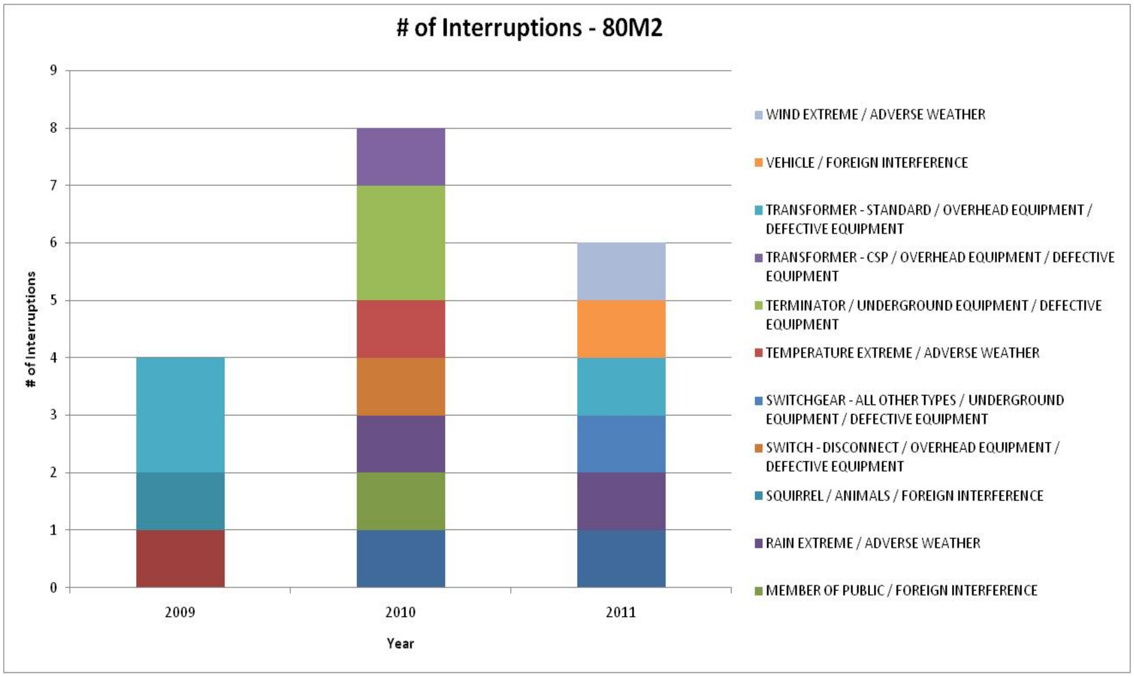


Figure 96: Number of interruptions on 80M2

48.2. Scope of Work

The scope of this work is to replace all non-standard and aged equipment that can create a fault or a potential safety issue on the listed feeders. This job focuses on the replacement of aging poles, porcelain insulators and switches. Furthermore, this job will install animal guards and insulated drop wires at strategic locations that are expected to reduce the probability of a fault due to animal interference. /C

48.3. Required Capital Costs

Job Estimate Number	Project Phase	Year	Estimated Cost ($M)	
				/C
22229	E12574 Overhead Rehabilitation of SCREF3	2013	$0.83	
~~23312~~	~~E14170 Rouge Park OH Rebuild Phase and VC of 3 SCXGF3~~	~~2014~~	~~$0.62~~	
21457	E13110 NYSS68-F9 OH Rebuild at Pleasant View	2012	$0.54	/US
		Total:	**$1.37**	

49. Manby-Horner TS Feeder Reconfiguration

49.1. Objectives

The objective of this job is to relieve overloaded feeders from the Manby TS east of Kipling Avenue by constructing a new feeder powered out of the Horner TS and slightly modifying the configuration of the existing feeders from both Manby and Horner Transformer Substations. /C

49.2. Scope of Work

The scope of work of this job is to construct a new overhead line at the intersection of Evans Avenue and Kipling Avenue, eastwards to Royal York Road. The new arrangement will result in 25A load from Horner TS feeder 30M1 and 200A load from Manby TS feeder 38M13 transferred to the new feeder 30M12 off buses B of the Horner TS. About 200A load will be transferred off Manby feeder 38M7 to feeder 38M13 resulting in an overall transfer of 250A from Manby TS bus-Q feeder ET38M13 to the new Horner TS feeder ET30M12. /C

In addition to relieving the overloaded feeders, redistribution of load is expected to improve the effectiveness of the Feeder Automation that will be developed in the area by creating sufficient spare capacity to allow for the automatic backup of adjacent feeders in the event of outages. /C

/C

This job is related to the job described above in Section 8 as follows. The job in Section 8 builds a new feeder ETR30M12 out of Horner TS to immediately relieve the Manby bus B-Y of 12MVA, thus averting bus overloading by 2012. This job outlined in Section 49 extends the new feeder proposed in Section 8 (ETR30M12) North-East to further relieve the Manby TS of 14.8MVA by /C reconfiguring the load and structure of the feeders ET38M7, ET38M13, ET38M20 and ETR30M1 averting the forecasted year 2014 overloading of Manby TS bus Q-Z as indicated in Figure 61 above. /C

49.3. Required Capital Costs

/C

Job Estimate Number	Job Phase	Year	Estimated Cost ($M)
23430	P03 Evans Avenue and Royal York Rd, Reconfiguration of Feeders	2013	$0.80
		Total:	**$0.80**

50. CSP and Pole replacement on feeder NY80M5

50.1. Objective

The objective of this job is to replace poles that have exceeded their useful lives and CSP transformers on feeder NY80M5 out of Fairchild I TS to prevent future outages and potential safety risks due to equipment failure.

50.2. Scope of Work

Feeder NY80M5 has been above FESI 7 for most of the last three years and is currently FESI 8 and WPF 53. In addition, this feeder is currently picking up customers from feeder NY51M7, which results in additional customers also experiencing the failures from Fairchild TS and this feeder. A feeder patrol was performed on the feeder, which noted the poor condition of assets.

50.3. Required Capital Costs

Job Estimate Number	Job Title	Year	Estimated Cost ($M)	
				/C
20881	E12457 - CSP Transformer and Pole Replacement	2012	$0.44	/US
		Total:	**$0.44**	

When a project analysis is undertaken, assets within the project may be before, at, or beyond their optimal replacement time, thus some assets will have sacrificed economic life and others will have incurred excess risk. The cumulative sacrificed life and excess risk of the assets involved becomes a cost against the project, as shown by the red curve in Figure 3. Within the Overhead Infrastructure segment, multiple assets are replaced together as part of a linear job, /C and therefore there are concurrent intervention benefits that must be weighted against the total costs (cumulative asset excess risk and sacrificed life values) in order to produce an overall project net cost calculation. These benefits would include factors such as equipment rentals, transportation of crew and material, excavations, and road moratoriums. These benefits are illustrated by the green curve in Figure 3. Taking the sum of the costs (cumulative asset excess risk and sacrificed life values) and benefits, year-by-year, provides the Net Project Benefit for the Job-Based Approach, illustrated by the blue curve in Figure 3.

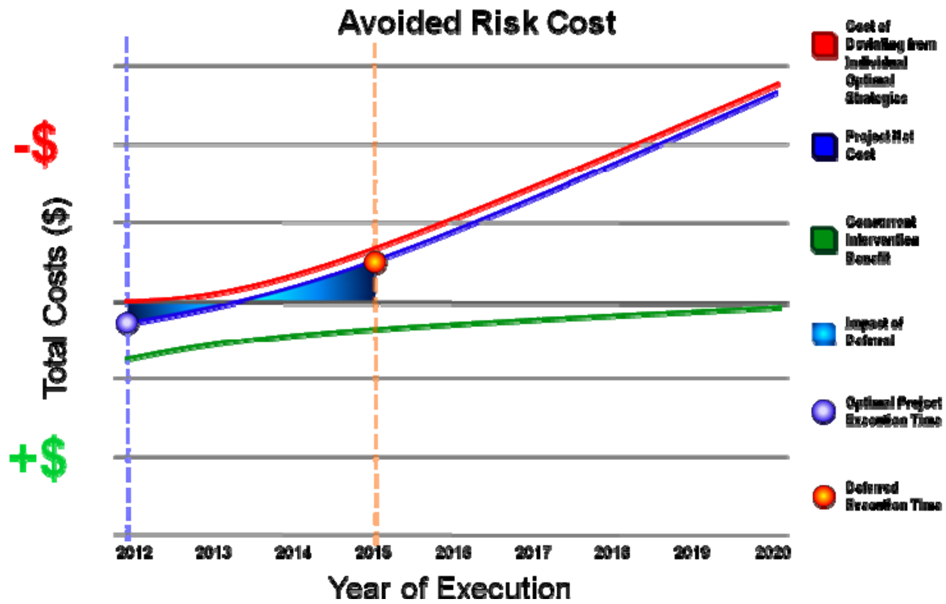
Since the optimal intervention year is the lowest point on the Project Net Cost curve, represented by the blue curve in Figure 3, the estimated risk costs for the project assets in 2015 will exceed the estimated risks that exist today. By performing the work immediately as opposed to waiting until 2015, we can eliminate these estimated risks. Therefore, these avoided costs represent the benefits of the in-kind project execution in 2012 as opposed to 2015.

The formula for this calculation is detailed below:

Avoided Estimated Cost = $PV(PROJECT_{NET\_COST}(2015)) - PROJECT_{NET\_COST}(2012)$

Where:

- $PROJECT_{NET\_COST}(2012)$: Represents the total project net costs in 2012.
- $PV(PROJECT_{NET\_COST}(2015))$: Represents the present value of total project net costs in 2015.



Scheduled Maintenance

Figure 3: Example of Project Net Benefit Analysis for Job-Based Approach

Within the Overhead Infrastructure segment, individual optimal intervention timing results were /c calculated for each of the assets to be replaced, based upon the processes identified in Section 1.1.

Each of these assets may possess an individual sacrificed life and an excess risk value, which collectively produce a year-by-year cost. Each of these assets will also possess a year-by-year /c concurrent intervention benefit that is produced by comparing the costs of replacing these assets as part of an integrated job as opposed to replacing them individually. Therefore, the individual year-by-year costs and benefits for each asset are aggregated to produce the overall Project Net Cost year-by-year as illustrated in Figure 3. /c

As noted in the formula above, this Project Net Cost was then calculated for all overhead infrastructure project assets at years 2012 and 2015 respectively as per these two execution approaches. Project Net Costs quantified in 2015 were brought back to a present value and the difference between this value and the Project Net Cost quantified in 2012 was taken as the Avoided Estimated Risk Cost. The final results are provided in Table 1.

Table 1: Avoided Estimated Risk Cost for Overhead Infrastructure Segment /C

Business Case Element	Estimated Cost (in Millions)
Present Value of Project Net Cost in 2015 (PV($PROJECT_{NET\_COST}$(2015))	$ 222
Project Net Cost in 2012 ($PROJECT_{NET\_COST}$(2012))	$ 111
Avoided Estimated Risk Cost = (PV($PROJECT_{NET\_COST}$(2015)) – $PROJECT_{NET\_COST}$(2012))	**$ 111**

/C
/C

e

Toronto Hydro-Electric System Limited
EB-2012-0064
Tab 4
Schedule B5
Filed: 2012 May 10
Updated: 2012 Oct 31
(64 pages)

ICM Project – Overhead Infrastructure and Equipment

Box Construction Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Box Construction Segment

<u>SUMMARY OF CHANGES IN THE UPDATE</u>

- Reduced 2012-2013 budget from $30.74 M to $23.6 M, a reduction of $7.14 M
- Revised number of jobs proposed for 2012/2013 to 15, with jobs for 2014 to be addressed in Phase Two
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Corrected job reference descriptions

ICM Project | Box Construction Segment

I EXECUTIVE SUMMARY

1. Project Description

Box construction refers to a type of legacy 4kV overhead construction that was previously used in the former City of Toronto and still exists in some areas of the city. The picture below shows a typical box construction installation in the city. There are a number of reliability, safety and load capacity issues associated with box construction (described below), which THESL plans to address through a proactive program to convert these feeders to standard 13.8kV overhead construction. In addition, there are specific issues that necessitate the conversion of box construction 4kV feeders supplied from stations such as Hazelwood MS (municipal station). These issues are described in detail in Section II, 2. The legacy overhead construction will be replaced with 13.8 kV overhead feeders. The estimated total cost of the proposed segment is $23.6 million. /UF, US

Typical Box Construction Installation (January 16, 2012)

Conversion of 16 4kV box construction feeders identified in the 15 jobs that comprise this segment for 2012-2013 will allow THESL to decommission the following 4kV stations: College, Hazelwood, Keele and St Clair. In addition, 4kV box construction feeders B2MD, B5DN, B4DN, ~~B2DU,~~ B6DU B15J, B5J, B8J, will be converted to 13.8kV overhead construction as well as to facilitate the future decommissioning of additional stations. /US /US

- Skill set to maintain legacy assets – It is becoming increasingly difficult to maintain 4kV box construction feeders.

3. Why the Proposed Project Is the Preferred Alternative

THESL's program to replace obsolete legacy 4 kV box construction with new 13.8 kV feeders will improve safety, reliability and system efficiency as discussed in Section III. THESL evaluated the proposed box construction replacement segment, the preferred alternative, against the alternative of maintaining and replacing the equipment used in box construction, the status quo. Other than replacing box construction or leaving it in place and addressing individual assets as needed, there are no viable options to address the issues that box construction creates.

The status quo would have THESL continue to maintain and repair box construction wherever it is currently found. Due to the high number of assets past their useful lives on these feeders as seen in Table-6, maintaining the status quo will likely result in additional maintenance cost and worse reliability. The safety and operational issues associated with box construction detailed above also will continue. In contrast, THESL's preferred alternative, the planned conversion program, will convert 16 outmoded 4kV box construction feeders to modern 13.8kV feeders in 2012-2013. **/US**

The effectiveness of the box construction segment can be further highlighted by comparing the difference in cost of ownership between the existing box construction asset class that will be replaced and the new standardized overhead asset class that will be installed. This difference in cost includes quantified risks, taking into account the assets' probability of failure, and multiplying this by direct and indirect cost attributes associated with in-service asset failures, including the costs of customer interruptions, emergency repairs and replacement (See Appendix J).

Carrying out immediate work to replace the Box Construction 4kV feeders with 13.8kV feeders as proposed in this segment will result in an estimated net present value for the project of $15.6 million. To calculate this figure, THESL first calculated the cost of ownership of the current state and then subtracted the ownership if the feeders are replaced and the total project cost, as shown in Table-1. Please refer to Appendix J for a further explanation of this calculation.

Table-1: Business Case Evaluation (BCE) for Box Construction Projects

Business Case Element	Cost ($, millions)	
Cost of Ownership of Existing Box Construction (COO_E)		
Projected risk cost of existing box construction feeders (PV)*	$40.3	
Projected risk cost of existing Stations (PV)**	$17.4	
Projected non-asset risk cost of existing 4kV overhead (NPV)	$ 64.7	/c
Stations Maintenance for existing system (PV)***	$2.4	
4kV line losses relative to 13.8kV feeders (PV)	$10.4	
TOTAL (COO_E)	**$ 135.2**	/c
Cost of Ownership of New Standardized Overhead Construction (COO_N)		
Projected risk cost of converted feeders (PV)****	-$7.5	
Projected non-asset risk cost of new 13.8kV overhead (NPV)	-$ 53.6	/c
TOTAL (COO_N)	**-$ 61.1**	/c
PROJECT COST	**-$58.5**	
PROJECT NPV	**$15.6**	

Note for *s, please see Table-44 in Appendix J

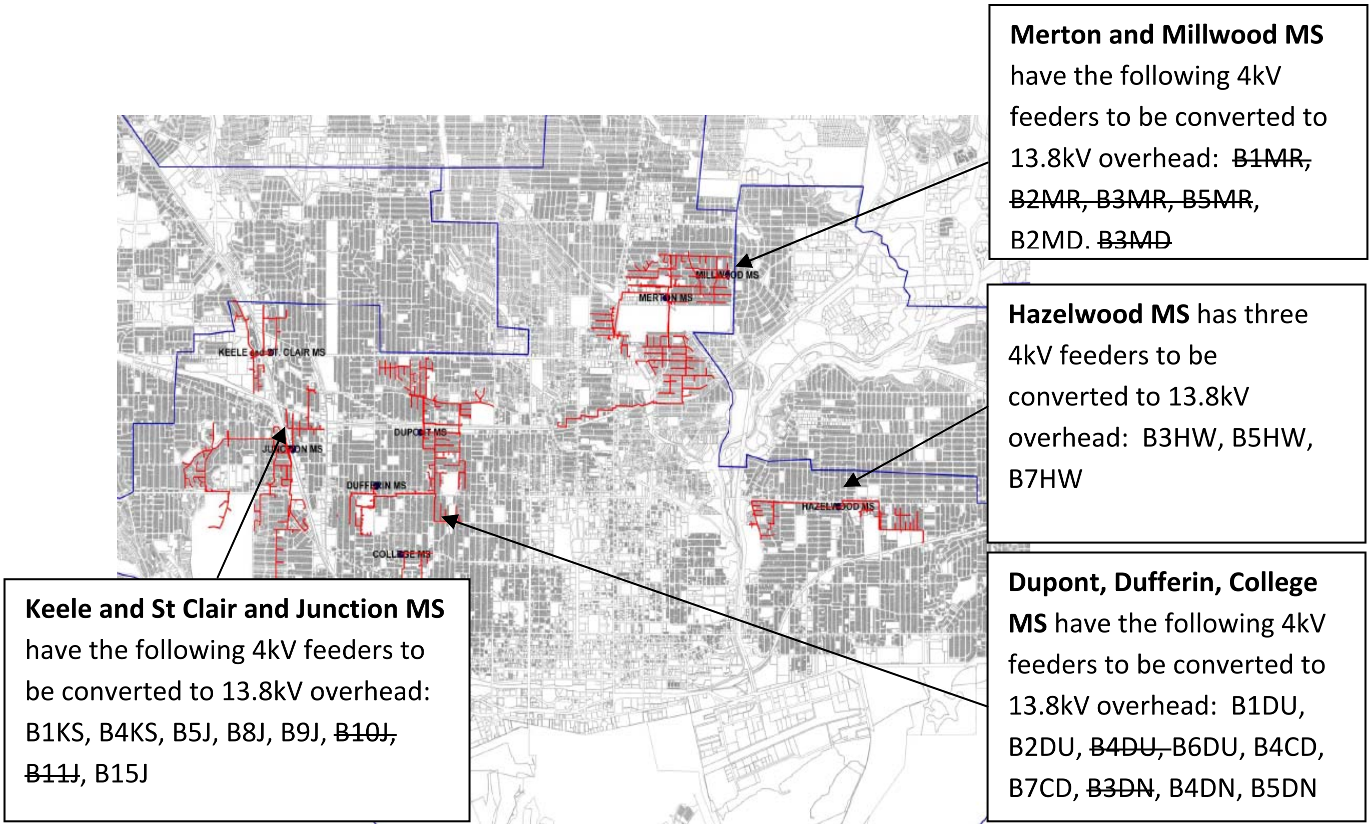
Table-2: 4kV box construction proposed for conversion to 13.8kV

Job Estimate Number	Job Title	Cost Estimate ($ million)	Projected Year of Execution	
X11422	Hazelwood Overhead Conversion (B7HW)	$1.82	2012	
X12445	B5HW and B3HW conversion/transfer	$1.71	2013	/UF, US
X12325	B15J conversion to 13.8kV	$3.64	2012	
X12352	B7CD conversion to 13.8kV	$1.33	2013	/US
X11369	Keele/St. Clair MS Voltage Conversion from 4kV to 13.8kV System B1KS, B4KS	$3.45	2013	
X12353	Voltage Conversion from 4kV to 13.8kV System TOB4CD	$1.63	2013	
X11452	Millwood MS: B2MD, Merton MS:B1MR, Partial Voltage Conversion	$2.73	2012	/US
X12054	Voltage Conversion from 4kV to 13.8kV System TOB5DN	$1.81	2013	/UF
X12506	Voltage Conversion from 4kV to 13.8kV System Part 2 B4DN	$0.17	2013	
X13186	Load Transfer (3MVA) A200E to new feeder AxxxE	$1.18	2013	
X12193	B5J OH feeder voltage conversion	$1.44	2013	
X13177	Convert Junction 4kV B8J to 13.8kV	$0.21	2013	
X13178	Convert Junction 4kV B9J (south of Bloor) to 13.8kV	$0.73	2013	
~~X12129~~	~~Millwood MS: B3MD, Merton MS B2MR Voltage Conversion Millwood(4.16 kV)~~	~~$4.84~~	~~2014~~	
X12055	Voltage Conversion from 4kV to 13.8kV System TOB2DU (DESIGN ONLY)	$0.23	2012	/UF, US
~~X12161~~	~~Convert Junction 4kV B11J to 13.8kV~~	~~$2.14~~	~~2014~~	
~~12194~~	~~Convert Junction 4kV B10J to 13.8kV~~	~~$1.68~~	~~2014~~	

Job Estimate Number	Job Title	Cost Estimate ($ million)	Projected Year of Execution
~~X12142~~	~~Convert 4kV Merton Feeder B2MR to 13.8kV System~~	~~$0.62~~	~~2014~~
~~X12145~~	~~Convert 4kV Merton Feeder B3MR to 13.8kV System~~	~~$1.11~~	~~2014~~
~~X12174~~	~~Convert 4kV Merton Feeder B5MR to 13.8kV System~~	~~$3.78~~	~~2014~~
~~X12143~~	~~Convert 4kV Merton Feeder B1MR, B2MR to 13.8kV System~~	~~$2.24~~	~~2014~~
~~X13362~~	~~Convert 4kV B7H feeder to 13.8kV system~~	~~$2.38~~	~~2014~~
~~X14202~~	~~B3DN Voltage conversion~~	~~$2.07~~	~~2014~~
~~X13176~~	~~Convert Dupont 4kV B4DU to 13.8kV~~	~~$3.67~~	~~2014~~
X13003	Convert 4kV Dupont B6DU to 13.8kV	$1.48	2013
TOTAL		**$23.6**	

/UF, US

1 Figure 3 shows the specific box construction feeders.



2 **Figure 3: Map shows locations of 4kV box construction feeders proposed for conversion to**
3 **13.8kV in 2012-2014**

III NEED

This section presents the reasons why THESL must replace box construction now. The specific jobs for 2012 and 2013 that THESL proposes to accomplish this segment are described in Section V – Description of Work. /US

1. Safety

There are numerous potential safety issues associated with box construction. They are outlined in Table-3.

Table-3: Safety Issues Associated with Box Construction

Safety Issue	Description
System Complexity	The conversion of box construction feeders to current 13.8kV overhead construction standards will improve workplace safety for crews by reducing the complexity associated with box construction poles. Box construction poles typically support more circuits compared to standard 13.8kV overhead circuits. High concentration of cables in one spot (the box construction) increases the potential risk of a shock hazard to crews working on it. See Figure 13 and Figure 14 for examples of typical 4kV box construction and 13.8kV overhead feeders. Furthermore, with box construction, some circuits cannot be accessed with bucket trucks due to the physical arrangement of the feeders running through a single box pole, forcing line crews to climb the poles and increasing the potential safety risk for Toronto Hydro employees.

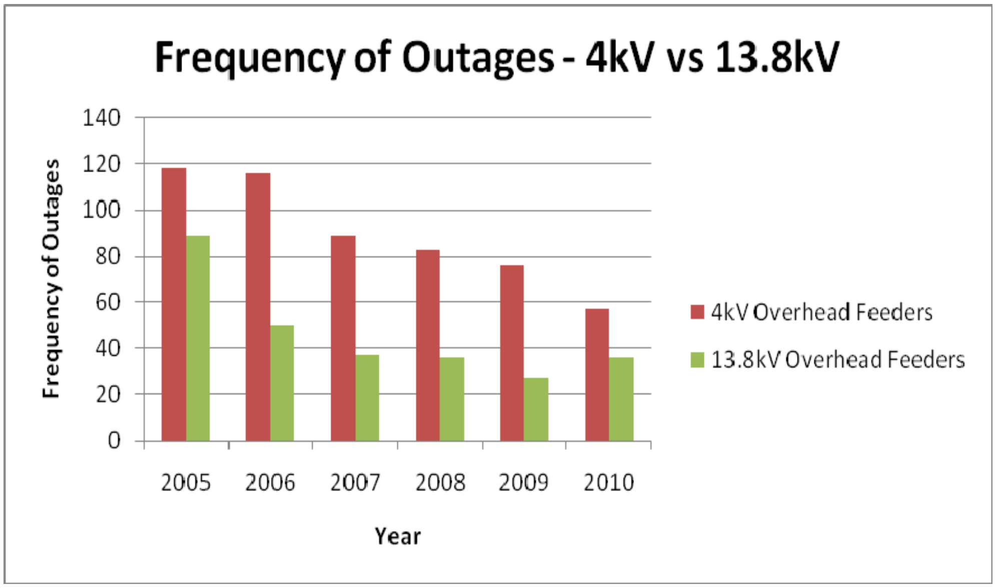


Figure 7: Frequency of Outages - 4kV vs 13.8kV Overhead feeders

5. Aging 4kV Stations Supplying Box Construction Feeders

Several 4kV stations have been shown to have assets in poor condition that will require action over the 2012-2014 period. This problem can be addressed by either replacing station assets on a 'like-for-like' basis, or by converting all 4kV load served from that station to 13.8kV and decommissioning the station. Hazelwood MS is an example of a station that must be addressed /US in the near future, as shown in maintenance records in Table-7, Table-8 and Table-9. Dufferin MS (refer to Table-36) and Merton MS (refer to Table-32) also have station equipment that needs to be addressed. Rather than continue to sustain a 4kV legacy system and continue being exposed to the associated safety, clearance and reliability issues, THESL proposes to convert these 4kV box construction feeders, and decommission these legacy stations.

Furthermore, decommissioning 4kV MS stations is expected to result in maintenance cost savings. Eliminating maintenance on these decommissioned stations will reduce THESL's need to hold inventory of obsolete 4kV equipment and maintain this equipment in good working order. It will also eliminate the labour costs incurred when obsolete 4kV station equipment must be replaced (as an example, see Hazelwood MS case study in Section 1.2).

As more 4kV box construction feeders are converted to 13.8kV, access to 13.8kV overhead feeders increases. As a result, some 4kV feeders that previously could not be converted to 13.8kV may now be candidates for conversion. In addition to the reasons provided above to explain the need for 4kV box construction conversion jobs in 2012-2013, the specific jobs discussed below also were selected because they are located in the vicinity of 13.8kV overhead feeders with adequate capacity.

/US

IV PREFERRED ALTERNATIVE

THESL's program to replace obsolete legacy 4 kV box construction with new 13.8 kV feeders will improve safety, reliability and system efficiency as discussed extensively above. THESL evaluated the proposed box construction replacement segment, the preferred alternative, against the alternative of maintaining and replacing the equipment used in box construction, the status quo. Other than replacing box construction or leaving it in place and addressing individual assets as needed, there are no viable options to address the issues that box construction creates.

1. Maintaining the Status Quo

The status quo would have THESL continue to maintain and repair box construction wherever it is currently found. Due to the high number of assets past their useful lives on these feeders as seen in Table-6, maintaining the status quo will likely result in additional maintenance cost and worse reliability. The safety and operational issues associated with box construction detailed above also will continue. In contrast, THESL's preferred alternative, the planned conversion program, will convert 16 outmoded 4kV box construction feeders to modern 13.8kV feeders. /US

Failure to execute this segment will force THESL to manage the issues described in Section III above in a reactive and less effective manner. It will also delay the decommissioning of some MS and, as a result, reduce the availability of 13.8kV feeders to support modernization of 4kV overhead box construction plant to existing overhead construction standards.

The effectiveness of the box construction segment can be further highlighted by determining the difference in cost of ownership between the existing box construction asset class that will be replaced and the new standardized overhead asset class that will be installed. This difference in costs includes quantified risks, taking into account the assets' probability of failure, and multiplying this by the direct and indirect costs associated with in-service asset failures, including the costs of customer interruptions, emergency repairs and replacement.

Carrying out the proposed work on this asset class is expected to result in a net present value of $15.6 million, which represents the difference between these cost of ownership values with the total project cost subtracted. This business case evaluation is explained in Appendix J.

1.1. Performance Impacts

A list of feeders that will be addressed under this program, along with the job costs and number of assets past their useful life per circuit kilometre is provided in Table 5.

Table-5: Assets Past their Useful Lives Per Circuit Kilometre on 4kV Feeders to be Converted to 13.8kV

Feeder	Estimated Project Cost ($M)	Assets Past Useful Life	Circuit Length (km)	Quantity/km	Projected Year of Execution	
B3HW (X12445)	$1.71	39	3.80952	10.2	2013	/UF, US
B5HW (X12445)		154	3.03309	50.8		
B7HW (X11422)	$1.82	82	2.14393	38.2	2012	
B15J (X12325)	$3.64	219	6.29048	34.8	2012	
B7CD (X12352)	$1.33	78	1.4864	52.5	2013	/US
B4KS (X11369)	$3.45	129	2.54616	50.7	2013	
B1KS (X11369)		45	2.42689	19.8		
B4CD (X12353)	$1.63	0	1.11803	0.0	2013	
B2MD, B1MR (X11452)	$2.73	63	3.83669	16.4	2012	/US
B5DN (X12054)	$1.81	50	3.60117	13.9	2013	/UF
B1DU (X12054)		95	1.53529	61.9		

ICM Project | **Box Construction Segment**

Feeder	Estimated Project Cost ($M)	Assets Past Useful Life	Circuit Length (km)	Quantity/km	Projected Year of Execution
B4DN (X12506)	$0.17	35	0.61803	56.6	2013
transfer load (X13186)	$1.18	0	0	n/a	2013
B5J (X12193)	$1.44	28	1.90018	14.7	2013
B8J (X13177)	$0.21	31	0.44607	69.5	2013
B9J (X13178)	$0.73	210	4.65797	45.1	2013
~~B3MD, B2MR (X12129)~~	~~$4.84~~	~~87~~	~~3.18416~~	~~27.3~~	~~2014~~
B2DU (X12055)	$0.23	228	3.87552	58.8	2012 /UF, US
~~B11J (X12161)~~	~~$2.14~~	~~149~~	~~2.74384~~	~~54.3~~	~~2014~~
~~B10J (X12194)~~	~~$1.68~~	~~89~~	~~1.63134~~	~~54.6~~	~~2014~~
~~B2MR (X12142)~~	~~$0.62~~	~~52~~	~~3.19~~	~~16.3~~	~~2014~~
~~B3MR (X12145)~~	~~$1.11~~	~~69~~	~~4.47065~~	~~15.4~~	~~2014~~
~~B5MR (X12174)~~	~~$3.78~~	~~37~~	~~3.60165~~	~~10.3~~	~~2014~~
~~B1MR, B2MR (X12143)~~	~~$2.24~~	~~85~~	~~3.72~~	~~22.8~~	~~2014~~
~~B7H (X13362)~~	~~$2.38~~	~~36~~	~~2.9141~~	~~12.4~~	~~2014~~
~~B3DN (X14202)~~	~~$2.07~~	~~72~~	~~1.47931~~	~~48.7~~	~~2014~~
~~B4DU (X13176)~~	~~$3.67~~	~~194~~	~~4.55508~~	~~42.6~~	~~2014~~

Feeder	Estimated Project Cost ($M)	Assets Past Useful Life	Circuit Length (km)	Quantity/km	Projected Year of Execution
B6DU (X13003)	$1.48	136	4.06301	33.5	2013
TOTAL	**$23.6**	**1,515***	**47.39**		

/UF, US

*Total count is lower than the sum of the individual assets due to shared poles between feeders. A higher number of assets past their useful lives indicates that the likelihood of outages due to component failures will increase. Execution of the listed jobs will result in the modernization of all assets on these feeders which are past their useful lives.

Table-6 shows the number of assets per feeder that are projected to fail by their respective planned year of conversion. In addition, it shows the quantity of assets past their useful lives per feeder, along with associated estimated 'like-for-like' replacement costs and quantified risk cost.

Table-6: Failure Projections, Assets past their useful lives and Associated Anticipated 'Like-for-Like' Replacement Costs per Feeder

Feeder	Proposed Year of Conversion	Station	Assets Presently Projected to Fail by Year of Conversion (in counts)	Risk Cost of Feeder up to Year of Conversion ($M)	Assets Past Useful Life (in counts)	Estimated Cost of Replacement for Assets Past Useful Life ($M)
B7CD	2012	College	3	$0.12	78	$1.03
B3HW	2013	Hazelwood	6	$0.12	39	$0.57
B5HW	2013	Hazelwood	13	$0.24	154	$1.85
B7HW	2012	Hazelwood	7	$0.21	82	$1.04
B15J	2012	Junction	12	$0.45	219	$2.69
B4CD	2013	College	2	$0.08	0	$0

/US

ICM Project | **Box Construction Segment**

Feeder	Proposed Year of Conversion	Station	Assets Presently Projected to Fail by Year of Conversion (in counts)	Risk Cost of Feeder up to Year of Conversion ($M)	Assets Past Useful Life (in counts)	Estimated Cost of Replacement for Assets Past Useful Life ($M)	
B5DN	2012	Dufferin	8	$0.24	50	$0.69	/US
B4DN	2013	Dufferin	2	$0.03	35	$0.46	
B1DU	2012	Dupont	9	$0.35	95	$1.35	/US
B5J	2013	Junction	4	$0.16	28	$0.42	
B8J	2013	Junction	2	$0.02	31	$0.37	
B9J	2013	Junction	16	$0.43	210	$2.60	
B4KS	2013	Keele and St Clair	13	$0.65	129	$1.85	
B1KS	2013	Keele and St Clair	5	$0.07	48	$0.60	
B2MD	2013	Millwood	6	$0.12	30	$0.36	
~~B3DN~~	~~2014~~	~~Dufferin~~	~~9~~	~~$0.65~~	~~72~~	~~$0.96~~	
B2DU	2012	Dupont	28	$1.98	228	$2.96	
~~B4DU~~	~~2014~~	~~Dupont~~	~~29~~	~~$1.29~~	~~194~~	~~$2.54~~	
B6DU	2013	Dupont	20	$0.56	136	$1.65	
~~B7H~~	~~2014~~	~~Highlevel~~	~~17~~	~~$0.40~~	~~36~~	~~$0.44~~	/US
~~B11J~~	~~2014~~	~~Junction~~	~~18~~	~~$0.81~~	~~149~~	~~$1.96~~	
~~B10J~~	~~2014~~	~~Junction~~	~~10~~	~~$0.23~~	~~89~~	~~$1.07~~	
~~B3MD~~	~~2014~~	~~Millwood~~	~~36~~	~~$1.04~~	~~35~~	~~$0.42~~	
~~B2MR~~	~~2014~~	~~Merton~~	~~30~~	~~$0.46~~	~~52~~	~~$0.66~~	
~~B3MR~~	~~2014~~	~~Merton~~	~~34~~	~~$0.79~~	~~69~~	~~$0.77~~	
~~B5MR~~	~~2014~~	~~Merton~~	~~12~~	~~$0.22~~	~~37~~	~~$0.51~~	
~~B1MR~~	~~2014~~	~~Merton~~	~~42~~	~~$0.68~~	~~33~~	~~$0.386~~	
TOTAL			**~~393~~** **156**	**~~$12.36~~**** **$5.83****	**~~2,305~~*** **1,515***	**~~$29.4~~*** **$19.4***	/US

*Total is lower than the sum of the individual assets due to shared poles between feeders

V DESCRIPTION OF WORK

1. Conversion of College MS Feeders (X12352, X12353) /C

1.1. Objective

The objective of these jobs is to prepare College MS feeders for conversion from 4.16kV to 13.8kV for eventual decommissioning of College MS. The main objective is to mitigate the safety concerns associated with working around energized box construction which is found on feeders from College MS. The main benefits of completing this work are improved reliability and mitigation of potential safety risks. The equipment that is being replaced is overhead 4kV distribution plant which includes conductor, poles, transformers and switches. /C

Figure 12 shows an example of obsolete assets on College MS feeder B7CD.

1.5. Required Capital Costs

Table-12: Capital Costs - College MS

Job Estimate Number	Job Phase	Cost ($, millions)	Projected Year of Execution	
18761	X12352 – B7CD OH Feeder Voltage Conversion	$1.33	2013	/US
20567	X12353 – B4CD OH Feeder Voltage Conversion	$1.63	2013	/C
Total:		$2.96		

1.6. Preferred Option for Feeders Supplied by College MS (B7CD, B4CD)

Maintenance reports suggest that station assets in College MS are deteriorating, as shown in Table-13 and Table-14 below.

Table-13: College MS Transformer TR1 DGA results

TR1	June 16, 2009	May 11, 2009	April 8, 2009
CO (PPM)	365*	412*	359*

'*' indicates 'condition 2' status, meaning overheated cellulose insulation (transformer insulation degradation, and eventual transformer failure) NOTE: 'PPM' means 'Parts Per Million'

Note that small changes in DGA readings can be attributed to change in solubility of gases into mineral oil based on the oil temperature. For example, solubility of hydrogen into mineral oil can increase up 79% over an oil temperature change from 0C to 80C.

Table-14: College MS Transformer TR3 DGA results

TR3	December 15, 2009	April 8, 2009
Hydrogen (PPM)	217*	1,619**

'*' indicates 'condition 2' status, and '**' indicates 'condition 3' status meaning partial discharge activity (intermittent conduction between windings, leads to eventual transformer failure)

Note that large changes in DGA readings can be caused by contamination during the oil sampling. Regardless of the large difference in the reading in the above results, the lower value in the more recent reading continues to indicates partial discharge activity is occurring between the transformer windings.

The significant number of assets past their useful lives and assets projected to fail, along with the safety concerns and increased complexity of box construction when compared to 13.8kV overhead construction warrants executing these jobs.

Investing in converting legacy 4kV system to 13.8kV and decommissioning the station is recommended.

2. Conversion of Hazelwood MS Feeders (X11422, X12445) /C

2.1. Objective

The objective of these jobs is to prepare Hazelwood MS feeders for conversion from 4kV to 13.8kV for eventual decommissioning of Hazelwood MS. The main objective is to mitigate the safety concerns from working around energized box construction, which is found on feeders from Hazelwood MS. The benefits of completing this work are the elimination of safety hazards, improved reliability and, when conversion is complete, reduced line losses. The equipment that is being replaced is overhead 4kV distribution plant which includes conductor, poles, transformers and switches. /C

2.3. Scope of Work

The scope of work in X11422, X12445 is to convert B7HW, B3HW and B5HW respectively from 4.16kV to 13.8kV.

Table -16: Assets to be Replaced - Hazelwood MS

Assets to be upgraded from 4.16kV to 13.8kV			
X11422		X12445	
Poles	96	Poles	200
Switches	8	Switches	7
Transformers	27	Transformers	23
Conductor	2.4 km	Conductor	6.8 km

2.4. Locations

The assets being replaced belong to B3HW, B5HW and B7HW and they are bounded by the area Danforth Ave in the North, Jones Ave in the west, Felsted in the south and Coxwell in the east.

2.5. Required Capital Costs

Table-17: Capital Costs - Hazelwood MS

Job Estimate Number	Job Phase	Cost ($, millions)	Projected Year of Execution	
18629	X11422 – B7HW OH Feeder Voltage Conversion	$1.82	2012	
20919	X12445 – B3HW, B5HW OH Feeder Voltage Conversion	$1.71	2013	**/UF, US**
Total:		$3.53		**/UF**

2.6. Preferred Option for Feeders Supplied by Hazelwood MS (B3HW, B5HW, B7HW)

Maintenance reports suggest that station assets in Hazelwood MS need to be replaced in the 2013 timeframe, as shown in Table-7, Table-8, and Table-9. It should be noted that these feeders need to be converted prior to 2013 in order to avoid 'like-for-like' replacement of legacy Hazelwood MS equipment by 2013.

Furthermore, the significant number of assets past useful life, along with the potential safety risks and increased complexity of box construction when compared to 13.8kV overhead construction warrants executing these jobs.

Decommissioning Hazelwood MS will also allow THESL to use MS land for other projects in the downtown area. See D for excerpt from a presentation that lists Hazelwood MS as a future switching location.

3. Partial Conversion of Junction MS Feeders (X12325, X12193, X13177, X13178, ~~X12161 and X12194~~) /C

3.1. Objectives

The objective of these jobs is to prepare Junction MS feeders for conversion from 4.16kV to 13.8kV for eventual decommissioning of Junction MS. /C The main objective is to mitigate the safety concerns from working around energized box construction, which is found on feeders from Junction MS. The benefits of completing this work are the mitigation of potential safety risks, improved reliability and, when conversion is complete, reduced line losses. The equipment that is being replaced is overhead 4kV distribution plant which includes conductor, poles, transformers and switches. Figure 20 shows an example of a typical box construction pole from Junction MS.

3.2. Historical Reliability Performance

Table-18: Historical Reliability - Junction MS

HISTORICAL RELIABILITY PERFORMANCE – Junction MS			
Reliability Metric	**2008**	**2009**	**2010**
Feeder CI	7,827	16,015	9,478
Feeder CHI	5,074	46,480	16,332

'CI' stands for 'Customers Interrupted' and 'CHI' stands for 'Customer Hours Interrupted'

3.3. Scope of Work

The scope of work in the following jobs is to convert most of the feeders from Junction MS to 13.8kV voltage.

- X12325: B15J
- X12193: B5J
- X13177: B8J
- X13178: B9J
- ~~X12161: B11J~~
- ~~X12194: B10J~~

Table-19: Assets to be Replaced - Junction MS

Assets to be upgraded from 4.16kV to 13.8kV	
Information from six conversion jobs	
Poles	231 Poles
Conductor	6.2 km

3.4. Locations

The assets being replaced belong to B5J, B8J, B9J, ~~B10J, B11J~~ and B15J in the general area of Keele and Bloor Street.

3.5. Required Capital Costs

Table-20: Capital Costs - Junction MS

Job Estimate Number	Job Phase	Cost ($, millions)	Projected Year of Execution
20365	X12325 – B15J OH Feeder Voltage Conversion	$3.64	2012
20368	X12193 – B5J OH Feeder Voltage Conversion	$1.44	2013
20548	X13177 – B8J OH Feeder Voltage Conversion	$0.21	2013
20476	X13178 – B9J OH Feeder Voltage Conversion	$0.73	2013
~~20369~~	~~X12161 – B11J OH Feeder Voltage Conversion~~	~~$2.14~~	~~2014~~
~~20366~~	~~X12194 – B10J OH Feeder Voltage Conversion~~	~~$1.68~~	~~2014~~
Total:		**$~~9.85~~6.02**	

/US

3.6. Preferred Option for Feeders Supplied by Junction MS (B15J, B5J, B8J, B9J, ~~B10J, B11J~~) /US

The significant number of assets past useful life, along with the potential safety risks and increased complexity of box construction when compared to 13.8kV overhead construction (see Table-3 and Table-8) warrants the undertaking of this conversion. Junction MS, which supplies these feeders, is planned to be decommissioned in the future.

4. Conversion of Keele and St. Clair MS Feeders (X11369)

4.1. Objectives

The objective of this work is to prepare Keele and St. Clair MS feeders for conversion from /c 4.16kV to 13.8kV for eventual decommissioning of Keele and St Clair MS. The main objective is /c to mitigate the safety concerns from working around energized box construction which is found on these feeders. The benefits of completing this work are the elimination of safety hazards, improved reliability and, when conversion is complete, reduced line losses. The equipment that is being replaced is overhead 4kV distribution plant which includes conductor, poles, transformers and switches.

4.2. Historical Reliability Performance

Table-21: Historical Reliability - B1KS and B4KS

HISTORICAL RELIABILITY PERFORMANCE – B1KS, B4KS			
Reliability Metric	**2008**	**2009**	**2010**
Feeder CI	1,745	2,538	1,102
Feeder CHI	3,241	1,743	2,931

‘CI’ stands for ‘Customers Interrupted’ and ‘CHI’ stands for ‘Customer Hours Interrupted’

4.3. Scope of Work

The scope of work in X11369 is to convert B1KS and B4KS from 4.16kV to 13.8kV.

5. Partial Conversion of Millwood MS Feeders (X11452*, ~~X12129*~~) /C, /US

5.1. Objectives

The objective of these jobs is to prepare Millwood MS feeders for conversion from 4.16kV to 13.8kV for eventual decommissioning of Millwood MS. The main objective is to mitigate the safety concerns from working around energized box construction, which is found on feeders from Millwood MS. The benefits of completing this work are the mitigation of potential safety risks, improved reliability and, when conversion is complete, reduced line losses. The equipment that is being replaced is overhead 4kV distribution plant which includes conductor, poles, transformers and switches. /C /C

5.2. Historical Reliability Performance

Table-24: Historical Reliability - Millwood MS

HISTORICAL RELIABILITY PERFORMANCE – B2MD, ~~B3MD~~			
Reliability Metric	2008	2009	2010
Feeder CI	0	1,010	0
Feeder CHI	0	1,128	0

/US

'CI' stands for 'Customers Interrupted' and 'CHI' stands for 'Customer Hours Interrupted'

5.3. Scope of Work

The scope of work of jobs X11452, ~~X12129~~ includes the conversion of B2MD ~~and B3MD~~ respectively from 4.16kV to 13.8kV. ~~Jobs~~ X11452 ~~and X12129~~ also involves one or more feeders from Merton station, as discussed below.

Table-25: Assets to be Replaced - Millwood MS

Assets to be upgraded from 4.16kV to 13.8kV	
Poles	130
Switches	9
Transformers	27
Conductor	3,100 m

/US

5.4. Locations

Boundaries for this work are outlined in Table-26.

Table-26: Project Boundaries for Millwood MS Conversion

Project	Feeders	North Boundary	South Boundary	East Boundary	West Boundary
X11452	B1MR	Manor Road East	Belsize Drive	Bayview Avenue	Mt. Pleasant Road
~~X12129~~	~~B2MR~~	~~Millwood Road~~	~~Merton Road~~	~~Bayview Avenue~~	~~Mt. Pleasant Road~~

/US

5.5. Required Capital Costs

Table-27: Capital Costs

Job Estimate Number	Job	Cost ($, millions)	Projected Year of Execution
18738	X11452 Millwood MS: B2MD, B1MR Partial Voltage Conversion*	$2.73	2012
~~19632~~	~~X12129 Millwood MS: B3MD, Merton MS B2MR Voltage Conversion*~~	~~$4.84~~	~~2014~~
Total		**$~~7.57~~2.73**	

/US

*Jobs convert feeders in both Merton MS and Millwood MS. Job cost included in Merton MS as well

5.6. Preferred Option for Feeders Supplied by Millwood MS (B2MD, ~~B3MD~~)

The information on the preferred option for Millwood MS is discussed in section 6.6 below in association with the work on feeders from Merton MS.

6. Partial Conversion of Merton MS feeders (X11452, ~~X12129, X12142, X12145, X12174, X12143~~) /US

6.1. Objectives

The objective of these jobs is to prepare Merton MS feeders for conversion from 4.16kV to 13.8kV for eventual decommissioning of Merton MS. The main objective is to mitigate the potential safety risks from working around energized box construction, which is found on feeders from Merton MS. Job~~s~~ X11452~~ and X12129~~ also involves one or more feeders from Millwood station. The benefits of completing this work are mitigation of potential safety risks, improved reliability and, when conversion is complete, reduced line losses. The equipment that is being replaced is overhead 4kV distribution plant which includes conductor, poles, transformers and switches. /C /US

6.2. Historical Reliability Performance

Table-28: Historical Reliability - Merton MS

HISTORICAL RELIABILITY PERFORMANCE – B1MR, B2MR, B3MR, B5MR			
Reliability Metric	**2008**	**2009**	**2010**
Feeder CI	2,910	5,158	3,099
Feeder CHI	785	5,545	4,321

6.3. Scope of Work

The scope of work for the jobs listed in Table-29 is to convert feeders B1MR~~, B2MR, B3MR, B5MR~~ from 4.16kV to 13.8kV. /US

Table-29: Assets to be Replaced - Merton MS

Assets to be upgraded from 4.16kV to 13.8kV	
Poles	33
Switches	7
Transformers	8
Conductor	820 m

/US

6.4. Locations

The boundaries for this work are outlined in Table-30.

Table-30: Project Boundaries for Merton MS Conversion

Project	Feeders	North Boundary	South Boundary	East Boundary	West Boundary
X11452	B1MR	Manor Road East	Belsize Drive	Bayview Avenue	Mt.Pleasant Road
~~X12129~~	~~B2MR~~	~~Millwood Road~~	~~Merton Road~~	~~Bayview Avenue~~	~~Mt.Pleasant Road~~
~~X12142~~	~~B2MR~~	~~Moore Avenue~~	~~St.Clair Avenue East~~	~~Bayview Avenue~~	~~Mt.Pleasant Road~~
~~X12145~~	~~B3MR~~	~~Moore Avenue~~	~~Garfield Avenue~~	~~Bayview Avenue~~	~~Avoca Avenue~~
~~X12174~~	~~B5MR~~	~~Various~~			
~~X12143~~	~~B1MR,B2MR~~	~~Manor Road~~	~~Davisville Avenue~~	~~Mt.Pleasant Road~~	~~Yonge Street~~

/US

6.5. Required Capital Costs

Table-31: Capital Costs

Job Estimate Number	Job	Cost ($, millions)	Projected Year of Execution
18738	X11452 Millwood MS: B2MD, B1MR Partial Voltage Conversion*	$2.73	2012
~~19632~~	~~X12129 Millwood MS: B3MD, Merton MS B2MR Voltage Conversion*~~	~~$4.84~~	~~2014~~
~~19712~~	~~X12142 Convert 4kV Merton Feeder B2MR to 13.8kV System B2MR~~	~~$0.62~~	~~2014~~
~~19711~~	~~X12145 Convert 4kV Merton Feeder B3MR to 13.8kV System B2MR~~	~~$1.11~~	~~2014~~
~~19977~~	~~X12174 Convert 4kV Merton MS Feeder B5MR to 13.8kV System TOB5MR~~	~~$3.78~~	~~2014~~
~~19706~~	~~X12143 Convert 4kV Merton Feeder B1MR, B2MR to 13.8kV System B1MR B2MR~~	~~$2.24~~	~~2014~~
Total		**$~~15.31~~2.73**	

/US

*Jobs convert feeders in both Merton MS and Millwood MS. Job cost included in Millwood MS as well.

6.6. Preferred Option for Feeders Supplied by Millwood MS (B2MD, ~~B3MD~~) and Merton MS (B1MR, ~~B2MR, B3MR, B5MR~~) /US

Maintenance reports suggest that station assets in Merton MS are deteriorating, as shown in Table-32.

Table-32: Merton MS Transformer TR1 DGA results

TR1	March 5, 2010
CO(PPM)	361*

'*' indicates 'condition 2' status, meaning overheated cellulose insulation (transformer insulation degradation, and eventual transformer failure)

The significant number of assets past useful life, along with the safety concerns and increased complexity of box construction when compared to 13.8kV overhead construction warrants executing these jobs.

7. Partial Conversion of Dufferin MS (X12054, X12506, X14202)

7.1. Objectives

The objective of these jobs is to prepare Dufferin MS for conversion from 4.16kV to 13.8kV to mitigate potential safety risks from working around energized box construction. The expected benefits of completing this work are the mitigation of potential safety risks, improved reliability and, when conversion is complete, reduced line losses. .

7.5. Required Capital Costs

Table-35: Capital Costs

Job Estimate Number	Job Phase	Cost ($, millions)	Projected Year of Execution	
22242	X12054 – Voltage Conversion from 4kV to 13.8kV (B5DN)	$1.81	2013	/UF
21101	X12506 – Voltage Conversion from 4kV to 13.8kV (B4DN)	$0.17	2013	
~~23358~~	~~X14202 – Voltage Conversion from 4kV to 13.8kV (B3DN)~~	~~$2.07~~	~~2014~~	
Total:		**$~~8.27~~1.98**		/UF, US

7.6. Preferred Option for Feeders Supplied by Dufferin MS (B3DN, B4DN, B5DN)

Maintenance reports suggest that station assets in Dufferin MS are deteriorating, as shown in Table-36.

Table-36: Dufferin MS Transformer TR1 DGA results

TR1	April 8, 2009	March 23, 2006
CO(PPM)	386*	398*

‘*’ indicates ‘condition 2’ status, meaning overheated cellulose insulation (transformer insulation degradation, and eventual transformer failure)

Note that small changes in DGA readings can be caused by changes in solubility of gases into mineral oil based on the oil temperature. For example, solubility of hydrogen into mineral oil can increase up 79% over an oil temperature change from 0C to 80C.

The significant number of assets past their useful lives and assets projected to fail, along with the potential safety risks and increased complexity of box construction when compared to 13.8kV overhead construction warrants executing these jobs.

Decommissioning Dufferin MS will also allow THESL to use MS land for other projects in the downtown area. See D for excerpt from a presentation that lists Dufferin MS as a future switching location.

8. Partial Conversion of Dupont MS Feeders (X12055, ~~X13176~~, X13003) /C

8.1. Project Objectives

The objective of these jobs is to prepare Dupont MS feeders for conversion from 4.16kV to 13.8kV system for eventual decommissioning of Dupont MS. The main objective is to mitigate potential safety risks from working around energized box construction. The benefits of completing this work are the mitigation of safety risks, improved reliability and, when conversion is complete, reduced line losses. /C

8.2. Historical Reliability Performance

Table-37: Historical Reliability - Dupont MS

HISTORICAL RELIABILITY PERFORMANCE – B2DU, B4DU and B6DU			
Reliability Metric	**2008**	**2009**	**2010**
Feeder CI	2,604	1,806	835
Feeder CHI	79,190	272,672	51,770

8.3. Scope of Work

The scope of work described in X12055, ~~X13176~~ and X13003 is to convert the Dupont MS feeders B-2-DU, ~~B-4-DU~~ and B-6-DU from 4.16kV to 13.8kV system. /US

Table-38: Assets to be Replaced - Dupont MS

Assets to be upgraded from 4.16kV to 13.8kV system					
X12055		~~X13176~~		X13003	
Poles	226	~~Poles~~	~~228~~	Poles	208
Switches	31	~~Switches~~	~~28~~	Switches	21
Transformers	38	~~Transformers~~	~~46~~	Transformers	39
Conductor	4.08 km	~~Conductor~~	~~5.12 km~~	Conductor	4.66 km

/US

8.4. Locations

The assets being replaced belong to feeders B-2-DU, ~~B-4-DU~~ and B-6-DU. B-2-DU is located around the intersection of Garnet Ave and Shaw Street. ~~B-4-DU is located around the intersection of Davenport Rd and Ossington Avenue.~~ B-6-DU is bounded by the area of Rosemount Ave in the north, Westmount Avenue in the west, Davenport Rd in the south and Winona Dr in the east. /US

8.5. Required Capital Costs

Table-39: Capital Costs

Job Estimate Number	**Job Phase**	**Cost ($, millions)**	**Projected Year of Execution**
20992	X12055 – Voltage Conversion from 4kV to 13.8kV (B2DU) (DESIGN ONLY)	$0.23	2012
~~19966~~	~~X13176 – Voltage Conversion from 4kV to 13.8kV (B4DU)~~	~~$3.67~~	~~2014~~
19984	X13003 – Voltage Conversion from 4kV to 13.8kV (B6DU)	$1.48	2013
	Total:	**$~~9.87~~1.71**	

/UF, US

/UF, US

8.6. Preferred Option for Feeders Supplied by Dupont MS (B-2-DU, ~~B-4-DU~~ and B-6-DU) /US

The significant number of assets past useful life, along with the safety concerns and increased complexity of box construction when compared to 13.8kV overhead construction warrants the undertaking of this conversion. Stations supplying these feeders (Dupont MS) are planned to be decommissioned going forward.

~~9. Partial Conversion of High Level MS (X13362)~~

~~9.1. Objectives~~

~~The objective of this work is to convert this feeder from 4.16kV to 13.8kV. Merton MS cannot be decommissioned before this Highlevel MS feeder is converted to 13.8kV, as B4MR from Merton MS is the standby feeder for B7H. This job will also mitigate the potential safety risks from working around energized box construction. The expected benefits of completing this work are the mitigation of safety risks, improved reliability and, when conversion is complete, reduced line losses.~~

~~9.2. Historical Reliability Performance~~

~~**Table 40: Historical Reliability - High Level MS**~~

~~HISTORICAL RELIABILITY PERFORMANCE – B-7-H~~			
~~**Reliability Metric**~~	~~**2008**~~	~~**2009**~~	~~**2010**~~
~~Feeder CI~~	~~1,196~~	~~1,794~~	~~598~~
~~Feeder CHI~~	~~26,312~~	~~88,504~~	~~29,900~~

~~9.3. Scope of Work~~

~~The scope of work described in X13362 is to completely convert the High Level feeder B-7-H from 4.16kV to 13.8kV.~~

~~**Table-41: Assets to be Replaced - High Level MS**~~

~~**Assets to be upgraded from 4.16kV to 13.8kV system**~~	
~~X13362~~	
~~Poles~~	~~87~~
~~Switches~~	~~10~~
~~Transformers~~	~~25 (1-Phase), 1 (3-Phase)~~
~~Conductor~~	~~1.581 km (1-Phase), 1.315 km (3-Phase)~~

~~9.4. Locations~~

~~The assets being replaced belong to feeder B-7-H. The overhead section of this feeder is located the intersection of Inglewood Drive and Maclennan Avenue. There is an underground portion to feeder B7H that runs from Highlevel MS (MacPherson Avenue and Rathnelly Avenue) east along Cottingham Street/Shaftesbury Avenue/Summerhill Avenue to a riser at the intersection of Summerhill Avenue and MacLennan Avenue. Because the load on this feeder will be taken on by 13.8kV feeders in the vicinity (A22L and A360CS), this underground portion will be removed.~~

~~9.5. Required Capital Costs~~

~~**Table-42: Capital Costs**~~

~~**Job Estimate Number**~~	~~**Job Phase**~~	~~**Cost ($, millions)**~~	~~**Projected Year of Execution**~~
~~24076~~	~~X13362 – Convert 4kV B7H feeder to 13.8kV system (TOB7H)~~	~~$2.38~~	~~2014~~
~~**Total:**~~		~~**$2.38**~~	

~~9.6. Preferred Option for Feeder Supplied by High Level MS (B-7-H)~~

~~The significant number of assets past useful life, along with the potential safety risks and increased complexity of box construction when compared to 13.8kV overhead construction warrants the undertaking of this conversion. High Level MS supplying this feeder is planned to be decommissioned going forward.~~

ICM Project | Box Construction Segment

Table-2: Business Case Evaluation Shows Costs of Maintaining Status Quo Exceed Capital Projects Cost

Business Case Element	Cost (in Millions)	
Cost of Ownership of Existing Box Construction (COO_E)		
Projected risk cost of existing box construction feeders (PV)*	$40.3M	
Projected risk cost of existing Stations (PV)**	$17.4M	
Projected non-asset risk cost of existing 4kV overhead (PV)	$ 64.7M	
Stations Maintenance for existing system (PV)***	$2.4M	
4kV line losses relative to 13.8kV feeders (PV)	$10.4M	
TOTAL (COO_E)	**$ 135.2M**	/C
Cost of Ownership of New Standardized Overhead Construction (COO_N)		
Projected risk cost of converted feeders (PV)****	-$7.5M	
Projected non-asset risk cost of new 13.8kV overhead (PV)	-$ 53.6M	/C
TOTAL (COO_N)	**-$ 61.1M**	/C
PROJECT COST	**-$58.5M**	
PROJECT NPV	**$15.6M**	

*'Projected risk cost of existing construction feeders (PV)' represents FIM analysis of relevant existing 4kV box construction feeders, or cost of ownership of those feeder assets.

**'Stations (NPV)' represents FIM analysis of relevant 4kV MSs, or cost of ownership of those assets. The cost of ownership of the replacement is $0 (4kV load from MS being taken on by existing 13.8kV stations, not new stations), so that value was used in the business case.

***'Stations Maintenance for existing system (PV)' represents the average annual cost of maintenance for each relevant MS (average based on projected costs for 2012-2021), and then projected out indefinitely which assumes the existing case will remain (100 years was used).

****'Projected risk cost of converted feeders (PV)' represents FIM analysis of the converted 13.8kV feeders, or cost of ownership of those new feeder assets.

ICM Project – Overhead Infrastructure and Equipment

Rear Lot Construction Segment



Toronto Hydro-Electric System Limited (THESL)

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $55.10 M to $45.78 M, a reduction of $9.32 M
- Reduced number of jobs proposed from 30 to 26 with jobs for 2014 to be addressed in Phase Two
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Revised FIM model results to correct non-asset related risk calculation
- Corrected numerical and typographical errors

ICM Project | **Rear Lot Construction Segment**

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I EXECUTIVE SUMMARY

1. Project Description

THESL is requesting approximately $45.57million in ICM funding to finance non-discretionary civil and infrastructure jobs related to rear lot conversion between 2012 to2013. This amount is broken into discrete jobs, totalling approximately $24.15 million in 2012, and $21.42 million in 2013. A detailed description of all the jobs, by year, is provided in Part V below. /UF, US /UF, US /UF, US

The rear lot conversion segment responds to the critical need to move the distribution service currently located in backyards to the street, for reasons of safety, reliability and cost.

Rear lot service was implemented in certain Toronto neighbourhoods in the 1950s and 1960s. The equipment providing rear lot service is past its useful life and difficult to access and repair. As a result of its age and condition, THESL expects that this equipment will continue to fail at an increasing rate and when it does, efforts to repair it create safety, equipment availability and cost issues.

This segment will remove rear lot service in targeted areas that currently pose potential safety risks, greater reliability concerns and higher repair costs. It will be replaced with standard underground service constructed to current specifications. The result of the move to standard service will be reduced safety risks, improved reliability, and reduced costs to repair.
The work to be undertaken in each year covered by this application has been selected based on two factors:

(a) The priority associated with each specific rear lot conversion job; the need to undertake work in a logical sequence that reflects good planning, distribution contingencies and the local impacts of construction; and

(b) The amount of work THESL can complete in a given year.

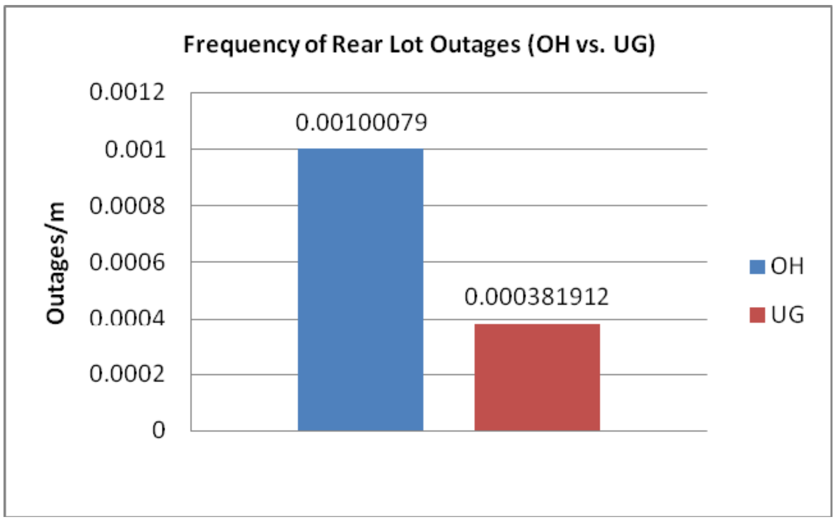
Each year's funding request represents THESL's current plans for rear lot conversions in that year and the funding approved will be used for this purpose. These jobs represent incremental capital spending that is above and beyond that anticipated when current rates were approved.

2. Why the Project is Needed Now

THESL believes that the rear lot conversion work is non-discretionary for the reasons that follow.

If no action is taken, outages, safety risks, and costs resulting from rear lot equipment will likely accelerate to unacceptable levels. In addition to the acceleration in failure rates of the rear lot equipment, studies have shown that underground assets are more reliable and reduce maintenance costs compared to their overhead counterparts.[1] Typical outage restoration times for rear lot plant outages are more than twice those of front lot outages. Thus, customers supplied via the rear lot may experience outage durations that are much longer than normal. Additionally, for a typical rear lot outage, the likelihood of an outage occurring is significantly /C
higher for the overhead system. The graph below presents the levels of the typical outages of /C
overhead (OH) construction versus underground (UG) construction.

[1] Fenrick, S.A., and Lullit Getachew. "Cost and Reliability Comparisons of Underground and Overhead Power Lines". *Utilities Policy*, Volume 20, Issue 1, March 2012, pages 31-37.



/c

Figure 1: Frequency of Typical Rear Lot Outages (OH vs. UG) /c

This segment is necessary to address the many critical issues inherent in rear lot service due to its location, and the age and condition of the equipment providing this service. The nature of these issues requires that they be addressed immediately or they will continue to pose potential safety risks to THESL crews and the public. Failure to address rear lot construction would also perpetuate ongoing cost and reliability issues, as THESL will be required to undertake expensive and time-consuming repairs on equipment that is past its useful life and difficult to access and maintain.

The specific reasons that require this segment to be undertaken now are:

- Operational constraints – THESL field crews are constantly challenged to access customers' rear lot plant due to physical inability to use the machinery typically employed for distribution system repairs (e.g., bucket trucks, cranes and drilling machines). As a result, crews are at times required to hand-carry heavy assets such as poles and transformers to effect repairs. This increases potential physical risks to the crews, particularly at night and in

Table 1: Summarization of business case results

Business Case Element	Cost (in Millions)	
Option 1: Status Quo (Remediation on a As-Needed Basis) Cost of Ownership of Existing Rear Lot Construction **[COO_E]**	$111.11	/C
Option 2: Like-for-Like Replacement of Existing O/H Rear Lot with New O/H Rear Lot Cost of Ownership of New O/H Rear Lot **[COO_{RL}]**	$105.53	/C
Option 4: Replacement of Existing O/H Rear Lot with New U/G Front Lot Cost of Ownership of New U/G Front Lot **[COO_{UG}]**	$11.98	/C
Upfront Project Cost (Option 1) **[$COST_E$]**	$0	
Upfront Project Cost (Option 2) **[$COST_{RL}$]**	$7.36	
Upfront Project Cost (Option 4) **[$COST_{UG}$]**	$66.14	
Option 2 versus Option 1 NPV [(COO_E – COO_{RL}) – $COST_{RL}$]	**-$1.78**	/C
Option 4 versus Option 1 NPV [(COO_E – COO_{UG}) – $COST_{UG}$]	**$32.99**	/C
Non-quantified benefits of Option 4 include: Increased employee and public safety and enhanced property values		

From the Table above, Option 4 has the highest NPV and is the economically preferable and most prudent option. The estimated value of the project is higher than Options 1, 2, and 4. Option 4 provides an NPV of $32.99 million, which represents the difference between the /C current (existing rear lot) and future (new underground front lot) costs of ownership values reduced by the total project cost of $66.14M. This Option provides the most distinct economic benefits to executing this work immediately. These results, as well as the business case evaluation process, are further explained within the Appendix section. Additional benefits are difficult to quantify, such as increased safety and property values. However, while these

Instead, crews must manually carry and operate equipment, often in tight and confined areas. Limited access becomes especially concerning during night-time and winter month restorations when visibility and footing, respectively, are poor. This ultimately results in a higher potential of injury to THESL crews due to slips, trips, falls, and muscle strain. Injuries due to such incidents in rear lots have been reported in recent years. /C

/C

The proximity of rear lot plants to customers' backyards and homes presents a potential safety risk. Poles, energized cable, conductors, switches, and transformers can all be in close proximity to outdoor features and activities on customer property. Examples include sheds, eaves, trampolines, clotheslines, and pools.

In addition, there are characteristics of rear lot plant that tend to lead to increased outages. Due to the great number of mature trees in rear lot areas, animal and tree contact are frequent cause of outages.

- 12 occurred during adverse weather conditions; and
- Four resulted from tree contacts.

Rear lot configuration causes inconvenience to customers, due to potential interference with certain aspects of their properties, such as landscape, fences, gates, sheds, and pools. Work on rear lot facilities also may require people to confine their pets.

Obtaining new easements from customers is also difficult. New easements require the consent /c
of customers. They are often very reluctant to provide their consent, since customers typically do not want poles and other facilities on their property.

In many cases, critical portions (of the primary trunk) of 4kV feeders are situated in the rear lot distribution plant. Therefore, an outage that occurs on the trunk potion of a feeder will disrupt service to all customers on that feeder. Rear lot jobs are also driven by the short-term need to convert 4kV feeders supplied by stations that are reaching the end of their serviceable lives and need to be decommissioned.

Since highly complex rear lot conversion jobs are lengthy, some jobs are already in the middle of multi-year phases. Many stakeholders must be committed from start-to-finish to these jobs. These stakeholders include other utilities, such as Bell and Rogers, the City of Toronto (road reconstruction), and area residents, who are subjected to disruptions and construction impacts for extended periods of time.

Figure 16 illustrates an already completed civil phase of a job awaiting electrical installation. In anticipation of funding for rear lot conversion, the civil construction for some of the rear lot jobs was initiated in 2011. Should Option 1 (Refer to Section IV: Alternatives for Addressing Rear Lot Construction) be selected and the proposed conversion activities postponed, THESL will have to return to these areas in 2015 (the anticipated next re-basing year) to complete the conversion work. This will result in further customer disruptions three years from now.

Figure 16: Civil work that has been completed in the Rexdale Colony rear lot area, awaiting electrical installation (photo taken in 2012)

Since most of these jobs take two to four years to complete (in phases), the failure to complete existing jobs between 2012-2013 means that these jobs may not be completed before 2016. /US This would likely turn a two-year job into a five-year job for residents of these neighbourhoods and result in new customer disruptions and dissatisfaction. As well, in these instances, THESL crews and the public likely would continue to be exposed to all the risks previously discussed. Thus, in the case of completed civil construction, it is particularly important to complete the electrical portion of the jobs and remove all rear lot assets. Doing so is expected to both increase system reliability and improve the safety of THESL's crews and the owners of properties served by rear lot construction.

6. Conclusions Regarding Need

The jobs proposed for 2012 and 2013 (Refer to Section V: Detailed Description of the Work) /US represent the work that must be undertaken in those years based on the considerations with respect to need, as discussed above. Should the rear lot conversion work be deferred to

2015, these assets will continue aging beyond their useful service lives and their condition will continue to deteriorate. As a result, there will be a corresponding increase in the probability of high-impact outages in the areas with rear lot service. Reliability in these neighbourhoods will continue to decrease and maintenance and repair costs will continue increasing.

Rear lot conversion is targeted to neighbourhoods with the least reliable, oldest and worst condition rear lot distribution plants. The existing rear lot overhead feeders are mostly 4 kV and are often fed by direct-buried underground links. The rear lot areas designated for immediate conversion have experienced excessive outage durations, typically lasting between four to eight hours. Seven of the feeders being addressed in these rear lot areas have experienced at least /US one outage over 15 hours in duration during the last five years.

It is important to note that rear lot conversion jobs are typically multiphase initiatives, spread over two to four years. Due to this fact and the nature of the antiquated rear lot design, multiple feeders will require decommissioning in order to adequately reconfigure a front lot design. Further, 4kV tie point assessments will be required, which further complicate and lengthen the time required to complete rear lot conversions. For these reasons, once the rebuild of a 4kV area with rear lot service commences, it is prudent to convert all of the remaining rear lot supply in the area in a timely manner.

Table 6: Summary of the two rear lot conversion options

Criteria	Option 3 OH	Option 4 UG
Safety	Favourable	Highly Favourable
Customer Service Initiative	Least Favourable	Highly Favourable
Corporate Communications	Least Favourable	Highly Favourable
Customer Acceptance	Least Favourable	Highly Favourable
City Approvals	Least Favourable	Favourable
Reliability	Least Favourable	Highly Favourable
Tree Trimming	Least Favourable	Favourable
Construction Cost (Initial)	Highly Favourable	Least Favourable
Service Connections	Least Favourable	Favourable
Scheduling	Least Favourable	Favourable

As is evident from Table 6, Option 4 (replacement with underground front lot distribution assets) is the more favourable option on every dimension, except initial construction cost. This Option's higher initial construction cost is expected to be overcome, however, by the lower overall cost of ownership including lower maintenance, community engagement, and customer outage cost. When comparing the overhead and underground front lot options, the underground solution provides a cost of ownership that is approximately $99.13M less when /C compared to the overhead solution. This difference in cost of ownership is due to the reduced risks associated with the underground plant when compared to the overhead plant, when accounting for risks pertaining to asset failure as well as non-asset-related risks associated with weather, animal and human-related events, which are directly associated to the overhead system. As Option 4 is expected to be the most favourable option from the customers' perspective, it is recommended.

2. Economic Benefits of the Preferred Alternative

The effectiveness of the rear lot segment can be further highlighted by determining the difference in cost of ownership between the current overhead rear lot asset class and the future underground front lot asset class proposed to be installed. The cost of ownership for each state, current and future, includes quantified risk cost, which is the product of the assets' probability of failure and the various direct and customer costs associated with asset failures. The costs considered include those related to customer interruptions, emergency repairs and replacement. In addition, risks that are unrelated to asset age and condition, such as animal-related, human-related and weather-related events, are also considered.

Carrying out immediate work on this asset class will result in a net present value of approximately $32.99M, which represents the difference between the current and future costs /c of ownership values reduced by the total segment cost of $66.14M. Thus, there are quantifiable /c social and economic benefits expected from executing this work immediately. These results, as well as the business case evaluation process, are further explained in the Appendix in Section VI below.

In the following table, the NPV of Options 2 and 4 are shown relative to the remediation alternative (Option 1). These estimates demonstrate the economic value of Option 4 relative to Option 1 and Option 2. The details and assumptions behind these figures are shown in the Appendix in Section VI.

Table 7: NPV of each Option relative to Option 1

Alternatives*	NPV (in Millions)	
Option 2 vs. Option 1 (Like-for-Like Replacement of Rear Lot)	-$1.78	/c
Option 4 vs. Option 1 (Replace Rear Lot with Front Lot U/G)	$32.99	/c

*Option 3 was not considered as part of this quantitative analysis, as it was determined not to be a feasible solution for the reasons noted in the Appendix.

1 **V DESCRIPTION OF WORK**

2

3 **1. Listing of All Jobs**

Job Estimate Number	Job Title	Year	Cost Estimate ($M)
21138	X12113 Forest Hill Rear Lot Voltage Conversion Phase 4 – electrical	2012	$3.92
24342	X11293 Forest Hill Rear Lot Voltage Conversion Phase 5 – civil	2012	$3.32
21034	W12561 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 1	2012	$1.00
21250	W12562 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 2	2012	$0.21
21251	W12563 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 3	2012	$0.47
22607	E12615 Banbury Larkfield RL Rebuild UG VC SS37F2_F4 Ph 2-Electrical	2012	$1.51
19501	E12076 Banbury Larkfield RL Rebuild - Ph 1 – Elec	2012	$2.55
18580	E11382 Livingston Guildwood VC Rear Lot Rebuild SCGGF1	2012	$5.33
24854	E11383 Livingston Guildwood Part 2 OH VC SCGGF1	2012	$0.94
20677	W11219 Rathburn SAF1 Rear Lot Conversion	2012	$2.85

/UF, US

Job Estimate Number	Job Title	Year	Cost Estimate ($M)
21321	W11168 Albion F1 Silverstone Rear Lot Conversion	2012	$2.05
2012 Total			**$24.15**
20012	X12114 Forest Hill Rear Lot Voltage Conversion Phase 5 – electrical	2013	$3.05
21155	W12564 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 4	2013	$1.18
21248	W12565 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 5	2013	$1.03
21252	W12566 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 6	2013	$0.09
21320	W12567 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 7	2013	$0.17
21315	W13195 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 8	2013	$1.24
19755	X12184 S/E Lawrence/Leslie P1 Electrical	2013	$0.19
19757	X12185 S/E Lawrence/Leslie P2 Electrical	2013	$0.97
19759	X12186 S/E Lawrence/Leslie P3 Electrical	2013	$0.58
20662	W12381 Rear Lot #011 Civil Infrastructure Ph#1	2013	$3.24
20714	W12401 Rear Lot #011 Civil Infrastructure Ph#2	2013	$2.22
20808	W13019 Rear Lot #011 Ph#2 Electrical VC	2013	$1.08
21211	W13067 Thorncrest (#011) RL VC Ph#3 Civil/Elec	2013	$0.92
21213	W13068 Thorncrest (#011) RL VC Ph#4 Civil/Elec	2013	$0.64
21185	W13142 Thorncrest (#011) RL VC Ph#5 Civil	2013	$4.82
2013 Total			**$21.42**

/UF, US

ICM Project | Rear Lot Construction Segment

Job Estimate Number	Job Title	Year	Cost Estimate ($M)
~~**21484**~~	~~W11726 Markland Woods Rear Lot VC phase 1 Civil~~	~~2014~~	~~$5.63~~
~~**24945**~~	~~W11726 Markland Woods Rear Lot VC phase 1 Electrical~~	~~2014~~	~~$5.40~~
~~**2014 Total**~~			~~**$11.03**~~
2012 – 2013 Jobs Total			**$45.57**
Reconciliation for job cost changes < $100,000 and rounding			**$ 0.21**
2012 – 2013 Reconciled Total			**$45.78**

/UF, US

2. Forest Hill Rear Lot (X12113, X11293, X12114)

2.1 Objectives

The purpose of this job is to improve reliability in the Forest Hill area by converting the rear lot electrical equipment from the following 4kV feeders to front lot underground: B72EG from Eglinton MS, B1CP from Chaplin MS, and B1OV and B5OV from Overdale MS. As discussed above, converting rear lot service is also expected to reduce safety risks for THESL crews and area residents and reduces outage time by eliminating access issues. Indeed, during 2010, a crew member suffered a knee injury in this area due to a slip, trip, and fall incident.

This job should be constructed in 2012-2013 since the area residents in the Forest Hill area /US
already have experienced construction disruptions for four years. This job represents the final phases for conversion of the area. As such, further delays to job completion would negatively impact the area residents. Further, half of the area proposed for this job already has civil construction completed. The rear lot plant is still likely to pose safety risks, however, as discussed above in Section III, until THESL assets are relocated to the street.

Residents in this area have been subject to long duration outages and remain susceptible to them. For instance, in 2007, area residents experienced a sustained outage that lasted over 19 hours and, in 2010, area residents experienced a sustained outage that lasted over 12 hours.

2.2 Scope of Work

This job will replace both overhead and underground rear lot facilities by installing new 28kV aluminum TRXLPE-insulated cable in new concrete-encased front lot ducts. Poles are required to be installed along major streets in order to accommodate the proposed 27.6kV conductors supplying this area.

Asset Type		Assets Installed	
		Non-Linear Asset Count	Linear Asset Count (m)
Pole		21	
Switch			
Transformer	Dry		
	Network		
	Padmount		
	Polemount		
	Submersible	31	
	Vault		
Conductor			1,065
Cable			17,000
Underground-Civil work			5,400

2.3 Locations

The assets being replaced by this job are located in the vicinity of the intersection of Eglinton Avenue West and Allen Road.

2.4 Required Capital Costs

Job Estimate Number	Job Title	Year	Cost Estimate ($M)
21138	X12113 Forest Hill Rear Lot Voltage Conversion Phase 4 - electrical	2012	$3.92
24342	X11293 Forest Hill Rear Lot Voltage Conversion Phase 5 – civil	2012	$3.32
20012	X12114 Forest Hill Rear Lot Voltage Conversion Phase 5 - electrical	2013	$3.05
		Total	**$10.29**

/UF, US

3.4 Locations

The assets being replaced by this job are located in the vicinity of the intersection of Martin Grove Road and Albion Road.

3.5 Required Capital Costs

Job Estimate Number	Job Title	Year	Cost Estimate ($M)
21034	W12561 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 1	2012	$1.00
21250	W12562 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 2	2012	$0.21
21251	W12563 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 3	2012	$0.47
21155	W12564 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 4	2013	$1.18
21248	W12565 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 5	2013	$1.03
21252	W12566 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 6	2013	$0.09
21320	W12567 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 7	2013	$0.17
21315	W13195 Rexdale Colony Park OH Rear Lot to UG front lot conversion phase 8	2013	$1.24
		Total	**$5.39**

/UF, US

5. Livingston Guildwood Rear Lot (E11382, E11383)

5.1 Objectives

The purpose of this job is to improve service reliability in the Guildwood Livingston rear lot area by converting both overhead and underground rear lot electrical equipment from the following 4kV feeders to front lot underground: GGF1 from Livingston Guildwood MS and GEF2 from Galloway Dearhamwoods MS. This job should be constructed in 2012 since the area residents in the Livingston Guildwood area already have experienced construction disruptions for more than /UF
four years. As such, further delays to job completion would adversely impact the area residents. /C
However, the rear lot plant will still pose the safety risks, as discussed above in Section III, to /C
both THESL crew and area residents until THESL assets are relocated to the street.

Residents in this area remain susceptible to long duration outages. During the past year there has been one extended outage in this area, with more than 500 customers losing power for over two hours.

5.2 Scope of Work

This job will replace both overhead and underground rear lot facilities by installing new 28kV aluminum TRXLPE-insulated cable in new concrete-encased front lot ducts. Poles are required to be installed along major streets in order to accommodate the proposed 27.6kV conductors supplying this area.

Asset Type		Assets Installed	
		Non-Linear Asset Count	Linear Asset Count (m)
Pole		95	
Switch		2	
Transformer	Dry		
	Network		
	Padmount		
	Polemount	20	
	Submersible	12	
	Vault		
Conductor			6,100
Cable			2,424
Underground-Civil work			2,424

/c

5.3 Locations

The assets being replaced by this job are located in the vicinity of the intersection of Livingston Road and Guildwood Parkway.

5.4 Required Capital Costs

Job Estimate Number	Job Title	Year	Cost Estimate ($M)
18580	E11382 Livingston Guild VC Rear Lot Rebuild SCGGF1	2012	$5.33
24854	E11383 Livingston Guildwood Part 2 OH VC SCGGF1	2012	$0.94
		Total	**$6.27**

Asset Type		**Assets Installed**	
		Non-Linear Asset Count	Linear Asset Count (m)
Pole			
Switch			
Transformer	Dry		
	Network		
	Padmount		
	Polemount		
	Submersible	18	
	Vault		
Conductor			
Cable			5,600
Underground-Civil work			

6.3 Locations

The assets being replaced by this job are located in the vicinity of the area of Eglinton Avenue West, Rathburn Road, and The East Mall.

6.4 Required Capital Costs

Job Estimate Number	**Job Title**	**Year**	**Cost Estimate ($M)**
20677	W11219 Rathburn SAF1 Rear Lot Conversion	2012	$2.85
		Total	**$2.85**

/UF

Asset Type		Assets Installed	
		Non-Linear Asset Count	Linear Asset Count (m)
Pole		1	
Switch			
Transformer	Dry		
	Network		
	Padmount		
	Polemount		
	Submersible	17	
	Vault		
Conductor			
Cable			5,567
Underground-Civil work			

7.3 Locations

The assets being replaced by this job are located in the vicinity of the intersection of Martin Grove Road and Albion Road.

7.4 Required Capital Costs

Job Estimate Number	Job Title	Job Year	Cost Estimate ($M)
21321	W11168 Albion F1 Silverstone Rear Lot Conversion	2012	$2.05
		Total:	**$2.05**

/UF

8. Lawrence Leslie Rear Lot (X12184, X12185, X12186)

8.1 Objectives

The purpose of this job is to improve service reliability in the Lawrence and Leslie area by converting the rear lot electrical equipment from the 4kV feeder 37F2 to front lot underground. This job should be constructed in 2013 since residents in the Lawrence Leslie area already have /US experienced construction disruptions. These jobs represent the final phases for conversion of the area. As such, further delays to job completion would negatively impact area residents. Further, all of the area proposed for this job already has civil construction completed.

Residents in this area have been subject to long-duration outages and remain susceptible to them. During 2007, area residents experienced two sustained outages; one lasted over 40 hours and one lasted over 60 hours. Also, during the past year, area residents experienced a sustained outage that lasted 15 hours and three more lasting over two hours each.

8.2 Scope of Work

This job will replace both overhead and underground rear lot facilities by installing new 28kV aluminum TRXLPE-insulated cable in new concrete-encased front lot ducts. Poles are required to be installed along major streets in order to accommodate the proposed 27.6kV conductors supplying this area.

Asset Type		Assets Installed	
		Non-Linear Asset Count	Linear Asset Count (m)
Pole		21	
Switch		5	
Transformer	Dry		
	Network		
	Padmount		
	Polemount		
	Submersible	19	
	Vault		
Conductor			
Cable			4,650
Underground-Civil work			

8.3 Locations

The assets being replaced by this job are located in the vicinity of the intersection of Lawrence Avenue East and Leslie Street.

8.4 Required Capital Costs

Job Estimate Number	Job Title	Year	Cost Estimate ($M)
19755	X12184 S/E Lawrence/Leslie P1 Electrical	2013	$0.19
19757	X12185 S/E Lawrence/Leslie P2 Electrical	2013	$0.97
19759	X12186 S/E Lawrence/Leslie P3 Electrical	2013	$0.58
		Total	**$1.74**

/US

9. Thorncrest Area Rear Lot (W12381, W12401, W13019, W13067, W13068, W13142) /UF

9.1 Objectives

The purpose of this job is to improve reliability in the Thorncrest area by replacing and converting the rear lot electrical equipment from the following 4kV feeders to front lot underground: SBF1, BHF2, and RAF2. This job should be constructed in 2013 since the area residents in the Thorncrest area have experienced long duration outages and remain susceptible to them. During 2009, area residents experienced two sustained outages: one lasted over 25 hours, and the other lasted over 40 hours. During 2011, area residents experienced two sustained outages, which lasted between 12 and 15 hours.

9.2 Scope of Work

This job will replace both overhead and underground rear lot facilities by installing new 28kV aluminum TRXLPE-insulated cable in new concrete-encased front lot ducts and associated equipment. Poles are required to be installed along Rathburn Rd and Kipling Ave in order to accommodate the proposed 27.6kV conductors supplying this area.

Asset Type		Assets Installed	
		Non-Linear Asset Count	Linear Asset Count (m)
Pole		74	
Switch			
Transformer	Dry		
	Network		
	Padmount		
	Polemount	7	
	Submersible	12	
	Vault		
Conductor			6,500
Cable			5,850
Underground-Civil work			18,118

/UF

1 **9.3 Locations**

2 The assets being replaced by this job are located in the vicinity of the intersection of Rathburn
3 Road and Islington Avenue.

9.4 Required Capital Costs

Project Estimate Number	Project Title	Year	Cost Estimate ($M)
20662	W12381 Rear Lot #011 Civil Infrastructure Ph#1	2013	$3.24
20714	W12401 Rear Lot #011 Civil Infrastructure Ph#2	2013	$2.22
20808	W13019 Rear Lot #011 Ph#2 Electrical VC	2013	$1.08
21211	W13067 Thorncrest (#011) RL VC Ph#3 Civil/Elec	2013	$0.92
21213	W13068 Thorncrest (#011) RL VC Ph#4 Civil/Elec	2013	$0.64
21185	W13142 Thorncrest (#011) RL VC Ph#5 Civil	2013	$4.82
		Total	**$12.92**

/UF

~~10. Markland Woods Rear Lot (W11726)~~

~~10.1 Objectives~~

~~The purpose of this job is to improve reliability in the Markland Woods area by converting the rear lot electrical equipment from the following 4kV feeders to front lot underground: ETLFF1, ETLFF4, ETBAF4, ETLFF3, ETBAF1, and ETLFF2 from Mill MS and Neilson MS. This job should be constructed in 2014 since the area residents in the Markland Woods area have experienced long-duration outages and remain susceptible to them. Since 2009, area residents have sustained a total of 17 outages of varying durations. Specifically, during 2009, area residents experienced three sustained outages; two lasted over ten hours and one lasted over 40 hours. During 2010, area residents experienced a sustained outage that lasted over 25 hours. Finally,~~

~~during this past year, area residents experienced one sustained outage that lasted over ten hours.~~

~~10.2 Scope of Work~~

~~This job will begin to replace both overhead and underground rear lot facilities by installing new concrete-encased front lot ducts.~~

~~Asset Type~~		~~Assets Installed~~	
		~~Non-Linear Asset Count~~	~~Linear Asset Count (m)~~
~~Pole~~		~~2~~	
~~Switch~~		~~7~~	
~~Transformer~~	~~Dry~~		
	~~Network~~		
	~~Padmount~~	~~18~~	
	~~Polemount~~		
	~~Submersible~~		
	~~Vault~~		
~~Conductor~~			
~~Cable~~		~~12,000~~	
~~Underground-Civil work~~			~~5,979~~

~~10.3 Locations~~

~~The assets being replaced by this job are located in the vicinity of the intersection of Mill Road and Burnhamthorpe Road.~~

~~10.4 Required Capital Costs~~

~~Job Estimate Number~~	~~Job Title~~	~~Year~~	~~Cost Estimate ($M)~~
~~21484~~	~~W11726 Markland Woods Rear Lot VC phase 1 Civil~~	~~2014~~	~~$5.63~~
~~24945~~	~~W11726 Markland Woods Rear Lot VC phase 1 Electrical~~	~~2014~~	~~$5.40~~
		~~Total~~	~~$11.03~~

1 **Table A1: Status Quo (Remediation on an as-needed basis)**

Business Case Element	Estimated Cost ($, millions)
OPTION 1 – Status Quo (Remediation on an as-needed basis)	
Cost of Ownership of Existing Rear Lot Construction (COO_E)	
Projected risk cost of existing rear lot (NPV)	$7.95
Projected non-asset risk cost of existing rear lot (NPV)	$102.48
Maintenance cost of existing rear lot	$0.68
TOTAL (COO_E)	**$111.11**

/C

2 **Table A2: Like-for-Like Replacement of Existing O/H Rear Lot with New O/H Rear Lot**

Business Case Element	Estimated Cost ($, millions)
OPTION 2 – Like-for-Like Replacement of Existing O/H Rear Lot with New O/H Rear Lot	
Cost of Ownership of New Standardized Rear Lot Construction (COO_N)	
Projected risk cost of new overhead rear lot (NPV)	$2.37
Projected non-asset risk cost of new overhead rear lot (NPV)	$102.48
Maintenance cost of new overhead rear lot	$0.68
TOTAL (COO_N)	**$105.53**
Option 2 Project Net Benefit	
TOTAL (COO_E)	**$111.11**
TOTAL (COO_N)	**$105.53**
PROJECT COST	**$7.36**
PROJECT NPV: ((COO_E – COO_N) – PROJECT COST)	**-$1.78**

/C

/C

Table A3: Replacement of Existing O/H Rear Lot with New U/G Front Lot

Business Case Element	Estimated Cost ($, millions)
OPTION 4 – Replacement of Existing O/H Rear Lot with New U/G Front Lot	
Cost of Ownership of New Standardized Underground Front Lot Construction (COO_N)	
Projected risk cost of underground front lot (NPV)	$11.55
Projected non-asset risk cost of underground front lot (NPV)	$0
Maintenance cost of underground front lot	$0.43
TOTAL (COO_N)	**$11.98**
Option 4 Project Net Benefit	
TOTAL (COO_E)	**$111.11**
TOTAL (COO_N)	**$11.98**
PROJECT COST	**$66.14**
PROJECT NPV: ((COO_E – COO_N) – PROJECT COST)	**$32.99**

/C
/C

To further illustrate the relationship between Non-Asset Risk and Asset Risk, a comparison was made against historically tracked CHI over the last ten-year period due to asset and non-asset causes for the rear lot feeders.

Table A4: NPV and CHI ratios of Non-Asset to Asset Risk for Existing Rear Lot

	NPV ($ in Millions)	CHI (hrs)
Asset Risk	7.95	784.45
Non-Asset Risk (NAR)	102.48	6193.21
Ratio (NAR/Asset Risk)	12.89	7.90

/C

The difference between the two ratios is attributed to the increasing trend of non-asset related outages. The graph includes outages from tree contacts, animal contacts, lightning, and adverse weather. Over the last five years, there has been an increasing trend in the amount of non-asset related failures. This is further illustrated in Figure A4. The 12.89 ratio represents a value that /C will be held constant over the next three years, even though the expected number of non-asset

ICM Project – Overhead Infrastructure and Equipment

Polymer SMD-20 Switches Segment

Toronto Hydro-Electric System Limited

ICM Project | Polymer SMD-20 Switches Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $6.01 M to $1.53 M, a reduction of $4.48 M
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system

ICM Project | Polymer SMD-20 Switches Segment

I EXECUTIVE SUMMARY

1. Project Description

Polymer SMD-20 (“SMD-20”) switches are used to mount SMU fuse units on distribution poles. SMU fuse units are designed to protect upstream circuits and assets from faults encountered on downstream conductors and equipment in outdoor distribution systems. These switches must be physically operated by THESL crews using an 8’ LoadBuster tool with a significant amount of force. Opening and closing of these switches must be swift and purposeful. If the switches are opened slowly, there is the potential for drawing a large arc and possibly a flash over.

There have been two incidents reported since November 2011 where SMD-20 switches broke apart in the field during operation (See Appendix 1). These occurrences caused THESL to undertake a failure analysis study where THESL selected 14 new SMD-20 switches from its warehouse for testing. The results of this study showed that 13 of the 14 switches tested broke within ten operations with four of the switches failing during their first operation (See Section III, 1). Moreover, the manufacturer conducted similar testing procedures and derived to similar conclusions as shown in Appendix 5. Based on these results, and information from other industry sources, as discussed below, THESL determined that the SMD-20 switches installed during the period of 2006 and 2011 are defective.

There are 5,226 defective SMD-20 switches installed on 2,553 locations (many locations are on three phase systems and incorporate three defective SMD-20 switch installations) identified to require replacement on the THESL system and this segment targets replacing all of them with /US
“new design” SMD-20 switches (See Section II, 1).

THESL has confirmed through testing that the manufacturer has remedied the defect in the new design. Priority for replacement will be given to locations that have experienced the highest number of outages due to faults of the type that would activate the fuses on the SMD-20 switches and lead to their operation.

The cost of the segment is presented in Table 1. These costs are all incremental because the defect was not found until late 2011 and until it was found, THESL had no plans and received no funding to replace these switches because they were assumed to have a useful life of 45 years. THESL is in discussion with the manufacturer to determine the level of compensation that can be recovered. THESL will return any compensation received for defective SMD-20 switches as revenue offset at rebasing.

Table 1: Cost of SMD-20 Switches to be replaced

Job Estimate Number	Job Title	Project Year	Cost Estimate ($M)
24773	SMD-20 Replacement	2012	-
24773	SMD-20 Replacement	2013	1.53
~~24943~~	~~SMD-20 Replacement~~	~~2014~~	~~2.94~~
Total 2012-2013		**$1.53**	

/UF /US

2. Why the Project Is Needed Now

SMD-20 switches have failed in the field. Failure analysis by THESL and others in the industry as discussed below showed a switch manufacturing material defect. Although there have been no injuries or property damage reported to date, the mode of failure for these switches may impact public safety due to the potential for falling debris when the switch fails. SMD-20 failures can also cause physical injuries to field crews by exposing them to electrical flash-over during live operation. In addition, this issue can increase outage restoration times if the switch fails and must be replaced during an emergency response situation.

3. Why the Proposed Project is the Preferred Alternative

Given that the currently installed switches are defective and must eventually be replaced, only two options were evaluated: proactive and reactive replacement (See Section IV). Based on this evaluation, the proactive approach was selected. Under this approach THESL will begin replacing all SMD-20 switches immediately. **/US**

The reactive approach would replace defective polymer SMD-20 switches as they failed or once they exceeded their useful lives. Since the defective SMD-20 switches were recently manufactured, this would take decades. This replacement rate is unacceptable because defective SMD-20 switches would continue to pose risks for THESL crews and the public over this extended period.

IV PREFERRED ALTERNATIVE

1. Description of the Preferred Alternative

The preferred plan is to replace all 5,226 defective SMD-20 switches installed at 2,553 locations (many locations are on three phase systems and incorporate three defective SMD-20 switch installations) on the THESL system with the “new design” SMD-20 switches. /US

If the fuse on a defective SMD-20 switch blows due to a downstream fault, the switch itself will break and introduce a risk of injuries and property damage. Therefore, the replacements will be prioritized based on locations that experience the highest number of outages related to the types of faults that cause the fuses associated with SMD-20 switches to blow.

For each feeder, THESL monitors the number of outages experienced on all of its connected laterals. Priority is given to the switches connected to the feeders with the highest number of /US lateral outages.

/US

Replacing the units in a proactive fashion will reduce the probability of potential safety hazards to the public and field crews as well as the possibility of the increased outage duration during emergency responses due to the need to replace the defective SMD-20 switch along with the fuse. Therefore, this is the preferred option.

2. Project Cost

Table 4 below present the costs of the segment. The labour and material cost for replacing each switch averages about $1,711. THESL is in discussion with the manufacturer to determine the potential for compensation and the amount that may be recovered. THESL will return any compensation received for defective SMD-20 switches as revenue offset at rebasing.

Table 4: Cost of SMD-20 Switches to be replaced

Job Estimate Number	Job Title	Project Year	Cost Estimate ($M)
24773	SMD-20 Replacement	2012	-
24773	SMD-20 Replacement	2013	$1.53
~~24943~~	~~SMD-20 Replacement~~	~~2014~~	~~$2.94~~
Total 2012-2013		**$1.53**	

/UF /US

None of these costs are included in existing rates. THESL did not uncover the manufacturing defect in these switches until late 2011. Once the manufacturing defect was confirmed, THESL began planning to replace all existing SMD-20 switches with “new design” switches. Given that THESL had no plans to replace these switches prior to the discovery of the design defect, it neither sought nor obtained funding for this purpose in previous rate applications.

3. Economic Benefit of the Preferred Alternative

The effectiveness of the SMD-20 segment can be further highlighted by determining the difference in cost of ownership between the assets currently installed downstream from these SMD-20 switches, and the cost of ownership of those same downstream assets connected to a newly designed SMD-20 switch. This cost of ownership evaluation can be simplified by examining the incremental estimated quantified risks that are introduced due to the additional two-hour interruption as a result of the time required to replace defective SMD-20 switches when the associated fuse blows.

These estimated quantified risks represent the product of the assets' probability of failure and the various direct and customer costs associated with asset failures. The costs considered include customer interruptions, emergency repairs and replacement. In addition, risks that are unrelated to asset age and condition, such as animal-caused, human-caused and weather-caused events, are also considered.

Carrying out immediate work on this asset class will result in a present value of $ 7.87 M, which /UF, US
ultimately represents the difference between the current and future costs of ownership values reduced by the total segment cost. Thus, there are distinct economic benefits to executing this /UF, US
work immediately. These results as well as the business case evaluation process are further explained in Appendix 6.

ICM Project – Overhead Infrastructure and Equipment

SCADA-Mate R1 Switches Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | SCADA-Mate R1 Switches Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $5.66 M to $1.43 M, a reduction of $4.23 M
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system

of the switches was caused by moisture buildup inside the motor operator compartment, which corroded internal components critical to the switch's operating mechanism.

The defect that causes the SCADA-Mate R1 switches to fail is not externally visible or testable. Thus, THESL crews must treat all of these switches as defective whenever they are encountered (See Section II, 2). To remedy this situation, THESL proposes spending $1.43 million to replace existing SCADA-Mate R1 switches that are located in heavily contaminated /UF, US areas such as highways and arterial roads due to the increased failure probability of these switches (See Section IV, 1). /US

The work to replace these SCADA-Mate R1 switches is in addition to existing work planned. /UF, US THESL has confirmed that these switches are subject to a defect that creates potential safety issues, which require their immediate replacement. Prior to confirming that the switches were defective, THESL had no plans to replace them.

2. Why the Project Is Needed Now

This safety risk is a result of the SCADA-Mate R1 design, which allows moisture to seep into the motor operator compartment of the switch, eventually leading to corrosion of the internal components. Failure of the motor operator prevents the switch from functioning as intended. An arc may develop as a result of the switch opening slowly under load, resulting in potential safety hazards to THESL crews. Arc flashes have the potential of producing a pressure wave that can disorient and injure a worker nearby (See Section II, 2).

THESL has determined that crews should not operate SCADA-Mate R1 switches or work in proximity to them due to the potential arc flash hazard (See Section III). Consequently, for

IV PREFERRED ALTERNATIVE

1. Project Description

The entire population of 318 SCADA-Mate R1 switches requires replacement as soon as possible. However, full replacement will have to be completed in phases for the following reasons:

- Switching required for replacement: SCADA-Mate switches are located on main feeders. If an alternate supply does not exist to serve all customers on that feeder, then complex switching and temporary disconnect switch installations are required to minimize any associated outages.
- Feeder loading restrictions: Load shifting is dependant on the state of the system. In the summer time, feeders tend to be running at capacity and load transfer may increase the risk of outages.
- Limited Control Room resources to accommodate the large number of planned outages required for replacement.
- Limited Protection and Control resources for commissioning and decommissioning of SCADA-Mate switches.

Due to the suspension of routine maintenance, the switches located in highly contaminated areas such as highways and arterial roads are more susceptible to failure. Moreover, there are many R1 switches in the Etobicoke area that are currently using an obsolete Remote Terminal Unit (RTU) complete with an obsolete radio system. The proposed plan is to replace the R1 /US
switches using the priority ranking listed in Table 1.

Table 1: Priority list for replacing all SCADA-Mate R1 switches

Priority	Quantity	Description
1	52	Switches in close proximity to highways/arterial roads and using obsolete RTU
2	51	Switches in close proximity (but further than the switches under priority 1) to highways/arterial roads and using obsolete RTU
3	49	Switches in close proximity to highways/arterial roads
4	166	Remaining R1 switches in the THESL overhead distribution system
Total	**318**	

The switches in the top 3 priorities are shown on the map in Figure 10. **/US**

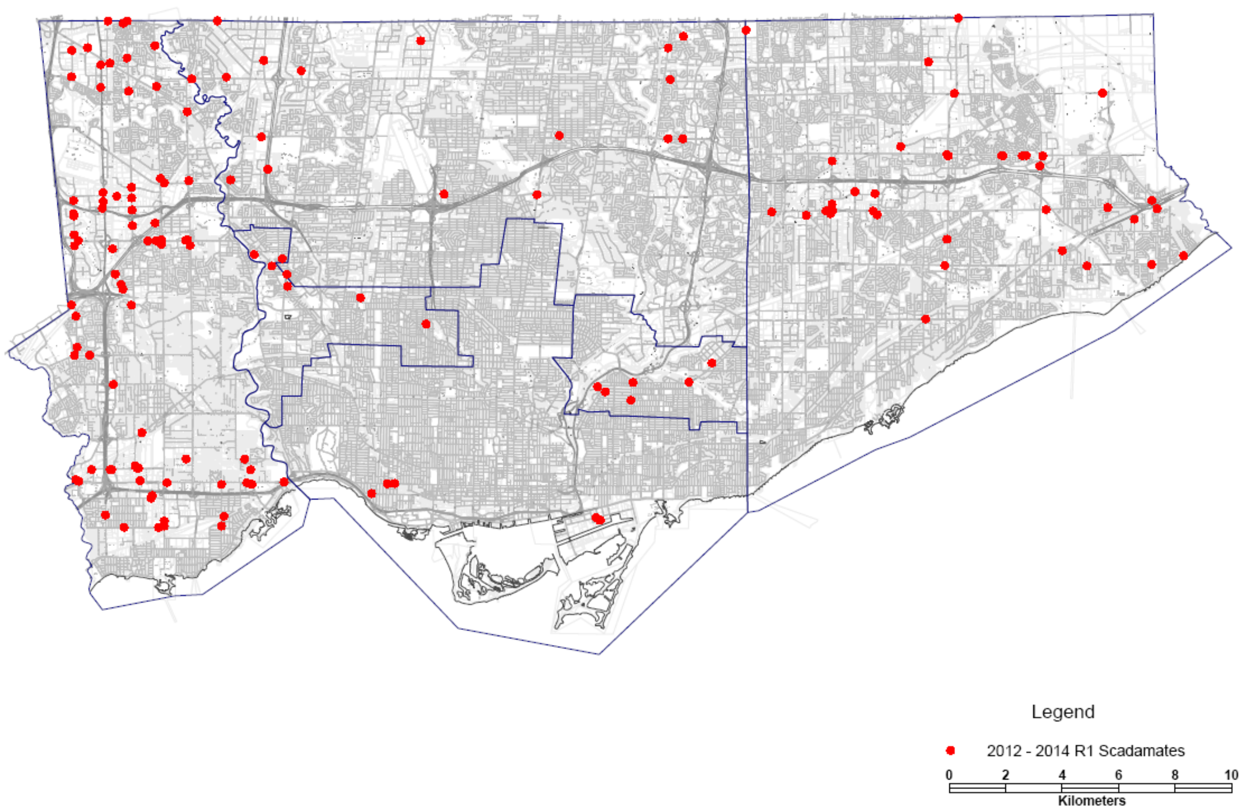


Figure 10: Map of SCADA-Mate R1 Switches to be replaced

2. Economic Benefit of the Proposed Plan

The effectiveness of the proposed work on the SCADA-Mate R1 segment can be further highlighted by determining how much cost is avoided by executing this work immediately as opposed to executing it in 2015. These avoided costs include quantified risks, taking into account the assets' probability of failure, and multiplying this with various direct and indirect costs associated with in-service asset failures, including the costs of customer interruptions, emergency repairs and replacement.

Carrying out immediate work on this asset class will result in an avoided estimated risk cost of about $55 million, which represents this avoided cost of executing the planned replacements in 2012 as opposed to deferring them until 2015. This figure shows that there are expected to be substantial economic benefits from executing this work immediately. These results are further explained in Appendix 5, below. /C

Moreover, should the replacement of these switches be deferred to 2015 it will extend the time these switches are in service and prolong the associated operational inefficiencies posed for THESL's system and the safety risks faced by field crews.

3. Project Cost

Table 2 below presents the costs of the segment. The average cost for replacing each unit is about $55,000. /UF, US

Table 2: Project Cost

Project Estimate Number	Project Title	Project Year	Cost Estimate $ M
22579	SCADA-Mate R1 Replacement	2012	-
22579	SCADA-Mate R1 Replacement	2013	1.43
~~24941~~	~~SCADA-Mate R1 Replacement~~	~~2014~~	~~$2.69~~
Total 2012-2013			**$1.43**

/UF, US (header and 2012–2013 rows)

/UF, US (total row)

Table 1: Summary of values used in the determination of Avoided Estimated Risk Cost

Business Case Element	Cost (in millions)	
Present Value of Project Net Cost in 2015 ($PV(PROJECT_{NET\_COST}(2015))$	$ 55.04	/C
Project Net Cost in 2012 ($PROJECT_{NET\_COST}(2012)$)	$ 0.28	/C
Avoided Estimated Risk Cost	**$ 54.76**	

When this avoided estimated risk cost is calculated as a positive value, it means that estimated risk costs for the job assets in 2015 will exceed the estimated risks that exist today. By performing the work immediately as opposed to waiting until 2015, we can eliminate these estimated risks. Therefore, these avoided estimated risk costs represent the benefits of job execution.

ICM Project – Network Infrastructure and Equipment

Network Vaults and Roofs Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Network Vaults and Roofs Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from \$25.88 M to \$21.47 M, a reduction of \$4.41 M
- Revised number of jobs proposed for 2012/2013 to 26 (three decommissioning, six roof rebuilds, 17 vault rebuilds), with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Corrected numerical and typographical errors

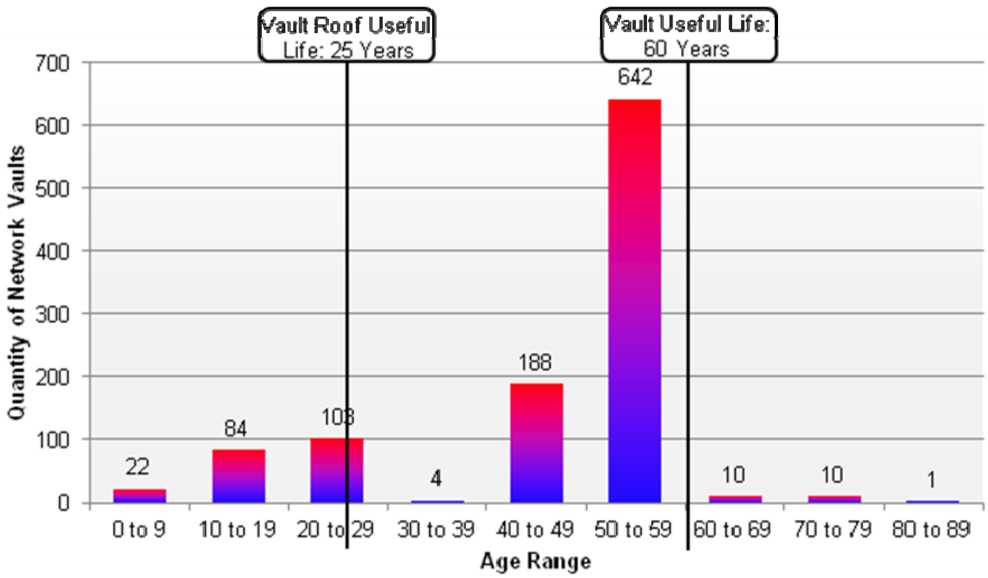


Figure 1: Distribution of Network Vaults

Under the Network Vaults and Roofs segment, THESL proposes to eliminate immediate structural vault deficiencies of 26 high risk vaults in 2012-2013 (which represent 2.4% of all vaults in THESL's system): three through decommissioning at an estimated cost of $0.1M, six through roof rebuilding at an estimated cost of $2.2M, and 17 through complete vault rebuilds at an estimated cost of $19.3 M. The total estimated cost of the segment over the 2012 through 2013 ~~2014~~ period is ~~$41.45M~~ $21.47M (See Section II, 1). **/UF, /US**

2. Why the Project Needed Now

The immediate need to rebuild the vaults has been highlighted by THESL's Asset Condition Assessment (ACA), developed by Kinectrics Inc., which has identified vaults classified as either "very poor" or "poor" and which require major civil rebuilds (See Section III, 1). These vaults pose an immediate safety concern to THESL workers, the public, and the reliability of the network system. The ACA uses inspection data to determine the condition of an asset, and drives replacement of that asset at the optimal time. The "very poor" status indicates that the assets need to be replaced within one year, while the "poor" assets need to be replaced within three years. In 2009, the ACA was revised to recognize that failing structural elements (roof,

II DETAILED PROJECT INFORMATION

1. Project Description

The network vaults associated with the secondary network system were constructed in the 1950s and 1960s, mainly beneath the sidewalks in the busy downtown Toronto core. Today, there are many critical structural issues inherent with the condition of these assets which must be addressed immediately in order to mitigate potential safety risks to the public and to THESL's workers, as well as the potential negative impact on the reliability and prudent operation of THESL's distribution system.

Under the Network Vaults and Roofs segment, THESL proposes to eliminate immediate structural vault deficiencies of 26 high risk vaults identified by the ACA as being in "poor" or "very poor" condition in 2012-2013. This segment includes decommissioning 3 vaults at an estimated cost of $0.1M, rebuilding 6 vault roofs at an estimated cost of $2.2M and completely rebuilding 17 vaults at an estimated cost of $19.3M. The estimated total cost of the segment over 2012-2013 is $21.47M. /UF, /US

1.1. Project Segment Category 1: Network Vault Decommissioning /US

THESL proposes to decommission 3 network vaults where load has been displaced and the vaults are no longer needed. This is expected to eliminate any structural deficiencies associated with these vaults and any corresponding safety issues for both THESL crews and pedestrians.

Decommissioning a network vault involves removing any network transformer and protectors within the vault, along with primary and/or secondary cables. The empty vault is then backfilled with gravel, and the sidewalk overtop is rebuild. Figure 1 below shows the locations where a vault decommissioning is required.

Figure 1: Locations of Network Vault Decommission Projects – 2012-2013 / US

Table 1: Required Capital Costs

Job Number	Job Title	Job Year	Estimated Cost ($M)
X12207	X12207 Loc #4287 60 Simcoe St	2012	$0.01
X12858	X12858 Decommission 2 Network Vaults	2013	$0.08
~~X14404~~	~~X14404 Decommission 2 Network Vaults~~	~~2014~~	~~$0.12~~
	Total 2012-2013:		**$0.1**

/US

/US

1.2. Project Segment Category 2: Network Vault Roof Rebuild Program

THESL proposes to rebuild six network vault roofs which have been identified by the ACA as /US “poor” or “very poor” thereby having severe structural deficiencies, but which are located on network vaults that are otherwise structurally sound. A roof replacement involves installing a temporary false roof under the existing roof to protect the vault equipment, cables, and fuse panels, removing any asbestos secondary cable and Paper Insulated Lead primary cables, installing new primary and secondary cables, rebuilding the actual vault roof, and rebuilding the adjoining sidewalk.

Figure 2 below shows the locations of the proposed network vault roof rebuild jobs for 2012, 2013, and 2014.

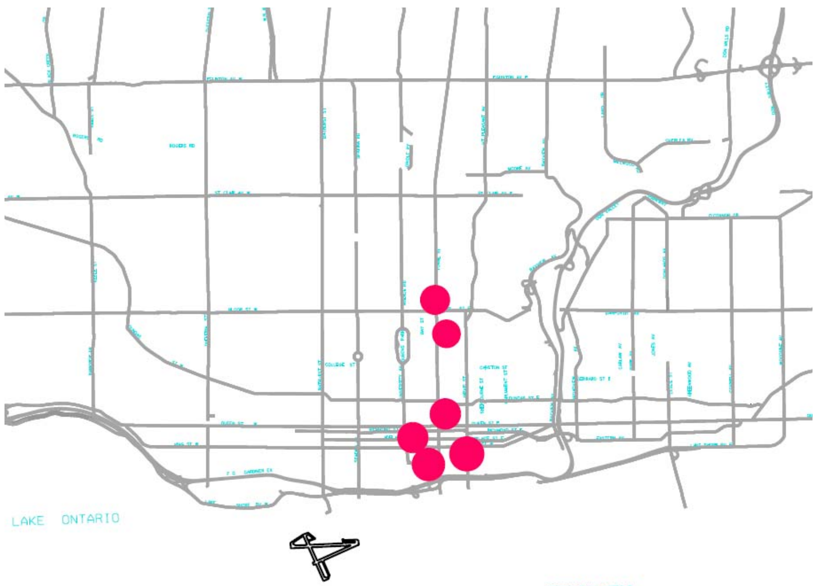


Figure 2: Locations of Network Vault Roof Rebuild Projects – 2012-2013

/US

The Table below shows all capital costs required for the rebuilding of the vault roof, by job. These costs include any associated primary and secondary cable replacement activities. Where possible, the vaults in the worst structural condition have been prioritized to be addressed first.

Table 2: Vault Roof Rebuild Capital Costs by Job

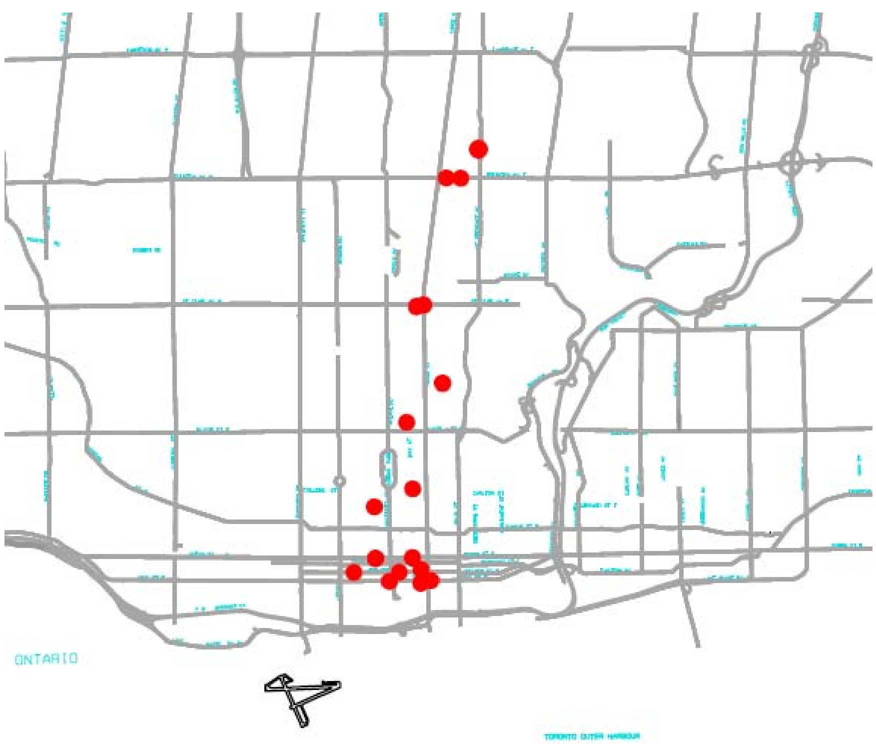
Job Number	Job Title	Job Year	Estimated Cost ($M)	
X12350	X12350 Loc#4510, Rebuild Vault Roof, 60 Gloucester St A50CS and A51CS	2012	$ 0.60	
X12652	X12652 Loc #4252 and 4308, Victoria and Shuter	2012	$0.35	
X12321	X12321 Loc#4931, Rebuild Vault Roof Front St. East and Jarvis St. A40GD	2013	$0.29	/US
X12208	X12208 - Loc#4485, 105 Adelaide St. West – Rebuild Vault Roof	2012	$0.41	/UF
X12327	X12327 Loc#4262, Rebuild Vault Yorkville St and Yonge St. High Level Network	2012	$0.29	
X11351	X11351 Rebuild Location #4174, Bay St/Front St. West	2013	$0.12	
~~X14386~~	~~X14386 6 Vault Roof Rebuild~~	~~2014~~	~~$1.69~~	
Total 2012-2013:			**$2.1**	/UF, /US

1.3. Project Segment Category 3: Network Vault Rebuild Program

THESL proposes to rebuild 17 network vaults which have been identified as having severe structural deficiencies requiring a complete reconstruction. These vaults cannot be decommissioned, but require more extensive repairs beyond a vault roof replacement. /US

A complete network vault rebuild first involves inspections and testing of equipment in adjacent vaults, as these adjacent vaults will operate under contingency and will be required to supply additional loads to the grid while the vault is being rebuilt. In addition, in order to maintain power to customers during a vault rebuild, THESL has to install additional secondary cables from the network grid or add additional temporary transformers in an adjacent vault. In some cases, the vaults will be rebuilt in the original location and existing auxiliary civil infrastructure will be maintained. In other cases, a new vault along with auxiliary civil infrastructure will be constructed in a new location, and the old vault will be decommissioned. In both cases network units (transformer and protectors) are installed, along with new primary and secondary cables, and the sidewalk surface is repaired.

Figure 3 below shows the locations of the network vault rebuild jobs for 2012-2014.



/US

Figure 3: Locations of Network Vault Rebuild Projects – 2012-2013

Table 3: Complete Vault Rebuild Capital Costs by Job 2012-2014

Job Number	Job Title	Job Year	Estimated Cost ($M)	
X12289	X12289 Vault Loc#4412, Build a new Vault Adelaide St. West/Grand Opera Lane	2013	$1.88	/US
X11533	X11533 Loc#4818, Rebuild Vault at Richmond/Bay	2012	$ 1.58	
X11362	X11362 -Loc# 4111 -Augusta and College	2012	$0.04	/UF
X12371	X12371 -Loc# 4431 -Blue Jays Way and King St. West	2013	$0.99	/US
X12830	X12830 Loc# 4432 vault rebuild job	2013	$1.29	/UF, /US
X11441	X11441 -Loc# 4512 -Eglinton Ave E./Holly St	2012	$0.11	/UF
X11487	X11487 Vault Rebuild, Loc#4312, King St. West/Yonge St.	2012	$1.62	
X12834	X12834 Vault Rebuild Job	2012	$2.28	/UF
X11234	X11234 Location # 4481, Eglinton Avenue East/ Holly St.	2013	$2.06	
X11440	X11440 Vault Relocate, Loc#4642 St. Clair Ave. W/Yonge St.	2013	$0.97	
X12345	X12345 Loc#4562, Vault Roof Rebuild, King St West/Jordan St. A54WR	2013	$0.72	
X11529	X11529-2 Vaults--Loc# 4790 East + West Vault Wellington St. W/ Emily St	2012	$2.78	/US
X12334	X12334 Loc#4299 Rebuild Vault Peter St/Adelaide St West A66WR	2013	$1.58	
X13323	X13323 Vault Rebuild - TD-21 York and King	2013	$0.29	
X13347	X13347 - Loc#4795, 77 Grenville St. Vault Rebuild	2013	$0.23	

ICM Project | Network Vaults and Roofs Segment

Job Number	Job Title	Job Year	Estimated Cost ($M)
X11504	X11504 -Loc# V4511 -Overlea Blvd/William Morgan Dr. (E. York)	2013	$0.86
~~X14385~~	~~X14385 9 units Vault Rebuild Job~~	~~2014~~	~~$13.77~~
Total 2012-2013:			**$ 19.3**

/UF, /US

III. NEED

1. Asset Condition

In addition to tracking the age of its assets, THESL has been analyzing asset life using its Asset Condition Assessment ("ACA"), developed by Kinectrics Inc. The ACA uses inspection data to determine the condition of an asset, and drive replacement of that asset at the optimal time. The ACA for the network vaults indicates vaults are classified as either "very poor" or "poor" and require major civil rebuilds. The "very poor" status indicates that the assets need to be replaced within one year, while the "poor" assets need to be replaced within three years. Generally, the replacement of a network vault may take up to 24 months to complete because of the complexity of rebuilding civil and electrical work in the downtown core. This long timeframe further supports the need for a repair program to commence in the very near term.

Currently, THESL has 1,064 network vaults in the downtown core supplying the network system. Figure 1 below shows the age distribution of all network vaults and comparison to the useful life of both the overall vault and the roof. While a vast majority of vaults have reached or are quickly approaching their expected end-of-life (60% will have reached end-of-life within ten years or less), a majority (81%) of network vault roofs are already well past the vault roof expected life of 25 years, and in need of a rebuild. In addition, the ACA suggests that some vaults have been aging at an accelerated pace and require repairs even though they have yet to reach their expected end-of-life of 60 years. Under this segment, 2.44% of the total vaults will /UF, /US
be addressed over 2012-2013. /US

IV PREFERRED ALTERNATIVE

Generally, there are four options to mitigate risks associated with a structurally failing vault:

(a) Decommission the Vault
(b) Rebuild the Vault Roof
(c) Rebuild the Entire Vault
(d) Eliminate the vault and install a new supply

The above options are considered for the vaults mentioned in this document that are structurally failing, and beyond the point of repair. As vaults are inspected each year, maintenance to the civil structure is typically performed as needed to fix small problems, and further extend the life of a vault. However, once a vault reaches the point where there are major structural failures and repairs can no longer address the problem, the above options are considered. /C

1. Option (a) – Decommission the Vault

In certain areas of the city, the low voltage, network secondary load is no longer desired when new high rise buildings are constructed and fed from a primary high-voltage arrangement. If the network secondary system no longer requires the capacity from a specific vault, this specific vault can be decommissioned. Decommissioned vaults are backfilled and the sidewalk is rebuilt to eliminate any safety risks. A typical cost to decommission a vault is approximately $50,000 and takes approximately one month to perform. Where possible, this is the most cost effective option to address structural and safety concerns with poor condition vaults.

2. Option (b) – Rebuild Vault Roof

A network vault roof rebuild is not as complex when compared to a total vault rebuild, but replacement or re-arrangement of the secondary and primary cables within the vault is still required. In most cases, this involves the removal of the existing damaged roof and the replacement with a new vault roof.

complexity, only those poor condition vaults which cannot be addressed via decommissioning or through a vault roof rebuild would need to be addressed through this option.

4. Option (d) – Eliminating Vault and Installing New Supply

This option would involve eliminating the network system and supplying existing customers directly from the street via an alternate type of supply. In urban areas and within the downtown core, there are often limited options and physical constraints associated with installing alternative types of supply while also maintaining the same high reliability to the customer. This option could cost upwards of $2M per customer to feed them with a new supply. Therefore, this is not considered a comparatively cost effective alternative to rebuilding the existing network civil infrastructure.

5. The Proposed Approach

THESL submits that given the current circumstances and the options available, the most reasonable and cost effective approach is to undertake the option most suitable to the circumstances and conditions affecting any particular poor condition vault. This would involve decommissioning a vault in circumstances where the capacity is no longer required, rebuilding only the vault roof where the remaining structure is in an acceptable condition, and rebuilding the entire vault only where absolutely necessary. Figure 14 below shows a breakdown of vaults identified by the ACA as being in a condition requiring repair by 2014. Based on THESL's analysis, three vaults in "poor" or "very poor" condition can be decommissioned, six of the vaults will only require a roof rebuild, and 17 will required a complete vault rebuild over 2012-2013. /US

ICM Project – Network Infrastructure and Equipment

Fibertop Network Units Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Fibertop Network Units Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $17.37 M to $9.13 M, a reduction of $8.24 M
- Revised number of jobs proposed for 2012/2013 to 61, with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system

ICM Project | Fibertop Network Units Segment

I EXECUTIVE SUMMARY

1. Project Description

The purpose of this segment is to mitigate the risk caused by existing Fibertop Network Units, by replacing these units with Submersible Network Units. The total cost of completing the segment in 2012 and 2013 is $9.13M, which would address a total of 61 Fibertop Network Units. The /UF, /US Fibertop Network Units are currently the oldest vintage network protectors used on THESL's /US system. The assets selected for replacement have been identified as possessing the highest probability of failure, based on inspection of all THESL units (See Section II, 1).

Network Units are comprised of both a network transformer and a network protector. At least two Network Units are connected together to form a grid. For reliability, customers connected to this grid receive supply from multiple sources. One purpose of the protector is to open and isolate the secondary side of the circuit from the supply side when a fault is detected. This action prevents reverse current flowing from the low-voltage secondary network grid, feeding the fault on the supply side of the circuit. When a failure occurs at the top of a protector, it is unable to open the circuit to stop the fault current flow, often resulting in a vault fire.

2. Why the Project is Needed Now

Fibertop Network Units feature a design in which the top of the secondary protector, where interconnections are made to the secondary grid, is extremely susceptible to moisture and contamination (See Section III, 1). The interconnections themselves are also spaced very closely together. This design increases the probability of inter-phase tracking occurring between these connections, potentially igniting a vault fire. Such fires often result in extensive damage and the de-energization of the entire network grid, causing a substantial outage for a large number of customers.

Vault fires caused by Fibertop units can also affect the safety of THESL crews, fire fighters, and the general public due to the fact that the assets are often located in high traffic pedestrian areas. Additional hazards may be introduced because these assets are often connected to the

II DETAILED PROJECT INFORMATION

1. Project Description

The purpose of this segment is to mitigate the risk caused by existing Fibertop Network Units in THESL's system, by replacing them with Submersible Network Units. The total cost of completing this segment is $9.13M, which would address 61 Fibertop Network Units in 2013/2014 (of a total of 240 in operation). The assets selected for replacement have been prioritized based on condition data retrieved during inspections. All units that are located below street level will be addressed as these are most susceptible to failure. **/UF, /US** **/UF, /US**

Network Units are comprised of both a network transformer and a network protector. At least two Network Units are connected together to form a grid. For reliability, customers connected to this grid receive supply from multiple sources. One purpose of the protector is to open and isolate the secondary side of the circuit from the supply side, should a fault be detected. This action prevents reverse current flowing from the low-voltage secondary network grid, feeding the fault on the supply side of the circuit. When a failure occurs at the top of a protector, it is unable to open the circuit to stop the fault current flow, often resulting in a vault fire.

The Fibertop Network Units are currently the oldest vintage network protectors used in THESL's network system. Because of their age and design, there is a much higher probability of a catastrophic failure than more modern designs used by THESL. In the past, these types of protectors have been directly linked to the cause of most network vault fires.

The work associated with Network Unit replacements is constrained by operational concerns. When performing Network Unit replacements, the supplying primary feeders must be taken offline and grounded and all connected loads are transferred to adjacent feeders and backup supplies. During this time the distribution grid is highly susceptible to any further outages that may cascade into a larger outage with a larger impact to customers. As a result, any work that requires feeders to be de-energized cannot be performed during the summer season, when loading is at its highest levels. Given these constraints, THESL is required to schedule Fibertop

ICM Project | Fibertop Network Units Segment

Network Units replacement over the course of the next three years. The segment cost schedule is shown below in Table-1. Complete job listings are shown in Appendix A.

Table-1: Project Budget Details

Project Title	Project Year	Estimated Cost ($M)	
Fibertop Changeouts	2012	$1.69	/UF, /US
Fibertop Changeouts	2013	$7.44	/UF, /US
~~Fibertop Changeouts~~	~~2014~~	~~$9.36~~	
	Total 2013/2014	**$9.13**	/UF, /US

Figure 1 below shows the locations of the Fibertop Network Units that are scheduled to be replaced. Most are located in downtown Toronto and parts of East York, particularly along the Yonge Street corridor where dense commercial load requires reliable distribution equipment.

In the recent past THESL has replaced 40 to 60 Network units annually due to corrosion. Leaking transformers and fibertops have made up a significant portion of these replacements (40% in 2009 and 60% in 2010). The proposed segment would be an increase to the existing replacement strategy as more units would be replaced annually.

be the ideal option, it is infeasible due to the potential contingency issues that would arise from executing all of this work at once.

In order to replace a Fibertop Network Unit, the primary feeder needs to be taken out of service and therefore the entire load fed by that feeder has to be shifted onto back-up supplies. The system would be under first contingency (a situation in which one feeder may be de-energized and customers would remain energized) and would be vulnerable to any system outage that may occur. It is THESL policy not to operate under first contingency during high load times such as the summer period, and usually not to operate under first contingency for any extended period of time. Given these limitations, a complete replacement program for the entire population of Fibertop Network Units over 2012-14 would not be possible.

Furthermore, highly skilled workers that are qualified to work on THESL plant are required to replace Fibertop Network Units; these worker's responsibilities encompass maintenance as well as most underground capital work. There are approximately 854 available crew days that must be divided amongst the entire underground capital program. Even if these resources were entirely dedicated to replace Fibertop Network Units, only approximately 131 units could be addressed annually.

Given these constraints, THESL proposes to replace only units that are deemed high risk of immediate failure and have a direct impact on the safety of the general public. These 187 Fibertop Network Units are all located below ground and subject to detrimental environmental conditions. THESL plans to replace 61 units in 2012 and 2013 for a total cost of $9.13M. /UF, /US

Units not selected for immediate replacement are those located above ground in building electrical rooms (as seen in Figure 12 below) where they are less susceptible to catastrophic failure. These remaining units will be addressed over the next ten-year period such that all Fibertop Network Units are eventually removed from the system. THESL's ongoing inspection and maintenance program will ensure that Fibertop Network Units are prioritized to mitigate the risk associated with these units.

Figure 10 – Walk-in Building Network Vault. (November 2011)

Economic Benefits of Preferred Solution

THESL has calculated the economic benefits of undertaking the Fibertop Network Unit replacement segment, by determining how much cost is avoided by executing this work immediately, as opposed to executing it in 2015 (for comparison purposes). The avoided costs used in this model include quantified risks, taking into account the assets' probability of failure, and multiplying this with various direct and indirect cost attributes associated with in-service asset failures, including the costs of customer interruptions, emergency repairs, and replacement.

Based on THESL's calculations, carrying out immediate work on this asset class will result in an avoided estimated risk cost of $37.4 million, which represents the avoided cost of executing the work immediately as opposed to deferring until 2015. This figure shows that there are **/UF, /C**

APPENDIX A

Detailed List of Projects

Estimate Number	Project Title	Year	Cost Estimate ($M)	
24911	4768SV_A11DX	2012	$0.13	
24053	4540_A66DX	2013	$0.14	/UF, /US
24053	4540_A61DX	2013	$0.14	
24096	4491_A62DX	2012	$0.13	
24086	4286_A53WR	2013	$0.12	/US
24092	N1034_A65H	2013	$0.12	
21583	4561_A55H	2012	$0.12	
24912	4768SV_A13DX	2012	$0.12	
22690	N1125_A67WR	2012	$0.13	
24913	N1125_A64WR	2012	$0.13	
23958	N1044_A65WR	2012	$0.13	
23960	4517_A91A	2013	$0.16	/US
23961	4517_A92A	2013	$0.16	
24098	4643_A23T	2012	$0.12	
24028	4794_A48CE	2013	$0.12	/US
24090	4499WV_A66H	2013	$0.14	
24146	4219EV_A54WR	2013	$0.15	
24094	4646_A23T	2012	$0.12	
24093	N1107_A53CS	2013	$0.15	/US
24146	4219WV_A51WR	2013	$0.15	
24520	4099_A66H	2013	$0.13	
24530	4131_A67WR	2013	$0.18	
24533	4131_A68WR	2013	$0.35	/UF, /US
24521	4160_A69WR	2013	$0.19	
24522	4336_A44GD	2013	$0.19	

ICM Project | **Fibertop Network Units Segment**

Estimate Number	Project Title	Year	Cost Estimate ($M)	
24523	4336_A48GD	2013	$0.14	
24518	4523_A20T	2013	$0.18	/UF, /US
24525	4553_A56H	2013	$0.19	
24526	4625_A50DX	2013	$0.13	/US
24534	4651_A53H	2013	$0.37	/UF, /US
24535	4651_A54H	2013	$0.18	
24519	4745_A55H	2013	$0.14	
24536	4897NV_A43CE	2013	$0.18	
24527	N1010_A41CE	2013	$0.13	
24528	N1102_A71CE	2013	$0.13	/US
24529	N1102_A72CE	2013	$0.13	
25078	4768NV_A12DX	2013	$0.14	
25078	N1029_A43GD	2013	$0.14	
25078	4378_A43CE	2013	$0.14	
25078	V4511_A16L	2013	$0.14	
25078	4186_A69WR	2012	$0.14	
25078	V4511_A17L	2013	$0.14	
25078	4529WV_A49GD	2013	$0.14	/US
25078	N1087_A67WR	2013	$0.14	
25078	V4733_A16L	2013	$0.14	
25078	4050_A83WR	2012	$0.14	
25078	4172_A67H	2012	$0.14	
25078	4205_A41GD	2013	$0.14	
25078	4710NV_A62CS	2013	$0.14	
25078	4340_A49GD	2013	$0.14	/US
25078	4653SV_A65CS	2013	$0.14	
25078	4521_A54WR	2013	$0.14	
25078	4478_A66WR	2013	$0.14	
25078	4776SV_A44CE	2013	$0.14	

ICM Project | Fibertop Network Units Segment

Estimate Number	Project Title	Year	Cost Estimate ($M)
25078	N1090_A37X	2013	$0.14
25078	4376_A63H	2013	$0.14
25078	N1011_A63WR	2013	$0.14
25078	N1011_A66WR	2013	$0.14
25078	4709_A39DN	2013	$0.14
25078	4057_A73CS	2012	$0.14
25078	N1045_A77CS	2013	$0.14
24950	4230WV_A40GD	2014	$0.14
24950	4769_A94B	2014	$0.14
24950	4666EV_A86A	2014	$0.14
24950	4666EV_A81A	2014	$0.14
24950	4666WV_A82A	2014	$0.14
24950	4666WV_A85A	2014	$0.14
24950	4518_A73A	2014	$0.14
24950	4917SV_A69WR	2014	$0.14
24950	4766NV_A62CS	2014	$0.14
24950	4766SV_A64CS	2014	$0.14
24950	4543EV_A8GL	2014	$0.14
24950	4238_A47GD	2014	$0.14
24950	4238_A40GD	2014	$0.14
24950	4340_A46GD	2014	$0.14
24950	4637_A57H	2014	$0.14
24950	4637_A55H	2014	$0.14
24950	4885_A11E	2014	$0.14
24950	4885_A12E	2014	$0.14
24950	4407_A47H	2014	$0.14
24950	4770_A56H	2014	$0.14
24950	4653NV_A63CS	2014	$0.14
24950	4026_A82CS	2014	$0.14

/US

/US

ICM Project | Fibertop Network Units Segment

Estimate Number	Project Title	Year	Cost Estimate ($M)
~~24950~~	~~4654EV_A63CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~N1109_A65CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~N1115_A91CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~4723_A71CE~~	~~2014~~	~~$0.14~~
~~24950~~	~~4658_A61CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~4658_A60CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~4387_A55WR~~	~~2014~~	~~$0.14~~
~~24950~~	~~4509_A67A~~	~~2014~~	~~$0.14~~
~~24950~~	~~4564_A18T~~	~~2014~~	~~$0.14~~
~~24950~~	~~4654WV_A65CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~4696NV_A62CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~4696SV_A63CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~4774_A63H~~	~~2014~~	~~$0.14~~
~~24950~~	~~4187_A11E~~	~~2014~~	~~$0.14~~
~~24950~~	~~4187_A12E~~	~~2014~~	~~$0.14~~
~~24950~~	~~V4476_A6L~~	~~2014~~	~~$0.14~~
~~24950~~	~~V4476_A17L~~	~~2014~~	~~$0.14~~
~~24950~~	~~N1114_A65WR~~	~~2014~~	~~$0.14~~
~~24950~~	~~N1114_A69WR~~	~~2014~~	~~$0.14~~
~~24950~~	~~4542_A4K~~	~~2014~~	~~$0.14~~
~~24950~~	~~4022EV_A57WR~~	~~2014~~	~~$0.14~~
~~24950~~	~~4244_A6K~~	~~2014~~	~~$0.14~~
~~24950~~	~~4031_A64WR~~	~~2014~~	~~$0.14~~
~~24950~~	~~N1128_A67WR~~	~~2014~~	~~$0.14~~
~~24950~~	~~4562_A58WR~~	~~2014~~	~~$0.14~~
~~24950~~	~~_A67WR~~	~~2014~~	~~$0.14~~
~~24950~~	~~4826_A3K~~	~~2014~~	~~$0.14~~
~~24950~~	~~4465_A90B~~	~~2014~~	~~$0.14~~
~~24950~~	~~4733_A16L~~	~~2014~~	~~$0.14~~

ICM Project | Fibertop Network Units Segment

Estimate Number	Project Title	Year	Cost Estimate ($M)
~~24950~~	~~4214_A54DX~~	~~2014~~	~~$0.14~~
~~24950~~	~~N1048_A73CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~N1048_A77CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~N1196_A36MN~~	~~2014~~	~~$0.14~~
~~24950~~	~~N1196_A38MN~~	~~2014~~	~~$0.14~~
~~24950~~	~~4768-NV_A12DX~~	~~2014~~	~~$0.14~~
~~24950~~	~~4648_A90B~~	~~2014~~	~~$0.14~~
~~24950~~	~~4648_A91B~~	~~2014~~	~~$0.14~~
~~24950~~	~~4481WV_A51DX~~	~~2014~~	~~$0.14~~
~~24950~~	~~4154_A66DX~~	~~2014~~	~~$0.14~~
~~24950~~	~~N5003_A67H~~	~~2014~~	~~$0.14~~
~~24950~~	~~N5003_A65H~~	~~2014~~	~~$0.14~~
~~24950~~	~~4539_A55CS~~	~~2014~~	~~$0.14~~
~~24950~~	~~4100_A46CE~~	~~2014~~	~~$0.14~~

/US

/US

Table 1: Summary of values used in the determination of Avoided Estimated Risk Cost

Business Case Element	Cost (in Millions)	
Present Value of Project Net Cost in 2015 (PV($\text{PROJECT}_{NET\_COST}$(2015))	$37.7	/C
Project Net Cost in 2012 ($\text{PROJECT}_{NET\_COST}$(2012))	$0.3	
Avoided Estimated Risk Cost	**$37.4**	/C

When this avoided cost is calculated as a positive value, it means that estimated risk costs for the job assets in 2015 will exceed the estimated risks that exist today. By performing the work immediately as opposed to waiting until 2015, we can eliminate these estimated risks. Therefore, these avoided costs represent the benefits of job execution.

Toronto Hydro-Electric System Limited
EB-2012-0064
Tab 4
Schedule B11
Filed: 2012 May 10
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(29 pages)

ICM Project – Network Infrastructure and Equipment

Automatic Transfer Switches (ATS) and Reverse Power Breakers (RPB) Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | ATS and RPB Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $6.57 M to $5.27 M, a reduction of $1.3 M
- Revised number of jobs proposed for 2012/2013 to 18 (14 ATS and 4 RPB), with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Corrected units used to measure outage costs

I EXECUTIVE SUMMARY

1. Project Description

Automatic Transfer Switches (ATS) automatically switch a customer to a designated standby feeder in the event the normal primary feeder fails. Reverse Power Breakers (RPB) automatically open primary feeder supplies to customers in the event of feeder outages to prevent dangerous backfeed conditions. ATS and RPB assets are generally used to supply medium size customers that require a reliable supply, such as schools, supermarkets, seniors' homes, and other mid- sized buildings (See Section II, 1).

Both ATS and RPB assets have degraded rapidly in 2010 and 2011. THESL's Asset Condition Assessment (ACA) results indicate that approximately 30 ATS assets will need to be replaced over the next three years (See Section III, 1 and Appendix 1). In addition, based on physical inspection data, a further six RPB assets have been identified as requiring immediate replacement. The proposed ATS and RPB Segment will replace these assets with Stand Alone Network Protectors or Standard Network Equipment at a total cost of $3.25M over 2012 and /UF, /US 2013.

Table 1: ATS and RPB Segment Capital Cost

Description	**Year**	**Design Estimate ($M)**	**Estimated Total Cost ($M)**	
Replace 10 ATS Locations	2013	$2.54	$2.54	/UF, /US
~~Replace 10 ATS Locations~~	~~2014~~	~~$2.52~~		
Replace 2 RPB Locations	2013	$0.71	$0.71	
~~Replace 2 RPB Locations~~	~~2014~~	~~$0.71~~		
Total 2012-2013:			**$3.25**	/UF

II DETAILED PROJECT INFORMATION

1. Project Details

Automatic Transfer Switches (ATS) are designed to automatically switch from the normal supply to the Standby supply in the case of an interruption on the normal supply feed. Reverse Power Breaker (RPB) assets normally supply customers from two primary supplies, and automatically open one of these supplies in the event of feeder outages in order to prevent dangerous backfeed conditions. ATS and RPB assets are generally used to supply medium size customers that require a reliable supply, such as schools, supermarkets, seniors' homes, and other mid-sized buildings.

The purpose of this segment is to replace end-of-life, very poor condition ATSs and RPBs. In 2012 and 2013 there are 10 ATS locations and ~~2~~ RPB locations that have been identified as **/US** requiring immediate equipment replacement. THESL's proposed ATS and RPB Segment will replace these assets with either new Stand-Alone Network Protectors or Standard Network Equipment at a total cost of $3.25M for 2012 and 2013, as summarized in Table 2 and Table 3 **/UF, /US** below.

Each asset location will be assessed on a case by case basis to determine the best replacement solution. In cases where the transformer is salvageable it is reused and a Stand Alone Network Protector (SANP) is installed to replace the obsolete and failing equipment at an approximate average cost of $145,000. If the transformer also requires replacement then the equipment will be replaced with standard network equipment, at an approximate average cost of $325,000.

Given workforce constraints, THESL proposes to replace 10 ATS units and 2 RPB units in 2012 – 2013. Jobs have been prioritized based on addressing the very poor condition units first, **/US** followed by units that are currently in poor condition, but expected to degrade to very poor condition at the time of replacement.

Table 2: ATS Replacement Jobs

Job Estimate Number	Job Title	Job Year	Cost Estimate ($M)	
19381	D9012 – Near 654 Castlefield, Toronto	2013	$0.32	
23252	D3031 - 2108 Queen St East, Toronto	2013	$0.21	/US
24544	4862 - 77 Ryerson Ave, Toronto	2013	$0.14	
24546	4023 - Near 142 Pears Ave, Toronto	2013	$0.36	/UF, /US
24548	D9010 - 205 Richmond St W, Toronto	2013	$0.14	
24549	D3022 – 75 Dowling Ave, Toronto	2013	$0.14	
24550	4064 – 295 College St, Toronto	2013	$0.37	
24634	D3002 – 70 Elmsthorpe, Toronto	2013	$0.14	
24634	D9013 - 2727 Dundas W, Toronto	2013	$0.36	
24634	4063 - 645 Adelaide St W, Toronto	2013	$0.36	/US
~~24952~~	~~4027 - 14 Spadina Road~~	~~2013~~	~~$0.32~~	
~~24952~~	~~4046 - Near 130 EGLINTON, Toronto~~	~~2013~~	~~$0.32~~	
~~24952~~	~~4129 - Heath Street East~~	~~2013~~	~~$0.32~~	
~~24952~~	~~4158 - Duncan Ave~~	~~2013~~	~~$0.32~~	
~~24953~~	~~4817 - ADJ. to 330 GERRARD~~	~~2014~~	~~$0.36~~	
~~24953~~	~~D9007 – 658 to 668 Danforth Ave, Toronto~~	~~2014~~	~~$0.14~~	
~~24953~~	~~D3014 – 2001 Bloor St W, Toronto~~	~~2014~~	~~$0.14~~	
~~24953~~	~~4157 – 175 Elm, Toronto~~	~~2014~~	~~$0.36~~	
~~24953~~	~~D3041 – 1141 Bloor St W, Toronto~~	~~2014~~	~~$0.14~~	/US
~~24953~~	~~D3003 – 75 Eglinton Ave W, Toronto~~	~~2014~~	~~$0.14~~	
~~24953~~	~~4118 – 197 Wellesley St E, Toronto~~	~~2014~~	~~$0.36~~	
~~24953~~	~~4763 – 700 Ontario St, Toronto~~	~~2014~~	~~$0.14~~	
~~24953~~	~~4121 – 36 Earl, Toronto~~	~~2014~~	~~$0.36~~	
~~24953~~	~~4861 – 165 Grange Ave, Toronto~~	~~2014~~	~~$0.36~~	

/C

1 **Table 3: RPB Replacement Jobs**

Job Estimate Number	Job Title	Job Year	Cost Estimate ($M)
24905	4515 - 25 Lascelles Blvd, Toronto	2013	$0.35
24905	D3039 – 186 Cowan, Toronto	2013	$0.35
~~24955~~	~~4175 – 160 John St, Toronto~~	~~2014~~	~~$0.35~~
~~24955~~	~~4669 – 200 Balliol, Toronto~~	~~2014~~	~~$0.35~~

/US

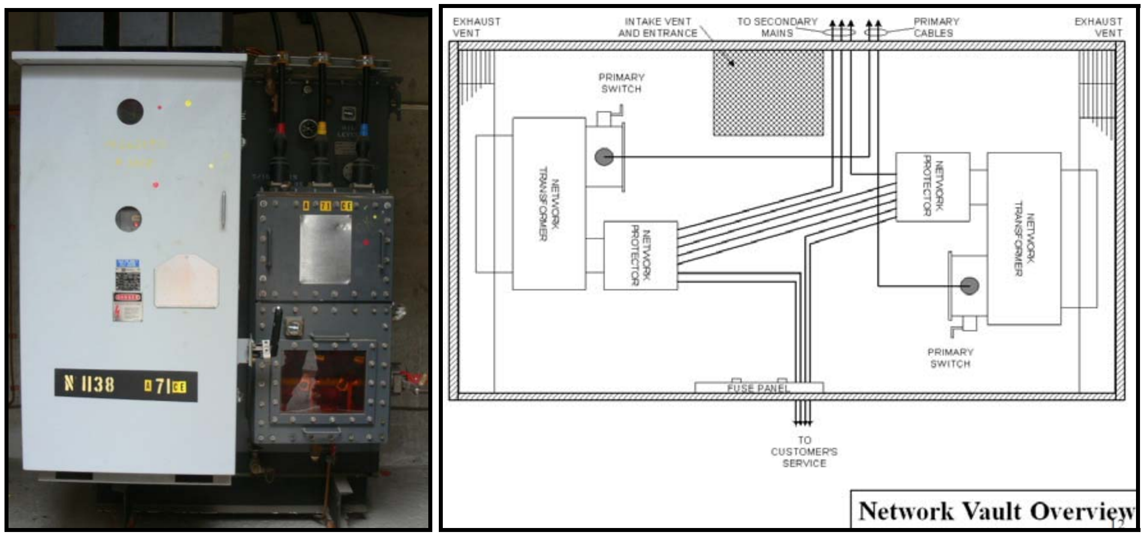


Figure 15: Network vault (submersible or non-submersible equipment)

Both options (f) and (g) are expected to provide superior reliability due to the interconnection of multiple transformers and supply feeders. The main advantage of installing either SANPs or network equipment is the ability to utilize available civil infrastructure to supply THESL's customers with a highly reliable system that normally would be cost prohibitive due the need to construct additional civil infrastructure. Replacing the obsolete ATS and RPB equipment is expected to lead to higher reliability for customers and a safer environment for THESL employees and the general public. Installing Option (f), and Option (g) where required, is the preferred alternative because this approach provides the best combination of reliability, safety and cost.

2. Economic Benefits of the Preferred Alternative

THESL has calculated the economic benefits of undertaking this segment, by taking into account outage costs and the costs of emergency repairs and replacement. If no proactive replacements were to occur and equipment was run to failure, then the resulting NPV of this strategy would be \$12.67M. This accounts for the replacement cost and an average outage cost for each outage of \$0.06M per failure (with outage cost based on \$30 per KVA and \$15 per KVA-hour /C
interrupted). The alternative proposed replacement strategy would yield an NPV of \$10.41M, resulting in a savings of \$2.26M.

ICM Project – Station Infrastructure and Equipment

Stations Power Transformers Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Station Power Transformers Segment

SUMMARY OF CHANGES IN THE UPDATE

- Revised number of jobs proposed for 2012/2013 to 10, with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Rescheduled two 2012 jobs to 2013 to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Corrected numerical and typographical errors

I EXECUTIVE SUMMARY

1. Project Description

This segment consists of replacing 10 power transformers at ten Municipal Stations (MS) over /UF, US the period 2012 through 2013. The transformers to be replaced and their cost of replacement /US are shown in Table 1. Total cost for this segment is approximately $3.85 M. These transformers /UF, US range in size from 3 MVA to 15 MVA and are used to step down voltage from primary voltages of 27.6 kV or 13.8 kV to secondary voltages of 13.8 kV or 4.16 kV.

Table 1: Job Cost Estimates

Estimate Number	Job Title	Project Year	Cost Estimate ($M)
18419	S12062 Ellesmere White abbey MS Replace Station Transformer TR1	2012	$0.36
20647	S12376 Thistletown MS Replace Station Transformer TR1	2012	$0.29
20675	S12389 Scarborough Golf Club Rd MS: Replace Station Transformer TR1.	2013	$0.35
20685	S12391 Thistletown MS replace Station Transformer TR2 - 3/4 MVA.	2013	$0.29
21573	S13127 Kingston Morningside MS: Replace Station Transformer TR1	2013	$0.33
21651	S13144 Edenbridge MS Replace Station Transformer TR1	2013	$0.37
21722	S13154 High Level MS Replace Station Transformer TR1	2013	$0.46
21723	S13155 High Level MS Replace Station Transformer TR2	2013	$0.54
21802	S13168 Blaketon MS Replace Station Transformer TR1	2013	$0.47

/US

Estimate Number	Job Title	Project Year	Cost Estimate ($M)
21852	S13170 Albion MS Replace Station Transformer TR2	2013	$0.39
~~22876~~	~~S14091 Norseman MS Replace Station Transformer TR1~~	~~2014~~	~~$0.45~~
~~22877~~	~~S14092 Underwriter Crouse MS Station Replace Transformer TR1~~	~~2014~~	~~$0.43~~
Total 2012-2013:			**$3.85**

/UF, US

2. Why the Project is Needed Now

In terms of both financial and operational risks, power transformers are the most important assets employed in municipal stations. All customers supplied through municipal stations will have their power pass through a station power transformer. Each municipal station serves somewhere between a few hundred and a few thousand customers.

These jobs selected for this segment were chosen from 276 in-service station transformers based on their age (See Table 2) transformer leakage, or their condition assessment (Refer to Appendix 5). A significant proportion of power transformers on THESL's system were installed in the 1950s, 1960s or early 1970s. Based on the Kinetrics Report, the typical end of useful life for a station power transformer is 43 years. The 10 power transformers to be replaced in 2012/2013 are between 36 and 84 years old; only two are less than 43 years old.

Due to its low cost, high dielectric strength, excellent heat-transfer characteristics, and ability to recover after dielectric overstress, mineral oil is the most widely used insulating material in transformers. The presence of increasing levels of dissolved gases in transformer oil is indicative of various faults (See Appendices 1, 2 and 3). For a majority of transformers, end of life is expected to be indicated by the failure of pressboard and paper insulation. While the insulating oil can be treated by oil reclamation or changed when there is presence of water or sludge, it is not practical to change the paper and pressboard insulation. Although failure rates have been

3. Why This is the Preferred Alternative

THESL considered three options to mitigate the potential reliability and safety risks associated with the deteriorated state of these 10 station power transformers: maintaining the status quo, /US eliminating the need for the station transformer via area voltage conversions in these selected stations or replacing the station transformer (See Section IV).

The status quo option presents safety, reliability and performance risks (See Section IV, 1). Catastrophic failure of transformers may result in damage to other transformers and other station equipment, and if staff are present, potential injury to personnel. In addition to the risk of failure, when a station transformer's health decreases significantly, THESL transfers load to other transformers. This in turn increases their loading and decreases the capacity available to be used to deal with system contingencies, which impacts reliability. Performance risk also increases over time due to the deterioration of both the insulating oil and the paper insulation as moisture levels increase (See Section IV).

Voltage conversion is not typically undertaken based on the condition of station equipment alone. The cost of the distribution system served by the station usually exceeds the cost of the station. Thus it is not economic to advance the replacement of distribution systems due to station asset issues.

Carrying out immediate work on this asset class will result in the avoided estimated risk cost of approximately $78.7 million (Refer to Appendix 4), as opposed to executing this work in 2015. /C Therefore, there are distinct economic benefits to executing this work immediately.

The most cost-effective option is replacement of obsolete equipment before failure. Options have been examined to replace the units and the benefits of doing so in terms of reliability have been calculated. The result shows that the most cost-effective option is to replace the station power transformers, compared to the option of eliminating the need of station power transformers by conversion of the area to higher voltage.

II DETAILED INFORMATION

1. Objectives

The objective of the station transformer replacement program is to replace those Power Transformers that are beyond their end of useful life, or have environmental leakage, and where the risk of transformer failure is high due to deteriorating insulating conditions represented by the Health Index shown in Appendix 5. In addition to aging, transformers with DGA oil tests indicating poor insulation condition will be prioritized for replacement (See Appendices 1, 2 and 3). The objectives for each job are described in Table 3.

Table 3: Objectives for each Transformer Replacement Job

Job	Objectives	Planned Year
Ellesmere White abbey MS	Replace the existing 5/6.7 MVA, 27.6/4.16kV station transformer, TR1, with a new 27.6kV/4.16kV, 5/6.7MVA station transformer at Ellesmere White Abbey MS station.	2012
Thistletown MS	Replace the existing 3/4MVA, 27.6/4.16kV station transformer, TR1, with a new 3/4 MVA, 27.6/4.16kV station transformer at Thistletown MS station.	2012
Thistletown MS	Replace the existing 3/4MVA, 27.6/4.16kV station transformer, TR2, with a new 3/4 MVA, 27.6/4.16kV station transformer at Thistletown MS station.	2013
Scarborough Golf Club Rd MS	Replace the existing station transformer, TR1, with a new 5MVA, 27.6/4.16kV station transformer at Scarborough Gold Club Rd MS station.	2013

/US

ICM Project | Station Power Transformers Segment

Job	Objectives	Planned Year
Kingston Morningside MS	Replace the existing 5/6.7 MVA, 27.6/4.16kV station transformer, TR1, with a new 27.6kV/4.16kV, 5/6.7MVA station transformer at Kingston Morningside MS station.	2013
Edenbridge MS	Replace the existing 5/6.7 MVA, 27.6/4.16kV station transformer, TR1, with a new 27.6kV/4.16kV, 5/6.7MVA station transformer at Edenbridge MS station.	2013
High Level MS	Replace the existing 9/12 MVA, 13.8/4.16kV station transformer, TR1, with a new 9/12 MVA, 13.8/4.16kV station transformer at High Level MS station.	2013
High Level MS	Replace the existing 12/15 MVA, 13.8/4.16kV station transformer, TR2, with a new 12/15 MVA, 13.8/4.16kV station transformer at High Level MS station.	2013
Blaketon MS	Replace the existing 7.5/10 MVA, 27.6/13.8kV station transformer, TR1, with a new 7.5/10 MVA, 27.6/13.8kV station transformer at Blaketon MS station.	2013
Albion MS	Replace the existing 5/6.7 MVA, 27.6/4.16kV station transformer, TR2, with a new 5/6.7MVA, 27.6kV/4.16kV station transformer at Albion MS station.	2013
~~Norseman MS~~	~~Replace the existing 5/6.7 MVA, 27.6/4.16kV station transformer, TR1, with a new 5/6.7MVA, 27.6kV/4.16kV station transformer at Norseman MS station.~~	~~2014~~

Job	Objectives	Planned Year
~~Underwriter Crouse MS~~	~~Replace the existing 5 MVA, 27.6/4.16kV station transformer, TR1, with a new 5/6.7MVA, 27.6kV/4.16kV, station transformer at Underwriter Crouse MS station.~~	~~2014~~

2. Scope of Work

The scope of work for all of the transformer replacement jobs listed above consists of the following tasks:

(a) Procure and purchase a new station transformer appropriately sized

(b) Removal of the old TR1/TR2 transformer

(c) Deliver and install the new station transformer to replace the existing TR1/TR2 transformer

(d) Perform testing, commissioning and energization of the new transformer

3. Map and Locations

The stations are located across Toronto as shown in Figure 3 below.

1 **Table 4: Station name with their respective address**

Reference Number	Station Name - Transformer	Address
1	Ellesmere White Abbey MS – TR1	159 Ellesmere Rd, Toronto
2	Thistletown MS – TR1 and TR2	55 Thistle Down Blvd, Toronto
3	Scarborough Gold Club Rd MS – TR1	1000 Scarborough Golf Club Rd, Toronto
4	Kingston Morningside MS – TR1	4446 Kingston Rd, Toronto
5	Edenbridge MS – TR1	294 Scarlett Rd, Toronto
6	High Level MS – TR1 and TR2	292-296 MacPherson Ave, Toronto
7	Blaketon MS – TR1	395 The East Mall, Toronto
8	Albion MS – TR2	2 Rampart Rd, Toronto
~~9~~	~~Norseman MS – TR1~~	~~1066 Islington Ave, Toronto~~
~~10~~	~~Underwriter Crouse MS – TR1~~	~~20 Underwriters Rd, Toronto~~

III NEED

Each of the 10 station power transformers to be replaced is operating at or beyond its useful /US
life, exhibits transformer leakage, exhibits deteriorated trending of insulation conditions, or
exhibits combinations of these factors. The following sections provide the DGA results for the 8 /US
stations.

1. Ellesmere White Abbey MS

Transformer: TR1
Age: 50
Transformer Leakage: Yes
DGA Results: Condition 1 (Refer to Appendix 2)

Justification:

(a) The transformer was manufactured in 1962 and has reached the end of its operating life.

(b) Risk of transformer oil leakage poses a potential environmental risk and high consequence costs.

Justification:

(a) The transformer was manufactured in 1976 and has reached the end of its operating life.

(b) DGA results indicate degradation of insulation paper and dielectric strength, indicating an increased risk of failure with its associated impacts.

(c) The Dissolved Gas report indicates a trend of continuous degradation of insulation paper above normal acceptable level. The high CO2 and CO value indicates internal arching and shows that the paper insulation is becoming brittle and less resistant to electrical stress, which could lead to a transformer failure.

(d) The Dissolved Gas report indicates that the dissolved gas levels are elevated with Ethylene at 144 PPM. The elevated gas levels indicate overheating of the oil, likely the result of an overheating conductor, which could lead to a transformer failure.

~~**11. Norseman MS**~~

~~**Transformer**: TR1~~

~~**Age:** 61~~

~~**Transformer Leakage:** No~~

~~**DGA Results**: Condition 1 (Refer to Appendix 2)~~

Table 13: DGA result for TR1 transformer at Norseman MS

Dissolved Gas Analysis			
Test Type	**Test Results**		**Result Analysis**
	02/06/2011	15/05/2009	
Oil Temperature (°C)	35	--	1. Acid number is well within the sludge forming range 2. Overall equipment condition code: 1
Hydrogen (H_2) (PPM)	5	8	
Methane (CH_4) (PPM)	2	2	
Ethane (C_2H_6) (PPM)	--	1	
Ethylene (C_2H_4) (PPM)	11	12	
Acetylene (C_2H_2) (PPM)	0	0	
Carbon Monoxide (CO) (PPM)	158	181	
Carbon Dioxide (CO_2) (PPM)	1072	1535	
Nitrogen (N_2) (PPM)	55939	75246	
Oxygen (O_2) (PPM)	25451	35635	
Total Dissolved Gas (PPM)	82638	112620	
Total Dissolved Combustible Gas (PPM)	176	204	
Moisture in Oil (PPM)	18	16	
Acid Number (mg KOH/g)	**0.101**	0.073	
Dielectric Breakdown (kV)	28	45	
Power Factor at 25°C (%)	0.048	0.102	

Duval Triangle Analysis:

Based on the DGA tests recorded in our Ellipse system, analysis using the Duval Triangle method (Refer to Appendix 3) shows a declining condition trend for the transformer (TR1) at Norseman MS (Refer to Appendix 1I). The condition of the transformer has been declining in the T3 region which exhibits thermal faults at temperature greater than 700C.

Justification:

(a) The transformer was made in 1951 and has reached the end of its operating life.

(b) DGA results indicate degradation of insulation paper, indicating an increased risk of failure with its associated impacts.

(c) High acid content of 0.101 mg KOH/g which is 1% higher than the limit of 0.1mg KOH/g. Elevated acid number indicates oil oxidation is advanced, enough so to have produced some sludge deposits within the transformer. Higher acidity has a damaging effect on the paper insulation.

12. Underwriter Crouse MS

Transformer: TR1

Age: 53

Transformer Leakage: No

DGA Results: Condition 1 (Refer to Appendix 2)

Table 14: DGA result for TR1 transformer at Underwriter Crouse MS

Dissolved Gas Analysis			
Test Type	**Test Results**		**Result Analysis**
	07/12/2010	12/04/2008	
Oil Temperature (°C)	47	20	1. Dielectric breakdown exceeds limit for in-service oil (26kV) 2. Overall equipment condition code: 1
Hydrogen (H2) (PPM)	14	11	
Methane (CH4) (PPM)	2	2	
Ethane (C2H6) (PPM)	0	1	
Ethylene (C2H4) (PPM)	5	4	
Acetylene (C2H2) (PPM)	0	0	
Carbon Monoxide (CO) (PPM)	111	156	
Carbon Dioxide (CO2) (PPM)	2278	1261	
Nitrogen (N2) (PPM)	59201	72163	
Oxygen (O2) (PPM)	33837	36218	
Total Dissolved Gas (PPM)	95448	109816	
Total Dissolved Combustible Gas (PPM)	132	174	
Moisture in Oil (PPM)	34	11	
Acid Number (mg KOH/g)	0.020	0.027	
Dielectric Breakdown (kV)	**23**	46	
Power Factor at 25°C (%)	0.108	0.077	

Duval Triangle Analysis:

Based on the DGA tests recorded in our Ellipse system, analysis using the Duval Triangle method (Refer to Appendix 3) shows a declining condition trend for the transformer (TR1) at Underwriter Course MS (Refer to Appendix 1J). The condition of the transformer has been declining in the T3 region which exhibits thermal faults at temperature greater than 700C.

~~**Justification:**~~

~~(a) The transformer was made in 1959 and has reached the end of its operating life.~~

~~(b) DGA results indicate degradation of dielectric strength, indicating an increased risk of failure with its associated impacts.~~

~~(c) The Dissolved Gas report shows high moisture content has degraded the dielectric strength of the insulating oil to an operating level outside of limits and if left in service, this unit is at risk of failure.~~

cost of the distribution system served usually exceeds the cost of the station, it is not economic to advance the replacement of distribution systems due to station asset issues.

4. Replacement

Replacement of the station power transformer is feasible and much more economical. Also, it reduces the risk to other stations whose customers are served by these transformers under contingency. Table 15 shows the benefit cost evaluation of this option.

5. Avoided Risk Cost of the Selected Option

The effectiveness of the Power Transformers replacement segment can be highlighted by determining how much cost is avoided by executing this work immediately as opposed to executing in 2015. These avoided costs include quantified risks, taking into account the assets' probability of failures, and multiplying this with various direct and indirect cost attributes associated with in-service asset failures, including the cost of customer interruptions, emergency repairs and replacement.

Carrying out immediate work on this asset class will result in the avoided estimated risk cost of approximately $78.7 million (Refer to Appendix 4), as opposed to executing this work in 2015. /C
Therefore, there are distinct economic benefits to executing this work immediately. Further details with regards to the methodologies applied within business case are provided within Appendix 4.

6. Preferred Alternative

Based on comparison of the alternatives, replacement of the existing station power transformer is prudent since it is the most cost-effective option and provided a benefit/cost ratio greater than unity.

1 ~~**Appendix 1I**~~

/US

~~Appendix 1J~~

/US

estimated risks. Therefore, these avoided costs represent the benefits of the in-kind project execution.

The formula for this calculation is detailed below:

Avoided Estimated Cost = $PV(PROJECT_{NET\_COST}(2015)) – PROJECT_{NET\_COST}(2012)$

Where:

- $PROJECT_{NET\_COST}(2012)$: Represents the total project net costs in 2012.
- $PV(PROJECT_{NET\_COST}(2015))$: Represents the present value of total project net costs in 2015.

Within the Power Transformers segment, individual optimal intervention timing results were calculated for each of the 12 power transformer assets, based upon the processes identified in Section 1.1. Each of these assets may possess an individual sacrificed life and an excess risk value, which are aggregated to produce the overall Project Net Cost year by year.

As noted in the formula above, this Project Net Cost was then calculated for all individual Power Transformer assets within this project at years' 2012 and 2015 respectively. Project Net Costs quantified in 2015 were brought back to a present value and the difference between this value and the Project Net Cost quantified in 2012 was taken as the Avoided Estimated Risk Cost. The final results are provided in Table 1 below:

Table 1: Summary of values used in the determination of Avoided Estimated Risk Cost

Business Case Element	Cost (in Millions)
Present Value of Project Net Cost in 2015 ($PV(PROJECT_{NET\_COST}(2015))$)	$ 78.857
Project Net Cost in 2012 ($PROJECT_{NET\_COST}(2012)$)	$ 0.144
Avoided Estimated Risk Cost = ($PV(PROJECT_{NET\_COST}(2015)) – PROJECT_{NET\_COST}(2012)$)	**$78.713**

/C

ICM Project – Station Infrastructure and Equipment

Municipal Substation Switchgear Replacement Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Municipal Substation Switchgear Replacement Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $12.95 M to $11.40 M, a reduction of $1.55 M
- Revised number of jobs proposed for 2012/2013 to 5, with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Corrected numerical and typographical errors

ICM Project | Municipal Substation Switchgear Replacement Segment

I EXECUTIVE SUMMARY

1. Project Description

Many Municipal Substations (MS) located outside of downtown Toronto employ switchgear that are past the end of their useful lives and rely on obsolete technology such as non arc-resistant designs with oil circuit breakers and mechanical relays. This type of aged equipment can be kept in service for a time by increased maintenance and harvesting parts from spares. However, as the asset condition continues to deteriorate and the risk of failure increases, maintaining this switchgear in service is unsustainable. In addition, the circuit breakers in some of these substations have auto re-closure problems (i.e., when a circuit breaker is taken out of service for maintenance and put back, it auto re-closes instead of locking, even though the circuit breaker is on open position and the auto re-closure is blocked by control authority), which create potential safety risks (See Section II).

The MS Switchgear to be replaced under this segment in 2012 and 2013 ~~and 2014~~ include Leslie MS, Lawrence Golf MS, Brian Elinor MS, York MS, Brimley Bernadine MS, Porterfield MS, Greencedar Lawrence MS, Neilson Drive MS, Midland Lawrence MS, ~~Pharmacy CPR MS, Islington MS~~ and Thornton MS. The switchgears in all but one of these stations are more than 50 years /US
old. The total cost of this segment is approximately $11.40 million as shown in Table 1.

/UF, US

The switchgear selected for replacement in this segment were chosen from 181 switchgear /US
across 170 Municipal Substations based upon advanced equipment age, equipment obsolescence employing obsolete oil circuit breakers, lack of arc-resistant design and safety related equipment issues. Based on available resources, jobs are scheduled over ~~three~~ two /US
years to allow engineering, procurement, construction and commissioning and are closely coordinated with feeder transfers to minimize customer outages and limit single supply contingency.

Table 1: Job Cost Estimate

Job Estimate Number	Job Title	Year Installed	Job Year	Cost Estimate ($M)	
20427	S12320 Leslie MS Switchgear Replacement	1978	2013	4.08	/US
20427	S12320 Leslie MS Switchgear Replacement (Continuation	1978	2013	1.04	
20560	S11032 Lawrence Golf Switchgear Replacement	1957	2012	0.82	
20561	S11031 Brian Elinor MS Replace switchgear	1954	2012	0.83	
22620	S11642 York MS Replace Switchgear	1954	2012	1.39	
20544	S11040 Brimley Bernadine MS Replace Switchgear	1959	2012	1.09	
20750	S12416 Porterfield MS Replace Switchgear	1956	2013	1.23	/US
21338	S13090 Greencedar Lawrence MS Replace Switchgear	1960	2013	0.22	/UF
21581	S13126 Neilson Dr MS Replace Switchgear	1954	2013	0.30	/UF
21339	S14044 Midland Lawrence MS Replace switchgear	1960	2013	0.24	
~~21339~~	~~S14044 Midland Lawrence MS Replace switchgear (Continuation)~~	~~1960~~	~~2014~~	~~0.62~~	
~~20779~~	~~S14048 Pharmacy CPR MS Replace switchgear~~	~~1961~~	~~2014~~	~~0.94~~	
~~22804~~	~~S14068 Islington MS Replace Switchgear~~	~~1955~~	~~2014~~	~~1.51~~	

Job Estimate Number	Job Title	Year Installed	Job Year	Cost Estimate ($M)
22805	S14070 Thornton MS Replace Switchgear (pre-work)	1955	2013	0.11 /US
~~22805~~	~~S14070 Thornton MS Replace Switchgear (pre-work)~~		~~2014~~	~~0.86~~
Jobs Total 2012-2013				**11.35**
Reconciliation for budget changes < $100,000 and rounding				**$0.05**
TOTAL				**$11.40**

/UF, US

2. Why the Project is Needed Now

All the Municipal Substation switchgear proposed to be replaced are over 50 years (with the exception of Leslie MS) and have reached the end of their useful life. The switchgear employ obsolete technology, such as non arc-resistance design, oil circuit breakers and mechanical relays. Non arc-resistant switchgear does not have the ability to channel the energy released during an internal arc fault in ways that minimize the potential injury to personnel and damage to equipment in the surrounding area, including damaging the entire substation.

THESL experienced two substation fires in recent years due to faults in substation equipment that were at their end of service life; one was in 2007 at Lesmil MS in North York area and the second one was in 2009 at station J, in East York area. Both substations were over 50 years old and the fire was attributed to faults in the substation switchgears. Switchgear which is over its useful design life (50 years) can fail catastrophically at any time. Lesmil MS was severely damaged as a result of the fire created due to the fault and Station J was burned down as a result of the fire created by the arc fault in the switchgear and there was no substation equipment left to repair.

The load of both of the above substations was temporarily transferred to their respective adjacent substations. Lesmil MS was ultimately converted to 27.6kV because the station was lightly loaded and replacing or repairing the aging switchgear was not cost effective. Station J MS was also lightly loaded as a result of previous load conversion so converting substation was more cost effective than replacing and/or repairing the aging switchgear. Load conversion also offered the advantage of addressing aging equipment on the distribution system outside the substation.

In addition to the consequences of in-service failures, the existing circuit breakers in all of the switchgear are oil circuit breakers and are obsolete. The maintenance for this type of circuit breaker takes twice as long as the modern vacuum circuit breakers and replacement parts for this type of circuit breaker are no longer manufactured. If they can be obtained at all, they must be harvested from other switchgear or custom manufactured.

The switchgear at Thornton MS~~, Islington MS~~, York MS, Porterfield MS and Neilson MS have additional operational constraints that pose safety risks to operating personnel. The circuit breakers in these substations have auto re-closure problems, i.e., when a circuit breaker is taken out of service for maintenance and is put back after it is maintained, it auto re-closes instead of locking even though the circuit breaker is in the open position and the auto re-closure is blocked by the control authority. The auto re-closuring poses safety risk to the operating personnel. To correct the auto re-closure problem, rewiring of the circuit breakers is required, however, rewiring circuit breakers that are at the end of their life is not cost effective. Therefore, it is prudent to replace the entire switchgear. To mitigate the safety risk temporarily, the circuit breakers are tagged with warning labels. /C, /US

3. Why the Project is the Preferred Alternative

THESL considered the following options, which are fully discussed in Section IV:

1) Continue to maintain and operate the existing equipment.
2) Transfer load to adjacent sub-stations.
3) Convert the existing 4.16kV load to 27.6kV and decommission Switchgear
4) Replace switchgear with air insulated arc resistant Type C switchgear

Option 1 option has the potential to defer capital investment, but would require increasing time and expense to repair switchgear as it continues to deteriorate (See Section IV, 1). Given the age and condition of this switchgear and the difficulty in obtaining spare parts, this option is not preferred. Option 2 is not feasible because it would create a significant capacity short fall on the system and limit the capability to restore during contingencies in the affected area (See Section IV, 2). Option 3 is not technically feasible because the MS to be addressed by this segment are not close to the 27.6kV distribution system and bringing 27.6kV service into these areas would not be cost effective (See Section IV, 3).

Option 4, which would install air insulated arc resistant Type C switchgear and associated SCADA/RTU equipment, is the preferred alternative because it offers the following benefits:

- Increased system reliability due to the arc-resistant design of the switchgear and the use of remotely operated SCADA/RTU to control and monitor it, which will reduce outage time.
- Reduced maintenance and operating cost since the new switchgear will eliminate the need to maintain existing obsolete oil circuit breakers and also will be remotely operated.
- Increase operational efficiency and flexibility due to the installation of SCADA/RTU controlling and monitoring system. The equipment will be operated remotely and this will help operating personnel manage planned and unplanned outages efficiently.

Based on the advantages and disadvantaged of each option, Option 4, which includes the installation of SCADA/RTU controlling and monitoring systems, is the preferred option (See Section IV, 4.3).

The cost effectiveness of undertaking the proposed segment can be further evaluated by determining how much cost is avoided by executing this work immediately as opposed to executing it in 2015. The results of this exercise are shown in the Business Case Evaluation (BCE) found in Appendix 1. The BCE finds that conducting the proposed segment in 2012 will result in the avoided estimated risk cost of approximately $655,000 as opposed to executing this work in /C
2015. Therefore, there are distinct economic benefits to executing this work immediately.

II WORK DESCRIPTION

There are 10 switchgears to be replaced in this segment of work in 2012 and 2013~~, and 2014~~. /US

They are located in the east and west ends of Toronto as illustrated in Figure 1 below.

Map Reference Number	Station Name	Address
1	Leslie MS	5733 Leslie St, Toronto ON
2	Lawrence Scar Golf Club Rd MS	3782 Lawrence Ave E , Toronto ON
3	Brian Elinor MS	54 Brian Ave. , Toronto ON
4	York MS	714 Royal York Rd. , Toronto ON
5	Brimley Bernadine MS	1221 Brimley Rd. , Toronto ON
6	Porterfield MS	2 Guiness Ave. , Toronto ON
7	Greencedar Lawrence MS	29 Greencedar Circuit, Toronto ON
8	Neilson Dr MS	4237 Bloor St. W. , Toronto ON
9	Midland Lawrence MS	1365 Midland Ave. , Toronto ON
10	Pharmacy CPR MS	7 Trestleside Grove, Toronto ON
11	Islington MS	Cordova Ave. , Toronto ON
12	Thornton MS	59 Glen Agar Dr. , Toronto ON

Figure 1: Job Locations

The switchgear selected for replacement in this segment were chosen from 181 switchgear /US across 170 Municipal Substations based upon advanced equipment age, equipment obsolescence employing obsolete oil circuit breakers, lack of arc-resistant design and safety related equipment issues. Based on available resources, jobs are scheduled over two years to /US allow engineering, procurement, construction and commissioning and are closely coordinated with feeder transfers to minimize customer outages and limit single supply contingency.

1. Leslie MS Switchgear Replacement

1.1. Job Description

The objective of this job is to construct a new electrical house (E-house) to replace the existing substation facility that is in poor condition, and replace the existing non-arc resistant switchgear /US with new arc-resistant switchgear in 2013.

1.2. Scope of Work

- Preparing design drawings and necessary documentations
- Purchasing new 13.8kV arc resistant switchgear
- Purchasing a new e-house appropriate to the size of the proposed switchgear
- Building a concrete foundation where the e-house is to be placed, and a
- cable chamber and associated concrete encased ducts as necessary
- Installing and commission the new switchgear
- Installing SCADA/RTU equipment
- Purchasing and installing a new battery and charger set
- Installing a heating and ventilation system
- Installing a fire protection system
- Transferring load over to the new switchgear
- Decommissioning the existing substation

The switchgear at Leslie MS was installed in 1978 and has reached the end of its useful life. Some of the existing circuit breakers have been out of service due to aging and have re-closure issues. Getting replacement parts for the switchgear is becoming very difficult due to the obsolescence of the equipment. If they can be obtained at all, they must be custom manufactured.

The Leslie MS building has deteriorated and is in poor condition. The switchgear housed in this building is obsolete with non-arc resistant design which represents potential safety risks to THESL personnel. Non arc-resistant switchgear does not have the ability to channel the energy released during an internal arc fault in ways that minimize the potential injury to personnel and damaging the equipment in the surrounding area, including damaging the whole substation. In 1977, this substation was burned down as a result of an internal arc fault and failure. All the customers connected to it were out of power for several days.

Leslie MS is an isolated 13.8kV distribution system surrounded by 27.6kV distribution systems and the significant area load makes it difficult to deal with during contingencies. In the event of a major failure at this substation, over 6,000 customers could experience a lengthy outage since there is no other 13.8kV municipal substation that can back up the load in the area.

2. Switchgear Replacement for Remaining MS

2.1. Job Description

The remaining nine switchgear replacements at Lawrence Golf MS, Brian Elinor MS, York MS, /US
Brimley Bernadine MS, Porterfield MS, Greencedar Lawrence MS, Neilson Drive MS, Midland
Lawrence MS, ~~Pharmacy CPR MS, Islington MS~~ and Thornton MS are all driven by the same /US
needs York MS. Porterfield MS, Neilson MS, and Thornton MS also have an additional safety /C
concern, and which is explained in the next section. The objective of each of these jobs is to replace the existing switchgear with modern arc -resistant switchgear and to install a SCADA/RTU monitoring and controlling system.

2.2. Scope of Work

Scope of work includes:

- Design and preparation of necessary drawings and documents to purchase switchgear
- Transferring existing load to neighbouring substations and removing existing switchgear
- Installation and commissioning of new switchgear
- Installation and commissioning of SCADA/RTU monitoring and controlling system
- Energizing new switchgear and transferring load to the new switchgear

The existing switchgear at these stations were installed more than 50 years ago and have /C reached the end of its useful life. The switchgear is obsolete and spare parts required to repair the switchgear are no longer manufactured. Replacement parts, if they can be obtained at all, must be custom made at significant cost.

The switchgear is non-arc resistant design and represents potential safety risk to THESL personnel. Non arc-resistant switchgear does not have the ability to channel the energy released during an internal arc fault in ways that minimize the potential injury to personnel and damaging the equipment in the surrounding area, including damaging the whole substation. Therefore, as the non-arc resistant switchgear continues to age, the safety risk to the operating personnel of THESL also increases and the system reliability decreases.

The oil circuit breakers that are used in the switchgear have a potential of failing catastrophically and due to their oil content and location within the substations, can cause substation fires that could result in the loss of the entire substation.

The switchgear at these substations is required to support the neighbouring substations during contingency or during switchgear or transformer maintenance. If this switchgear fails, there will be a cascading effect on the neighbouring substations that back up its load by limiting their capability to handle load under second contingency. If the switchgear at one MS fails and the switchgear at the back up MS also fails, a significant outage could occur since the load of two switchgears can not be backed up without experiencing capacity shortage and/or voltage drop problems.

In addition to the consequences of in-service failures, the existing circuit breakers in all of the switchgear are oil circuit breakers and are obsolete. The maintenance for this type of circuit breaker takes twice as long as for modern vacuum circuit breakers and replacement parts are no longer manufactured. If they can be obtained at all, they must be custom manufactured and cost twice as much as spare parts supported by manufacturers. Custom parts also take longer time to obtain lengthening the time to repair equipment and put it back into service.

The switchgear at Thornton MS, ~~Islington MS~~, York MS and Porterfield MS and Neilson MS have additional operational constraints that pose potential safety risks to operating personnel. The circuit breakers in these substations have auto re-closure problems, i.e., when a circuit breaker is taken out of service for maintenance and is put back after it is maintained, it auto re-closes instead of locking even though the circuit breaker is in the open position and the auto re-closure is blocked by the control authority. The auto re-closuring poses safety risk to the operating personnel. To correct the auto re-closure problem, re-engineering and rewiring of the circuit breakers is required. However, rewiring or re-engineering circuit breakers that are at the end of their life is not cost effective; therefore, it is prudent to replace the whole switchgear since the switchgear is at the end of its service life. To mitigate the safety risk temporarily, the circuit breakers are tagged with warning labels for safety reasons /C, /US

Neighbouring substations are often used to back up failed substations under single contingency event but are unable to handle load under second contingency that could also happen. THESL experienced this very problem in 2007 when Lesmil MS switchgear in North York failed catastrophically and while the Lesmil MS switchgear was out of service, a second substation, (Don Mills MS) in the area failed, resulting in outage to approximately 700 customers for about 11 hours because the neighbouring substations could not handle load under second contingency. Therefore, it is prudent to replace switchgear that is at the end of life proactively to limit the potential negative reliability impacts of “run to failure”.

- Minimize the maintenance and operating cost since the new switchgear will eliminate the existing obsolete oil circuit breakers whose maintenance is increasing due to the customer spare part requirements. The need to inspect the oil circuit breakers after every tripping condition will also be eliminated. The new switchgear will be remotely operated thus minimizing operating cost.
- Increase reliability to THESL customers. The very fact that the switchgear is arc-resistant means it will be more reliable. Furthermore the SCADA/RTU controlling and monitoring system will help minimize outage time.
- Increase operational efficiency and flexibility due to the installation of SCADA/RTU controlling and monitoring system. The equipment will be operated remotely and this will help operating personnel manage planned and unplanned outages efficiently.

5. Avoided Risk Cost

The effectiveness of the Stations Switchgear MS replacement project can be further highlighted by determining how much cost is avoided by executing this work immediately as opposed to executing in 2015. These avoided costs include quantified risks, taking into account the assets' probability of failure, and multiplying this with various direct and indirect cost attributes associated with in-service asset failures, including the costs of customer interruptions, emergency repairs and replacement.

Carrying out immediate work on this asset class will result in the avoided estimated risk cost of approximately $655,000, as opposed to executing this work in 2015. Therefore, THESL submits /C that there are economic benefits to ratepayers for executing this work now.

As a practical matter given available resources, jobs are scheduled over three years to allow engineering, procurement, construction and commissioning and are closely coordinated with feeder transfers to minimize customer outages and limit single supply contingency. The methodologies applied within this business case are further described in the Appendix 1.

Table 1: Summary of values used in the determination of Avoided Estimated Risk Cost

Business Case Element	Estimated Cost (in Millions)
Present Value of Project Net Cost in 2015 (PV(PROJECT$_{NET_COST}$(2015))	$2.810
Project Net Cost in 2012 (PROJECT$_{NET_COST}$(2012))	$2.155
Avoided Estimated Risk Cost = (PV(PROJECT$_{NET_COST}$(2015)) – PROJECT$_{NET_COST}$(2012))	**$ 0.655**

/C
/C

When this avoided estimated risk cost is calculated as a positive value, it means that estimated risk costs for the job assets in 2015 will exceed the estimated risks that exist today. By performing the work immediately as opposed to waiting until 2015, THESL can eliminate these estimated risks. Therefore, these avoided estimated risk costs represent the benefits of job execution.

Toronto Hydro-Electric System Limited
EB-2012-0064
Tab 4
Schedule B13.2
Filed: 2012 May 10
Updated: 2012 Oct 31
(36 pages)

ICM Project – Station Infrastructure and Equipment

Stations Switchgear – Transformer Stations Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Stations Switchgear – Transformer Stations Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $25.16 M to $12.14 M, a reduction of $13.02 M
- Reduced number of jobs proposed from 15 to five jobs which are scheduled for 2012 and 2013, with three jobs deferred and with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Corrected numerical and typographical errors

I EXECUTIVE SUMMARY

1. Project Description

Switchgear operating at 13.8kV in many downtown Transformer Stations (TS) are past the end of their useful lives and rely on obsolete technology such as brick and mortar enclosures, non arc-resistant designs with air blast or air magnetic circuit breakers and mechanical relays and are in poor condition (See Section II, 3). The existing non arc-resistant switchgear does not channel the energy released during an internal arc fault to minimize potential injury to personnel and minimize damage to surrounding equipment. As a result, this switchgear can cause damage that impacts the entire station, interrupting service to thousands of customers. This equipment has been kept in service via increased maintenance, custom fabrication and harvesting parts from spares. The asset condition continues to deteriorate and safety concerns are increasing.

Switchgear requiring replacement in 2012, and 2013, ~~and 2014~~ include the A7-8T switchgear at Strachan TS, A6-7E switchgear at Carlaw TS, A3-4W ~~and A5-6W~~ switchgear at Wiltshire TS, ~~A5-6WR switchgear at Windsor TS~~ and A5-6DX at Duplex TS. All but one of these are more than 55 years old. The total cost of this segment is approximately $12.14 million for the jobs shown in Table 1 /UF, US

Table 1: Job Costs

Estimate Number	Job Title	Year Installed	Customer Load Served (MVA)	Job Year	Cost Estimate ($M)
18591	Strachan TS A7-8 switchgear replacement preparation	1956	34	2012	0.34
25425	Strachan TS A7-8 switchgear replacement	1956	34	2013	3.41	/UF

ICM Project | Stations Switchgear – Transformer Stations Segment

Estimate Number	Job Title	Year Installed	Customer Load Served (MVA)	Job Year	Cost Estimate ($M)	
~~24972~~	~~S14406 Strachan TS Load Transfer from A7-8T to A11-12T Switchgear~~	~~1956~~	~~34~~	~~2014~~	~~0.30~~	
22025	Carlaw TS A6-7E switchgear replacement	1968	26	2013	1.45	/UF, US
20877	Wiltshire TS A3-4W switchgear replacement	1954	20	2012	6.71	/UF, US
~~22719~~	~~Wiltshire TS A5-6W switchgear replacement~~	~~1954~~	~~22~~	~~2014~~	~~7.67~~	
~~21735~~	~~Windsor TS A5-6WR switchgear replacement~~	~~1956~~	~~56~~	~~2014~~	~~8.41~~	
20492	Duplex TS A5-6DX switchgear replacement	1954	42	2013	0.23	/UF
2012-2013 Total					**12.14**	/UF, US

These switchgear were selected for replacement based on the following considerations:

- Obsolescence (brick structures, non-arc resistant design, obsolete breakers)
- Age
- Condition
- Space available for transition switchgear, and
- Station egress for cabling

All the switchgear listed are to be replaced with 3,000A air-insulated, arc-resistant type C switchgear with double-bus, double-breaker or breaker-and-half configuration except Duplex

~~1.2.3. Scope of work in 2014~~

- ~~Transfer load from the existing A7-8T switchgear to the new A11-12 T switchgear.~~ /US
- ~~Decommission the existing A7-8T switchgear~~

1.3. Job Cost

Table 2: Strachan TS Costs /C

Job Estimate Number	Job Title	Job Year	Total Estimated Cost ($M)
18591	Strachan TS A7-8T switchgear replacement preparation	2012	0.34
25425	Strachan TS A7-8T switchgear replacement	2013	3.41
~~24972~~	~~S14406 Strachan TS Load Transfer from A7-8T to A11-12T Switchgear~~	~~2014~~	~~0.30~~

/UF

2. Carlaw TS A6-7E

2.1. Job Description - Carlaw TS A6-7E

The objective of this job is to complete the second part of a two-part replacement job of the Carlaw TS A6-7E switchgear. The first part of this job involved purchasing of the switchgear in 2011. The second part involves commissioning of the new switchgear and the station load transfer from the existing to the new switchgear in subsequent years. /US

2.2. Scope of Work-A6-7E

- Prepare drawings to commission the switchgear
- Commission and energize the new switchgear that was purchased in 2011

2.3. Job Costs /US

Table 3: Carlaw TS Costs

Job Estimate Number	Job Title	Job Year	Total Estimated Cost ($M)
22025	Carlaw TS A6-7E switchgear replacement	2013	1.45

/UF, US

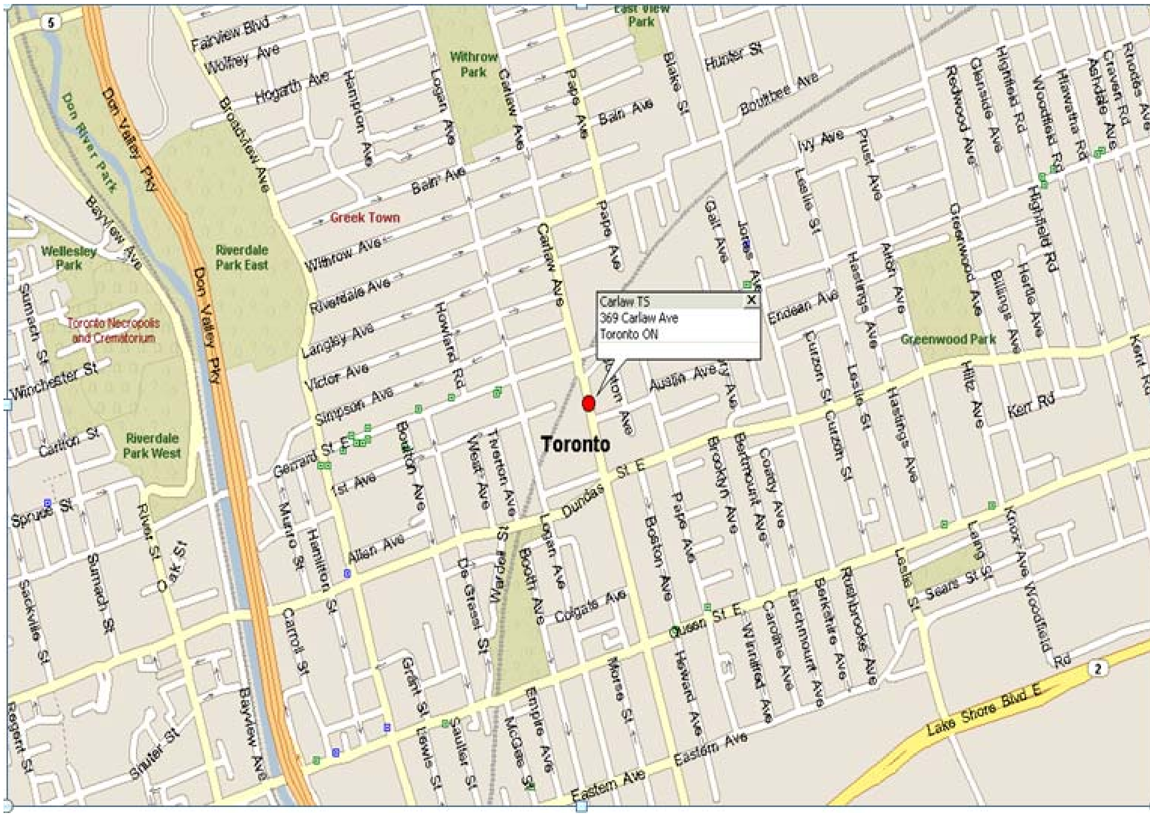


Figure 4: Location of Carlaw TS

3. Wiltshire TS A3-4W ~~and A5-6W Switchgear~~ /US

3.1. Job Description

The objective of these jobs is to design, purchase and install 13.8kV switchgear to replace the obsolete A3-4W ~~and A5-6W~~ switchgear at Wiltshire TS with 3000A air insulated arc-resistant type C switchgear with a breaker-and-half configuration in 2012, ~~and 2014, respectively~~. Preparation of floor space in Building A is required to accommodate the new switchgear in place of the decommissioned switchgear. /US

3.2. Scope of Work – A3-4W

- Design the proposed new A13-14W switchgear to fit into the space that is currently occupied by the obsolete A1-2W switchgear, (A1-2W is to be removed)
- Procure and purchase a new 13.8kV, 72MVA, 4-wire, air insulated, arc-resistant type switchgear and replace the aging and obsolete A3-4W (3-wire) switchgear
- Prepare the floor space where the decommissioned A1-2W was located to make space for installation of the proposed A13-14W switchgear
- Modify and/ or construct any necessary civil infrastructures within Wiltshire station property boundary to facilitate the feeder transfer from the existing and obsolete A3-4W switchgear to the proposed new switchgear A13-14W
- Install and commission the new A13-14W switchgear
- Coordinate with Hydro One to provide support for relocation of the HONI incoming LV supply cables from the existing location to the new switchgear location
- Energize and transfer load from the A3-4W to the new A13-14W switchgear
- Decommission and remove the A3-4W switchgear

~~3.3. Scope of Work – A5-6W~~

- ~~Design the proposed new A15-16W switchgear to fit into the space that is currently occupied by the obsolete A1-2W switchgear~~
- ~~Prepare the floor space by removing the decommissioned A1-2W to make space for installation of the proposed A15-16W switchgear~~
- ~~Procure and purchase a new 13.8kV, 72MVA, 4-wire, air insulated, arc-resistant type switchgear to replace the aging and obsolete A5-6W (3-wire) switchgear~~
- ~~Install and commission the new A15-16W switchgear~~
- ~~Transfer load from the existing A5-6W switchgear to the new A15-16W switchgear~~
- ~~Coordinate with Hydro One to provide support for relocation of the HONI incoming LV supply cables from the existing location to the new switchgear location~~
- ~~Decommission the A5-6W switchgear and remove the brick structure from Wiltshire TS~~ /US

3.4. Job Costs

Table 4: Wiltshire TS Costs

Job Estimate Number	Job Title	Job Year	Total Cost ($M)
20877	Wiltshire TS A3-4W switchgear replacement	2012	6.71
~~22719~~	~~WiltshireTS A5-6W switchgear replacement~~	~~2014~~	~~7.67~~

/UF, US

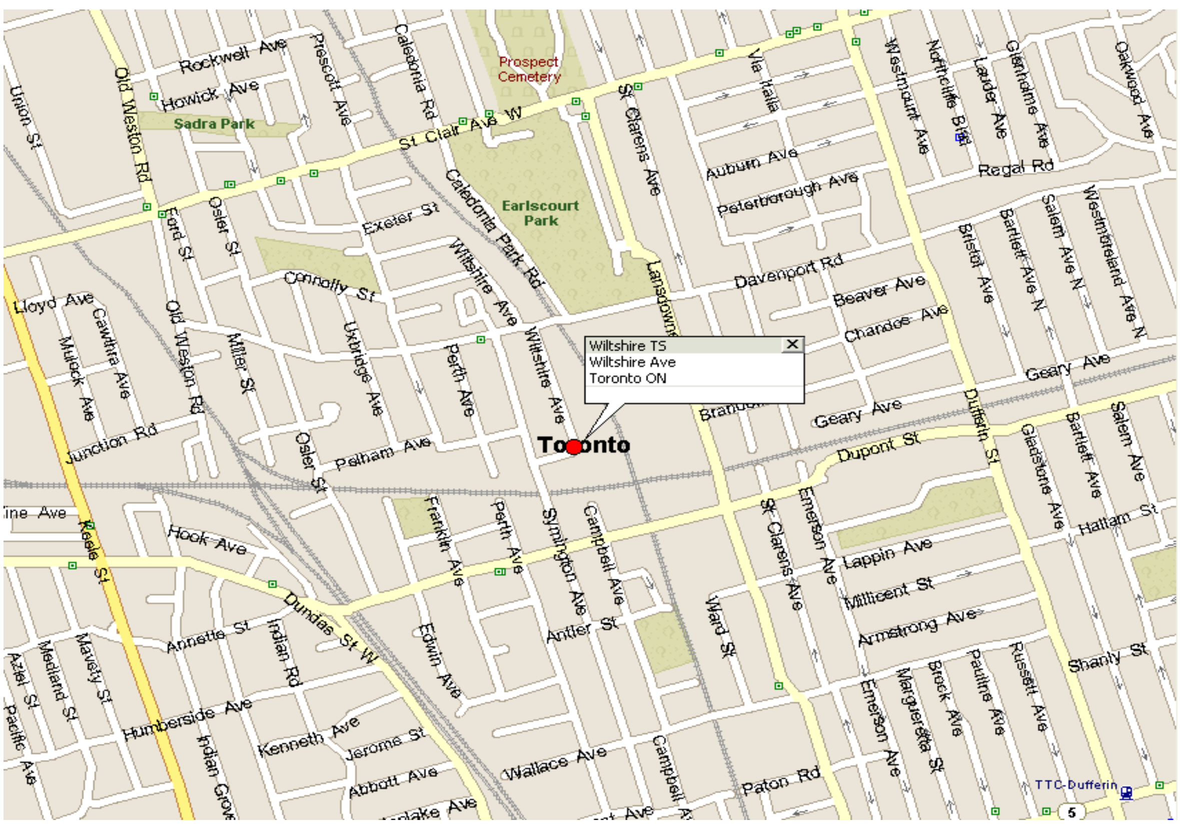


Figure 5: Location of Wiltshire TS

4. Windsor TS A5-6WR Switchgear

4.1. Job Description

The objective of this sjob is to replace the existing A5-6WR switchgear at Windsor TS with 3000A air insulated, arc-resistant type C type switchgear with double bus, double breaker or breaker-and-half switchgear in 2014.

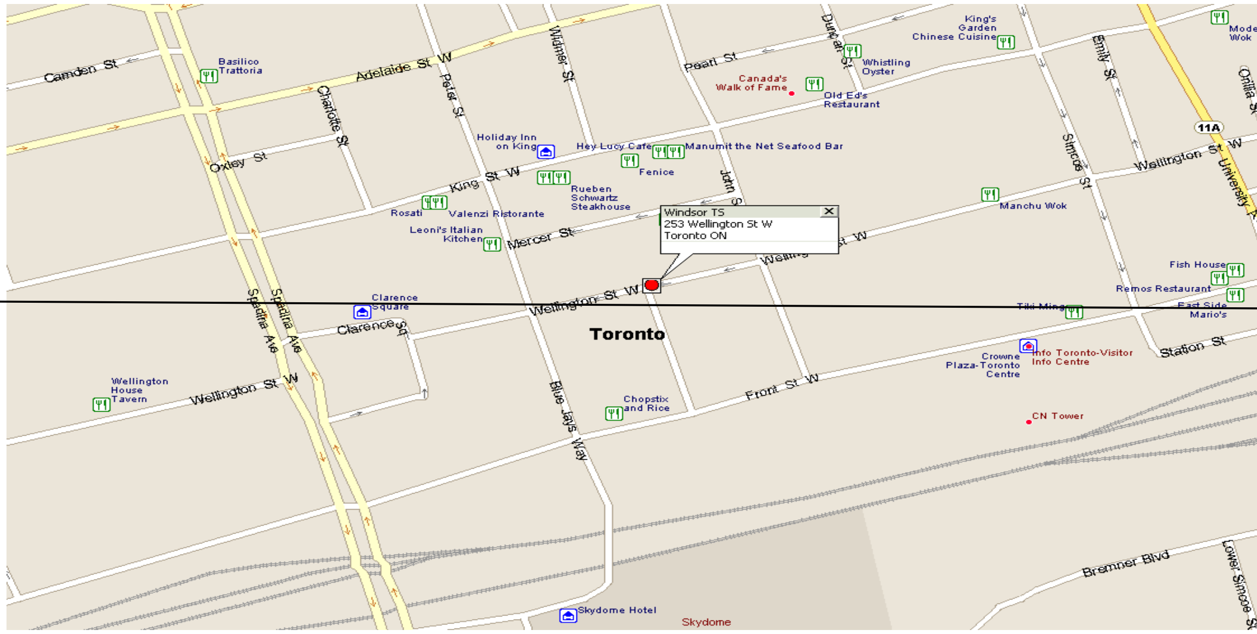
4.2. Scope of Work- A5-6WR

- Design the proposed new A19-20WR switchgear to fit into the space that is currently occupied by the obsolete A5-6-9-10WR
- Decommission and remove the A5-6-9-10WR once load is transferred to Bremner TS
- Procure new 13.8kV, 72MVA, 4-wire, air insulated arc-resistant type switchgear
- Install and commission the new A19-20WR switchgear
- Energize the A19-20WR and transfer load from the A3-4WR switchgear
- Coordinate with Hydro One on purchase, installation and commissioning of incoming feeder cells and configuring the new bus as 4-wire
- Decommission and remove the existing A3-4WR switchgear in Windsor TS building

4.3. Job Costs

Table 5: Windsor TS Costs

Job Estimate Number	Job Title	Job Year	Total Estimated Cost ($M)
21735	Windsor TS A5-6WR switchgear replacement	2014	8.41



~~**Figure 6: Location of Windsor TS**~~

5. Duplex TS A5-6DX Switchgear

5.1. Job Description

The objective of this job is to design and purchase new 13.8kV 3000A gas-insulated switchgear (GIS) to replace the existing A5-6DX switchgear in 2013.

5.2. Scope of Work- A5-6DX

- Design the proposed A7-8DX switchgear and prepare space for a new switchgear /UF

5.3. Job Costs

Table 6: Duplex TS Costs

Job Estimate Number	Job Title	Job Year	Total Cost ($M)
20492	Duplex TS A5-6DX switchgear replacement	2013	0.23

/UF

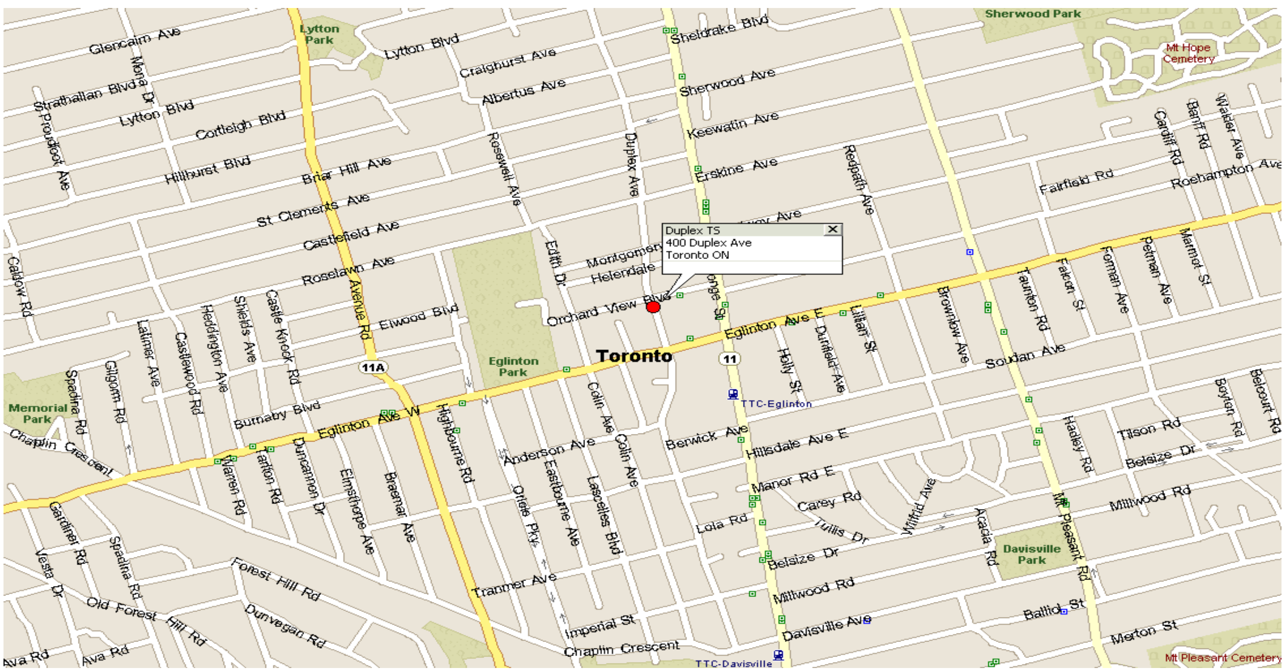


Figure 7: Location of Duplex TS

III Need

1. Overview

All the switchgear in this segment are non-arc resistant designs and past their useful lives. Non-arc resistant designs do not contain the energy released during fault conditions. When an internal arc fault occurs in this type of switchgear, the energy released has the potential to damage adjacent equipment and pose potential safety risks to personnel working in the vicinity. Even though station workers are not present inside stations on a daily basis, they do monthly routine inspections in all THESL stations and do planned maintenance and capital work in stations. If an internal arc fault occurs while station workers are in the vicinity there is a potential that a worker could be injured. A catastrophic failure also increases the severity of collateral damage to adjacent equipment and could potentially cause a complete station outage.

The probability of failure continues to increase with time as the condition of the equipment continues to deteriorate. Table 7 provides the impact resulting from the failure of one switchgear and the impact resulting from a whole station outage from collateral damage. The impact is presented in terms of load at risk and expected duration of outage.

Table 7: Load at Risk and Duration

Substation Name	Failure of One Switchgear		Failure of the Entire Substation	
	Load at Risk (MVA)	Duration(hours)	Load at Risk (MVA)	Duration (hours)
Strachan TS	34	168	138	336
Carlaw TS	26	168	75	336
Wiltshire TS	30	168	70	336
Duplex TS	45	168	113	336
~~Windsor TS~~	~~56~~	~~168~~	~~311~~	~~336~~

/US

Failure of any switchgear is expected to result in extended outages given that the loading and condition of the other switchgear within the station limits the ability to pick up the load.

Figure 8: Carlaw TS 13.8kV live parts of a switchgear in an open brick structure

If the A6-7E switchgear fails, 26 MVA of load will be lost.

4. Wiltshire TS

The existing Wiltshire TS A3-4W ~~and A5-6W~~ switchgear was installed in 1954. From the Asset Condition Assessment ("ACA") update report in 2012, this switchgear was assigned a Health /US Index (HI) of 50 ~~and 47~~ (out of 100) ~~respectively~~ which is considered in the Poor category, which /C means ~~they~~ it requires replacement within three years. /US

This switchgear is also in an open brick structure with similar limitations to those at Carlaw TS. The Wiltshire TS switchgear supplies a large pumping station, which is a critical customer.

If the A3-4W ~~or A5-6W~~ switchgear fails, 21 MVA ~~and 30 MVA~~ load will be lost~~., respectively~~. /US

5. Duplex TS

In addition to the age of the switchgear, there is additional risk of the basement being flooded with water from the Hydro One deluge system which is located on the main floor above the switchgear. To mitigate this risk, and to address the aging issue of the switchgear, THESL plans to replace in stages all the switchgear at Duplex TS which are located in the basement with water-resistant, gas-insulated switchgear (GIS). The A5-6DX switchgear is the first to be replaced. This switchgear was assigned a Health Index (HI) of 67 (out of 100) which is considered as in fair condition category as per the Asset Condition Assessment ("ACA") of 2010. Even though this switchgear is in fair condition, it must be replaced first in order to be able to replace the A1-2DX switchgear which is in a very poor condition but could not be replaced first due to space constraint.

If the A5-6DX switchgear fails, 45 MVA of load will be lost.

~~**6. Windsor TS**~~

~~The A5-6WR switchgear was installed in 1956. From the Asset Condition Assessment ("ACA") update report in 2012, Windsor TS A5-6WR switchgear was assigned a Health Index (HI) of 50 (out of 100) which is considered in the Poor category, and it needs replacement within three years.~~

~~The Windsor TS switchgear supports the financial district, which includes many large customers.~~

~~If the A5-6WR switchgear fails, 56 MVA of load will be lost.~~

(b) The supporting switchgear must have enough feeder positions to accept the transferred feeders. This condition cannot be met for all of the switchgear proposed to be replaced. As shown in Table 9, Gerrard TS, Main TS, and Terauley TS don't have enough spare feeder positions to transfer load from Carlaw ~~and Windsor TS, respectively~~. There are enough feeder positions in the receiving stations for the rest of the switchgear proposed to be replaced. However, as discussed in the previous paragraph (a), there is insufficient available capacity in the receiving stations.

(c) Physical space for underground infrastructure must be available if load is to be transferred to another station. THESL shares underground space with other utilities such as Enbridge, Bell, Rogers, and Water and Sewer. Finding space to build underground infrastructure in order to install cables to transfer the load is challenging.

(d) Voltage drop problem does not occur as a result of load transfer to neighboring station. This condition cannot be met as the supplying station will be far from the load center and voltage drop will be a problem.

Table 7: Switchgear Load Transfer to switchgear within station

Switchgear to be Decommissioned	Connected Customers	Load to be transferred(MVA)	% Loading at the Receiving Station(s) After Load transfer
Strachan TS A7-8 switchgear	4,270	37	96
Carlaw TS A6-7E switchgear	9,266	26	102
Wiltshire TS A3-4W switchgear	3,513	21	86
Duplex TS A5-6DX switchgear	4,078	45	141
~~Wiltshire TS A5-6W switchgear~~	~~10,883~~	~~30~~	~~100~~
~~Windsor TS A5-6WR switchgear~~	~~14~~	~~56~~	~~111.1~~

1 **Table 8: Switchgear Load Transfer to Neighboring Station(s)**

Switchgear To be Decommissioned	Load to be transferred (MVA)	Load to be transferred to	Combined Stations Percentage (%) Loading After Load transferred
Strachan TS A7-8 switchgear	37	Dufferin TS	102
Carlaw TS A6-7E switchgear	26	Gerrard TS, Main TS	107
Wiltshire TS A3-4W switchgear	21	Dufferin TS, Bridgeman TS,	94
Duplex TS A5-6DX switchgear	45	Glengrove TS, Leaside TS,	98
~~Wiltshire TS A5-6W switchgear~~	~~30~~	~~Dufferin TS, Bridgeman TS~~	~~93~~
~~Windsor TS A5-6WR switchgear~~	~~56~~	~~Terauley TS~~	~~107~~

Table 9: Number of feeder positions required and available

Switchgear Load to be transferred from	Number of feeders to be transferred	Station load to be transferred to	Number of available spare feeder positions
Strachan TS A7-8T switchgear	11	Dufferin TS	30
Carlaw TS A6-7E switchgear	7	Gerrard TS and Main TS	1
Wiltshire TS A3-4W switchgear	10	Dufferin TS and Bridgemen TS	31
Duplex TS A5-6DX switchgear	11	Glengrove TS and Leaside TS	14
~~Wiltshire TS A5-6W switchgear~~	~~8~~	~~Dufferin TS and Bridgemen TS~~	~~31~~
~~Windsor TS A5-6WR switchgear~~	~~12~~	~~Terauley TS~~	~~6~~

3. Option 3: Replace the Existing Switchgear with Arc-Resistant Design with Vacuum Breakers

Replace existing switchgear with air insulated, arc-resistant switchgear or gas insulated switchgear (GIS) with double bus double breaker or breaker and half configuration is recommended. This option requires capital investment to replace the switchgear and is expected to:

- Mitigate the safety risk to the operating personnel of THESL due to the arc-resistant design of the switchgear. Arc-resistant switchgear contains the pressure due to internal arc fault and channels the energy through the vents located on top of switchgear. This is expected to mitigate the safety risk to personnel and damage to equipment in the vicinity including causing outage to the whole station.
- Minimize the maintenance and operating cost since the new switchgear will eliminate the air blast circuit breakers along with the air supply system (air compressors) whose

The anticipated effectiveness of the Switchgear TS replacement segment can be highlighted by determining how much cost is avoided by executing this work immediately as opposed to executing in 2015 as explained in the Business Case Evaluation found in Appendix 1. These avoided costs include quantified risks, taking into account the assets' probability of failure, and multiplying this with various direct and indirect cost attributes associated with in-service asset failures, including the costs of customer interruptions, emergency repairs and replacement.

Carrying out immediate work on this asset class is expected to result in the avoided estimated risk cost of approximately $42 million, as opposed to executing this work in 2015. Therefore, /C there are economic benefits to ratepayers for executing this work now. As a practical matter given available resources, jobs are scheduled over three years to allow engineering, procurement, construction and commissioning and are closely coordinated with feeder transfers to minimize customer outages and limit single supply contingency.

4. Preferred Alternative

Based on a comparison of the alternatives, replacement of existing switchgear is the preferred option based on reduced outage risk, technical viability and because it is the most cost-effective option.

Table 1: Summary of values used in the determination of Avoided Estimated Risk Cost

Business Case Element	Estimated Cost (in Millions)
Present Value of Project Net Cost in 2015 (PV(PROJECT$_{NET_COST}$(2015))	$ 42.037
Project Net Cost in 2012 (PROJECT$_{NET_COST}$(2012))	$ 0.0298
Avoided Estimated Risk Cost = (PV(PROJECT$_{NET_COST}$(2015)) – PROJECT$_{NET_COST}$(2012))	**$ 42.007**

/C
/C

When this avoided estimated risk cost is calculated as a positive value, it means that estimated risk costs for the job assets in 2015 will exceed the estimated risks that exist today. By performing the work immediately as opposed to waiting until 2015, we can eliminate these estimated risks. Therefore, these avoided estimated risk costs represent the benefits of job execution.

ICM Project – Station Infrastructure and Equipment

Stations Circuit Breakers Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Stations Circuit Breakers Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $2.45 M to $1.31 M, a reduction of $1.14 M
- Revised number of jobs proposed for 2012/2013 to 8, with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system

I EXECUTIVE SUMMARY

1. Description

Station circuit breaker work proposed for 2012 consists of replacing 9 oil circuit breakers /UF, US (27.6kV) mounted outdoors and associated control boxes with vacuum circuit breakers at five Terminal Stations (TS). The estimated cost for the work is $1.38 M as shown in Table 1: /UF, US

Table 1: Job Cost Estimates

Job Estimate Number	Job Title	Job Year	Cost Estimate ($M)
17662	S11118 Finch TS: Replace KSO CB (55M27)	2012	$0.07
17669	S11121 Finch TS: Replace KSO CB (55M28)	2012	$0.07
17654	S11130 Bathurst TS: Replace KSO CB (85M24)	2012	$0.07
18403	S12001 Leslie TS: Replace KSO OCB (51M4 and 51M6)	2012	$0.39
18233	S12036 Fairchild TS: Replace KSO CB (80M1)	2012	$0.19
18237	S12037 Fairchild TS: Replace KSO CB (80M3)	2012	$0.19
18262	S12043 Fairchild TS: Replace KSO CB (80M5)	2012	$0.20
18263	S12044 Fairchild TS: Replace KSO CB (80M9)	2012	$0.20
~~22693~~	~~S14052 Finch TS: Replace KSO CB (55M24)~~	~~2014~~	~~$0.19~~
~~22694~~	~~S14054 Finch TS: Replace KSO CB (55M25 and 55M8)~~	~~2014~~	~~$0.41~~
~~22695~~	~~S14055 Bathurst TS : Replace 85M1 KSO CB~~	~~2014~~	~~$0.19~~
~~22698~~	~~S14056 Bathurst TS: Replace 85M4 KSO CB~~	~~2014~~	~~$0.20~~
~~22699~~	~~S14057 Bathurst TS: Replace 85M2 KSO CB~~	~~2014~~	~~$0.19~~
~~22700~~	~~S14059 Bathurst TS: Replace 85M25 KSO CB~~	~~2014~~	~~$0.19~~
Jobs Total 2012-2013:			**$1.38**
Reconciliation for budget changes < $100,000 and rounding			**($0.07)**
TOTAL			**$1.31**

/UF

The THESL station circuit breaker segment is focused on outdoor-mounted oil circuit breakers used in 27.6kV stations where the customers will experience average outage duration of two hours in case of a failure. Table 2 shows the number of customers that would be affected in case of a circuit breaker failure.

Consequences of station circuit breaker failure include customer interruptions over significantly long durations. Catastrophic failure of circuit breakers may also result in collateral damage to other transformers, damage to other station equipment, and if staff are present, injury to personnel. Furthermore, considering they are filled with mineral oil, there is a risk of oil spills contaminating ground and water systems if the tank fails.

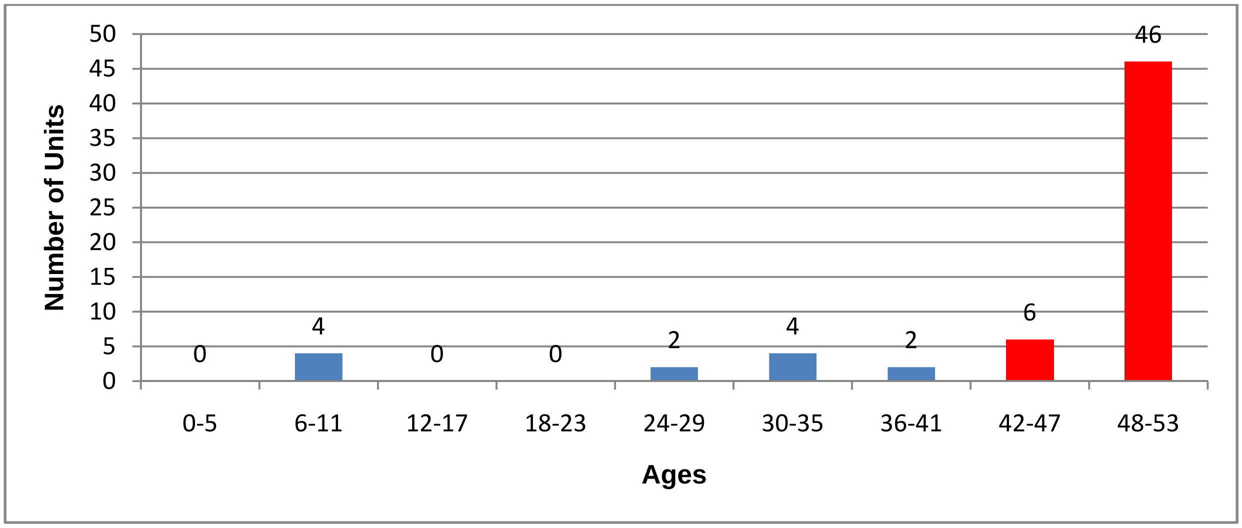
The failure of an oil circuit breaker at Manby TS station on July 5, 2010 exemplifies the significant impacts that can occur. This event caused a Loss of Supply outage that interrupted a total of 117,042 customers (CI) for over two hours resulting in 14,439,408 customer minutes of outage (CMO).

The oil circuit breakers selected for replacement were chosen from 64 outdoor-mounted oil /C
circuit breakers based on their age and health condition. Based on the Kinectrics Report, the typical end of useful life for an oil circuit breaker is 42 years. As shown in Table 2, all but one of the circuit breakers selected for 2012 replacement are at or beyond this age. The age profile for all oil circuit breakers is shown in Figure 1. From the age profile, approximately 81 percent (52 /C
out of 64) of oil circuit breakers are beyond their typical useful lives. In addition to aging, the /C
deteriorating condition of the outdoor-mounted oil circuit breakers also was a factor in their being selected for replacement.

Table 2: Age profile and Number of Customers Served for Circuit Breakers to be Replaced

Station Name – Circuit Breaker ID	Age	Customers	Feeder Load (MVA)
Leslie TS – 51M4	50	781	10.7
Leslie TS - 51M6	50	781	13.0
~~Finch TS – 55M8~~	~~52~~	~~1,942~~	~~15.2~~
~~Finch TS - 55M24~~	~~52~~	~~68~~	~~13.6~~
~~Finch TS - 55M25~~	~~52~~	~~2,273~~	~~9.9~~
Finch TS – 55M27	52	2,379	10.8
Finch TS - 55M28	52	4,212	16.6
Fairchild TS – 80M1	42	2,640	9.9
Fairchild TS - 80M3	42	826	18.4
Fairchild TS - 80M5	42	1,134	22.5
Fairchild TS - 80M9	37	800	9.5
~~Bathurst TS – 85M1~~	~~50~~	~~2,690~~	~~13.9~~
~~Bathurst TS - 85M2~~	~~50~~	~~1,780~~	~~13.9~~
~~Bathurst TS - 85M4~~	~~50~~	~~914~~	~~13.6~~
Bathurst TS - 85M24	50	1,191	13.7
~~Bathurst TS - 85M25~~	~~50~~	~~2,503~~	~~15.0~~

/UF, US



/c

Figure 1: Age profile of outdoor-mounted oil circuit breakers

3. Why the Project is the Preferred Alternative

THESL considered two alternatives to address the issues posed by oil circuit breakers: the status quo option of running them to failure and proactive replacement (See Section IV). Under the proactive replacement alternative, THESL considered two types of replacement circuit breakers.

THESL rejected the status quo approach of allowing these circuit breakers to run to failure because of the significant impacts it would have on reliability and safety (See Section IV, 2). THESL also faces rising maintenance costs and increased difficulty in obtaining parts for oil circuit breakers. The evaluation in Appendix 1, shows that immediate replacement lowers the estimated avoided risk cost associated with these assets by approximately $3.2 million when /c compared to deferring replacement to 2015. Thus the most cost-effective option is replacement of obsolete equipment before failure.

The two alternative technologies considered for replacing the existing oil circuit breakers are: Vacuum circuit breaker or SF_6 circuit breaker. Both vacuum and SF_6 circuit breakers use technologies that exhibit high degrees of reliability under normal and abnormal conditions. Each has their advantages and disadvantages. One significant advantage of the vacuum circuit breaker is its compact size and ease of maintenance and inspection compared to the SF_6 circuit breaker (See Section III, 1.1 and 1.2). Due to limited space in stations, size of the circuit breaker

II DESCRIPTION OF WORK

1. Overview

KSO[1] circuit breaker replacements are driven by mitigation of collateral damage to adjacent circuit breakers or transformers, which could cause a long outage to the whole bus or even a station and potentially impact thousands of customers. The objectives are described in detail below: /C

Table 3: Objectives for Each Station

Station Name	Objectives	Planned Year
Leslie TS	Replace the 27.6kV KSO circuit breakers (51M4 and 51M6) and control box with a vacuum circuit breaker at Leslie TS	2012
Finch TS	Replace the 27.6kV KSO circuit breaker (55M28) and control box with a vacuum circuit breaker at Finch TS	2012
Finch TS	Replace the 27.6kV KSO circuit breaker (55M27) and control box with a vacuum circuit breaker at Finch TS	2012

/US

[1] These breakers were made by the same manufacturer and are referred to by their series designation KSO.

ICM Project | **Stations Circuit Breakers Segment**

Station Name	Objectives	Planned Year
~~Finch TS~~	~~Replace the 27.6kV KSO circuit breaker (55M25 and 55M8) and control box with a vacuum circuit breaker at Finch TS~~	~~2014~~
~~Finch TS~~	~~Replace the 27.6kV KSO circuit breaker (55M24) and control box with a vacuum circuit breaker at Finch TS~~	~~2014~~
Fairchild TS	Replace the 27.6kV KSO circuit breaker (80M1) and control box with a vacuum circuit breaker at Fairchild TS	2012
Fairchild TS	Replace the 27.6kV KSO circuit breaker (80M3) and control box with a vacuum circuit breaker at Fairchild TS	2012
Fairchild TS	Replace the 27.6kV KSO circuit breaker (80M5) and control box with a vacuum circuit breaker at Fairchild TS	2012
Fairchild TS	Replace the 27.6kV KSO circuit breaker (80M9) and control box with a vacuum circuit breaker at Fairchild TS	2012
Bathurst TS	Replace the 27.6kV KSO circuit breaker (85M24) and control box with a vacuum circuit breaker at Bathurst TS	2012
~~Bathurst TS~~	~~Replace the 27.6kV KSO circuit breaker (85M1) and control box with a vacuum circuit breaker at Bathurst TS~~	~~2014~~
~~Bathurst TS~~	~~Replace the 27.6kV KSO circuit breaker (85M2) and control box with a vacuum circuit breaker at Bathurst TS~~	~~2014~~

Station Name	Objectives	Planned Year
~~Bathurst TS~~	~~Replace the 27.6kV KSO circuit breaker (85M25) and control box with a vacuum circuit breaker at Bathurst TS~~	~~2014~~
~~Bathurst TS~~	~~Replace the 27.6kV KSO circuit breaker (85M4) and control box with a vacuum circuit breaker at Bathurst TS~~	~~2014~~

1.1. Scope of Work

The KSO circuit breaker replacement work for all the selected jobs consists of the following tasks:

(a) Design necessary drawings for the new vacuum circuit breaker
(b) Co-ordinate with Hydro One on scheduling of Circuit breaker replacement
(c) Transfer the 27.6kV feeder load to adjacent feeders and disconnect the DC supply to the existing KSO circuit breaker
(d) De-energize, isolate and ground the existing KSO circuit breaker
(e) Remove the existing KSO breaker
(f) Install the new vacuum circuit breaker and complete all test requirements in accordance with all THESL required specifications
(g) Reconnect the DC supply to the vacuum breaker and connect and energize the 27.6kV feeder

1.2. Map and Locations

The stations across Toronto are shown in Figure 2 below:

III NEED

All nine of these circuit breakers selected are outdoor-mounted oil-type and are obsolete. /US

- Replacement parts are no longer being manufactured.
- Any parts required need to be custom manufactured, making the cost of maintenance high and the repair and return to service time long.
- The KSO oil circuit breakers have additional maintenance cost due to the added expensive of periodic maintenance and replacement of oil, and subsequently makes the overall maintenance cost of the oil circuit breaker high.

/US

/US

/US

/US

/US

Station Name: Finch TS

Station Circuit Breaker ID: 55M24

Age of the Circuit Breaker: 52

Justification:

This circuit breaker is past end of life. Replacement is required due to obsolescence, high maintenance requirements and risk of collateral damage in the event of a catastrophic failure.

Figure 17: Circuit Breaker at Finch TS 55M24 (February 2, 2012)

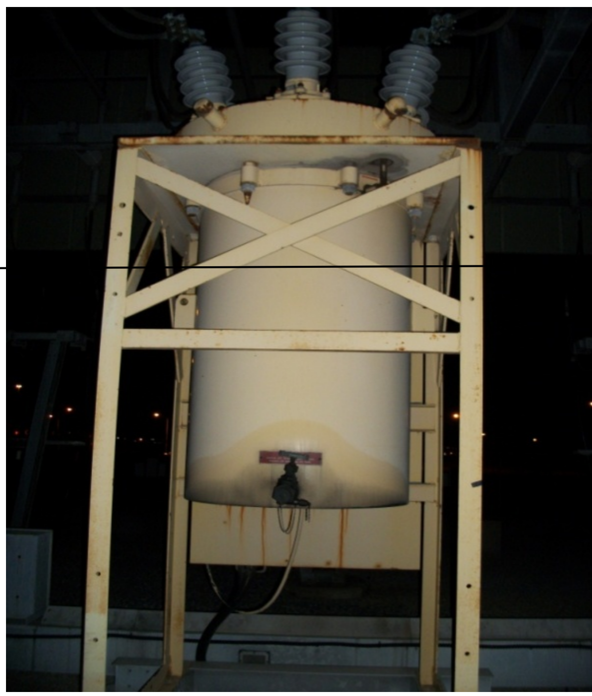
~~**Station Name:** Finch TS~~

~~**Station Circuit Breaker ID:** 55M25~~

~~**Age of the Circuit Breaker:** 52~~

~~**Justification:**~~

~~This circuit breaker is past end of life. Replacement is required due to obsolescence, high maintenance requirements and risk of collateral damage in the event of a catastrophic failure.~~



~~**Figure 18: Circuit Breaker at Finch TS 55M25 (February 2, 2012)**~~

Station Name: Finch TS

Station Circuit Breaker ID: 55M8

Age of the Circuit Breaker: 52

Justification:

This circuit breaker is past end of life. Replacement is required due to obsolescence, high maintenance requirements and risk of collateral damage in the event of a catastrophic failure.

Figure 19: Circuit Breaker at Finch TS 55M8 (March 14, 2012)

~~**Station Name:** Bathurst TS~~

~~**Station Circuit Breaker ID:** 85M1~~

~~**Age of the Circuit Breaker:** 50~~

~~**Justification:**~~

~~This circuit breaker is past end of life. Replacement is required due to obsolescence, high maintenance requirements and risk of collateral damage in the event of a catastrophic failure.~~

~~**Figure 20: Circuit Breaker at Bathurst TS 85M1 (February 2, 2012)**~~

Station Name: Bathurst TS

Station Circuit Breaker ID: 85M4

Age of the Circuit Breaker: 50

Justification:

This circuit breaker is past end of life. Replacement is required due to obsolescence, high maintenance requirements and risk of collateral damage in the event of a catastrophic failure.

Figure 21: Circuit Breaker at Bathurst TS 85M4 (February 2, 2012)

Station Name: Bathurst TS

Station Circuit Breaker ID: 85M2

Age of the Circuit Breaker: 50

Justification:

This circuit breaker is past end of life. Replacement is required due to obsolescence, high maintenance requirements and risk of collateral damage in the event of a catastrophic failure.

Figure 22: Circuit Breaker at Bathurst TS 85M2 (February 2, 2012)

~~**Station Name:** Bathurst TS~~

~~**Station Circuit Breaker ID:** 85M25~~

~~**Age of the Circuit Breaker:** 50~~

~~**Justification:**~~

~~This circuit breaker is past end of life. Replacement is required due to obsolescence, high maintenance requirements and risk of collateral damage in the event of a catastrophic failure.~~

~~**Figure 23: Circuit Breaker at Bathurst TS 85M25 (February 2, 2012)**~~

III PREFERRED ALTERNATIVE

THESL considered three options to mitigate the reliability and safety risks associated with the deteriorated state of 9 obsolete 27.6kV outdoor-mounted oil circuit breakers in this segment: /US

- replacement with vacuum circuit breakers
- replacement with SF_6 circuit breakers
- maintain status quo

1. Vacuum Circuit Breakers and SF_6 Breakers

Both SF_6 and vacuum circuit breakers make use of technologies that are considered to be reliable. Each has their own features and capabilities that must be considered when making a choice for particular applications as discussed below.

1.1. Physical Dimension

Both SF_6 and vacuum circuit breakers are significantly smaller in physical size compared to other circuit breakers on the market. However, SF_6 circuit breakers tend to be physically larger in dimensions than vacuum circuit breakers due to the SF_6 open gap being larger than that of a vacuum breaker in order to support the comparable BIL rating. Also, additional space is required by SF_6 circuit breakers to store the puffer cylinder. Physical dimension is an important consideration in the selection of a circuit breaker due to physical space constraint in stations. Therefore, installation of vacuum circuit breaker has an advantage over SF_6 circuit breaker in terms of physical dimensions.

1.2. Maintenance

It is not necessary to monitor the arc-quenching medium during operation of vacuum circuit breakers since the vacuum interrupter seals are manufactured with brazed joints. Also, periodic routine hi-pot checks assure vacuum integrity. On the other hand, SF_6 circuit breakers require continuous monitoring of the arc-quenching medium since seals leak with time. This tends to result in higher maintenance cost on SF_6 circuit breaker compared to vacuum circuit breaker.

- The health index of oil circuit breakers has had a 20% increase in the number in fair condition and a corresponding decrease of 16% in good and very good condition from 2010 to 2011.
- Moreover, retaining the existing circuit breakers in service will likely have a negative impact on maintainability:
- Spare parts for the KSO oil circuit breakers are no longer being manufactured; spare parts required are obtained on special order at about twice the cost of the original spare parts
- Maintenance on these breakers can only be done when there is favorable weather.

Table 6 below lists the large customers who would be affected in the event of a failure of the selected circuit breakers:

Table 6: Large Customers Affected in the event of Breaker Failures

Customer Name	**Peak kVA**	**Feeder ID**
Customer A	3,386	51M4
Customer B	2,823	51M4
Customer C	1,945	51M4
Customer D	1,651	51M4
Customer E	1,211	51M4
Customer F	1,108	51M4
~~Customer G~~	~~1,047~~	~~51M7~~
~~Customer H~~	~~2,214~~	~~53M1~~
~~Customer I~~	~~5,787~~	~~53M11~~
~~Customer J~~	~~1,644~~	~~55M24~~
Customer K	4,740	55M28
Customer L	6,682	80M3
Customer M	1,105	80M3
Customer N	6,682	80M5
Customer O	1,693	80M5

Customer Name	Peak kVA	Feeder ID
Customer P	1,654	80M5
Customer Q	825	80M5
Customer R	1,923	80M9
Customer S	1,394	80M9
~~Customer T~~	~~1,452~~	~~85M2~~
~~Customer U~~	~~1,363~~	~~85M2~~
~~Customer V~~	~~307~~	~~85M2~~
~~Customer W~~	~~4,740~~	~~85M25~~
~~Customer X~~	~~1,1567~~	~~85M4~~

After analysis of all three alternatives mentioned above, THESL proposes that replacement of the outdoor-mounted oil circuit breakers with vacuum circuit breakers is the preferable option.

3. Avoided Risk Cost of the Selected Option

The effectiveness of the Circuit Breakers replacement jobs can be highlighted by determining how much cost is avoided by executing this work immediately as opposed to executing in 2015. These avoided costs include quantified risks, taking into account the assets' probability of failures, and multiplying this with various direct and indirect cost attributes associated with in-service asset failures, including the cost of customer interruptions, emergency repairs and replacement.

Carrying out immediate work on this asset class will result in the avoided estimated risk cost of approximately $3.2 million (Refer to Appendix 1), as opposed to executing this work in 2015. /c
Therefore, there are distinct economic benefits to executing this work immediately. The methodologies applied within this business case are further referenced within the Appendix.

Table 7: Avoided Risk Cost (Refer to Appendix 1)

Project Element	Station Circuit Breaker Project
Avoided Risk Cost	$3.2 Million

/c

Table 1: Summary of values used in the determination of Avoided Estimated Risk Cost

Business Case Element	Estimated Cost (in Millions)	
Present Value of Project Net Cost in 2015 (PV(PROJECT$_{NET_COST}$(2015))	$ 3.339	/C
Project Net Cost in 2012 (PROJECT$_{NET_COST}$(2012))	$ 0.157	
Avoided Estimated Risk Cost = (PV(PROJECT$_{NET_COST}$(2015)) – PROJECT$_{NET_COST}$(2012))	**$ 3.182**	/C

When this avoided estimated risk cost is calculated as a positive value, it means that estimated risk costs for the job assets in 2015 will exceed the estimated risks that exist today. By performing the work immediately as opposed to waiting until 2015, we can eliminate these estimated risks. Therefore, these avoided estimated risk costs represent the benefits of job execution.

ICM Project – Station Infrastructure and Equipment

Stations Control and Communication Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Stations Control and Communication Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $3.30 M to $1.13 M, a reduction of $2.17 M
- Revised number of jobs proposed for 2012/2013 to 5, with jobs for 2014 to be addressed in Phase Two, as proposed
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Clarified the formula for calculating the outage cost savings due to the SCADA system

ICM Project | Stations Control and Communication Segment

I EXECUTIVE SUMMARY

1. Description

THESL relies on an extensive Supervisory Control and Data Acquisition System (SCADA) for control and monitoring of distribution equipment. THESL uses various types of communication (SONET fibre optics, copper lines, radio system and leased telephone lines) to convey information between station assets and distribution system assets. This communication system is vital for operating the system and re-routing electrical supply during planned outages and emergency situations.

Station control and communication work proposed for 2012 and 2013 ~~and 2014~~ consists of improving SONET communication redundancy, upgrading SONET system communication capacity and installing SCADA RTUs. The estimated cost for the work is $1.13M, which consists of $0.51M for improving SONET system and $0.62M for replacing / installing SCADA RTUs, as presented in Table 1 and Table 2 below. Jobs were selected for inclusion in this segment based upon need and execution capacity, and in coordination with other projects. /US /UF, US /UF, US

Table 1: Job Cost Estimates for SONET System Redundancy/Upgrading

Job Title	Job Year	Cost Estimate ($M)	
Improve SONET Redundancy: 14 Carlton to George and Duke MS and Esplanade TS	2012	$0.23	
Improve SONET Redundancy: Malvern TS to Sheppard TS	2012	$0.22	
Improve SONET Redundancy: Split Toronto SONET ring	2013	$0.06	/US
~~Improve SONET Redundancy: Duplex TS to Fairbank TS and Warden TS to Bermondsey TS~~	~~2014~~	~~$0.39~~	/UF, US
Jobs Total 2012-2013:		**$0.51**	
Reconciliation for budget changes < $100,000 and rounding		**$0.01**	
TOTAL		**$0.52**	

Table 2: Job Cost Estimates for SCADA RTUs Replacing/Installing

Job Title	Job Year	Cost Estimate ($M)
Replace 15 MOSCAD RTUs in Etobicoke	2012	$0.28
Install 5 MS SCADA RTUs	2013	$0.34
~~Replace 14 MOSCAD RTUs in Etobicoke~~	~~2014~~	~~$0.59~~
~~Install 5 MS SCADA RTUs~~	~~2014~~	~~$0.36~~
	Subtotal:	**$0.62**

/UF

2. Why This Work is Needed Now

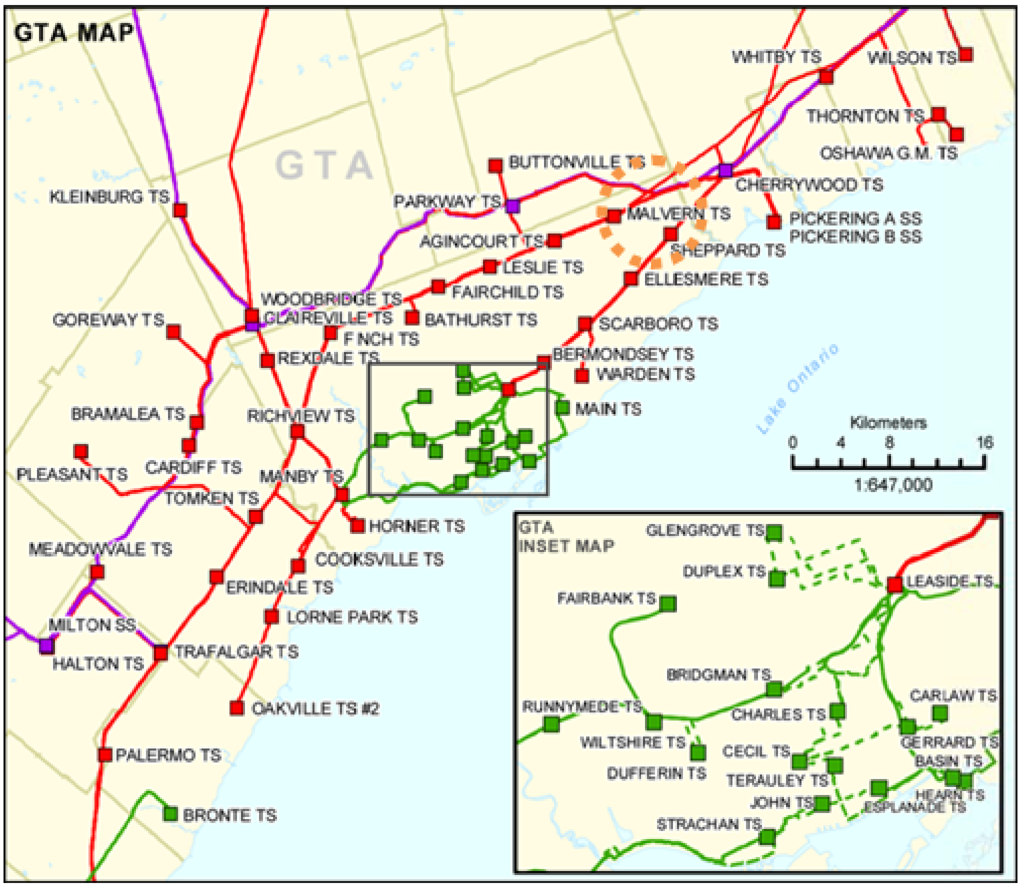
Elements of the SONET system and the radio system have developed reliability and maintenance issues that require immediate attention. This segment will address the communication issues that pose risks for THESL's continued ability to remotely monitor and control the distribution grid.

The SONET fibre optic communication system is normally designed as a redundant ring system between station assets and the Control Centre, but some segments lack redundancy and as these fibre optic lines age or are damaged by adjacent construction, there is a risk of a complete SONET system failure (Section III, 1). Failure of the SONET system would likely result in:

- No communication to support SCADA system, which would prevent system operators from monitoring and controlling vital substation equipment. The result would be longer outages as manual, rather than remote, switching would be required.
- No information to/from the T1 data circuits used for the protection and control of HONI 115kV transmission feeders that supply THESL (i.e., loss of system security and redundancy at HONI supply points and possibly longer outages from poor coordination with HONI).
- No transfer trip protection for HONI 230kV transmission in the Scarborough area, resulting in loss of system security and redundancy at HONI supply points and possibly

1.1.2. Improve SONET Redundancy: Malvern TS to Sheppard TS (Cost Estimate: $0.22M)

The scope of this job is to add redundancy to the SONET line between Malvern TS and Sheppard TS to improve communication integrity. The distance between Malvern TS and Sheppard TS is approximately 5.2 kilometres.



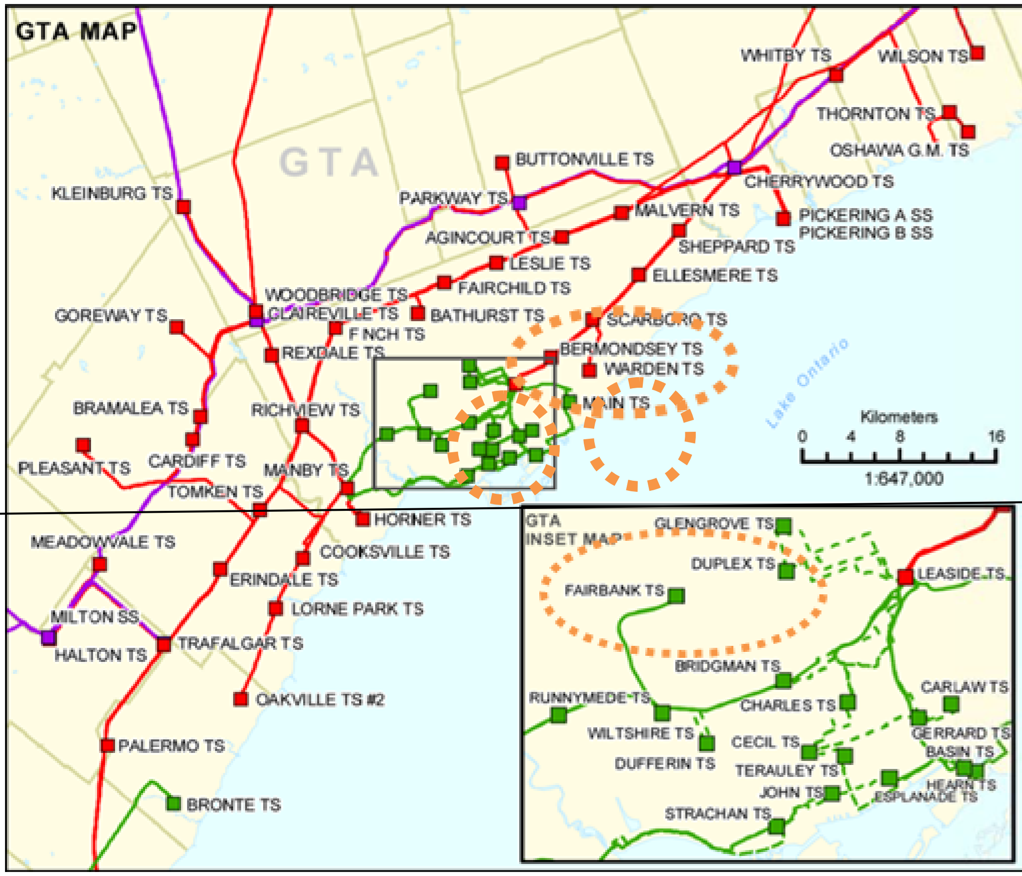
1.1.3. Improve SONET Redundancy: Split Toronto SONET Ring (Cost Estimate: $0.06M) /US

The scope of this job is to split the downtown SONET ring system into four more manageable rings to improve communication integrity.

~~1.1.4. Improve SONET Redundancy: Duplex TS to Fairbank TS and Warden TS to Bermondsey TS (Cost Estimate: $0.39M)~~

~~Scope of this job is to add redundancy to the SONET lines from Duplex TS to Fairbank TS and Warden TS to Bermondsey TS to improve communication integrity. The distance between Duplex TS and Fairbank TS is approximately 4.5 kilometres. The distance between Warden TS and Bermondsey TS is approximately 5 kilometres.~~

ICM Project | **Stations Control and Communication Segment**



/C

2. Replacing / Installing SCADA RTUs

2.1. Job Description

2.1.1. Replace 15 MOSCAD RTUs in Etobicoke in 2012 (Cost Estimate: $0.28M) /UF

The scope of work includes replacing the MOSCAD RTU and DARCOM radio system with a MDS TransIT radio system in 15 Etobicoke substations. Testing and commissioning of the new radio system is also included.

The 15 locations were chosen to take advantage of planned station maintenance in 2012 in order to optimize the outage planning process and minimize costs. The numbered MS locations on the map below (Figure 7) are:

/UF, US

2.1.2. Install 5 MS SCADA RTUs in 2013 (Cost Estimate: $0.34M)

Scope of work includes replacing the protection and control equipment and adding remote terminal units complete with a radio communication system. The numbered MS locations on the map below (Figure 9) are:

1) Estelle MS
2) Pemberton MS
3) Bellamy Lawrence MS

4) Brian Elinor MS

5) Brimley Bernadine MS

Figure 9: Map and Locations

~~**2.1.3. Replace 14 MOSCAD RTUs in Etobicoke in 2014 (Cost Estimate: $0.59M)**~~

~~Scope of work includes replacing the MOSCAD RTU and DARCOM radio system with MDS TransIT radio system in 14 Etobicoke substations. Testing and commissioning of the new radio system is also included.~~

~~The 14 locations were chosen to take advantage of planned station maintenance in 2012 in order to optimize the outage planning process and minimize costs. The numbered MS locations on the map below (Figure 10) are:~~

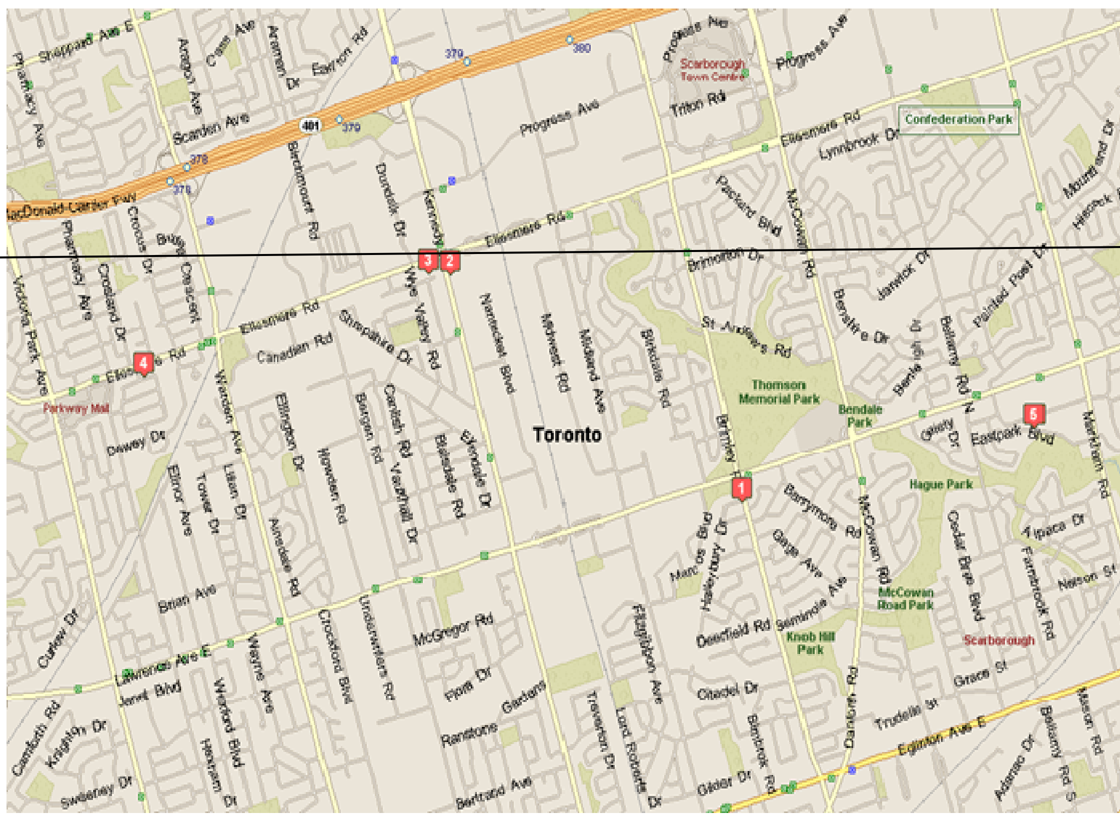
~~1) Albion MS~~	~~6) Blaketon MS~~	~~11) Chapman MS~~
~~2) Allenby MS~~	~~7) Burlingame MS~~	~~12) Dalegrove MS~~
~~3) Annabelle MS~~	~~8) Burnhamthorpe MS~~	~~13) Dunsany MS~~
~~4) Ashley MS~~	~~9) Centennial MS~~	~~14) Elmhurst MS~~
~~5) Blackfriar MS~~	~~10) Centre Drive MS~~	

~~**Figure 10: Map and Locations**~~

~~2.1.5. Install Five MS SCADA RTUs in 2014 (Cost Estimate: $0.36M)~~

~~Scope of work includes replacing the protection and control equipment and adding remote terminal units complete with a radio communication system. The numbered MS locations on the map below (Figure 11) are:~~

1) ~~Brimley Lawrence MS~~
2) ~~Ellesmere Kennedy T1 MS~~
3) ~~Ellesmere Kennedy T2 MS~~
4) ~~Ellesmere White Abbey MS~~
5) ~~Greencedar Lawrence MS~~



~~**Figure 11: Map and Locations**~~

3. Benefit Cost Evaluation

The SONET improvement jobs and the MOSCAD replacement jobs will help THESL achieve more reliable communication. This provides more efficient, cost effective outage response and more reliable power supply to its customers since THESL control centre operators can monitor equipment conditions, correct faults remotely, provide automated switching and feeder re-routing in both planned outages and unplanned emergency work.

It is estimated that the duration of system outages can be reduced significantly with proper communication between control room, response crews and equipment. For the last five years (2007-2011), the average number of customers interrupted (CI) in Etobicoke is 181,785 customers per year, and the average customer minutes outage (CMO) is 8,007,263 per year. The average outage duration is 44 minutes with SCADA system in service. Without SCADA system, the outage duration increases from 44 minutes to 175 minutes on average, and therefore the CMO become 31,812,305 (181,785 x 175). As a result, the CMO saving due to a SCADA system in service is 23,805,042. Based on the cost of interruption formula, the benefit can be derived as follow:

Assuming each customer has a load of 3 KVA, and 33% of the outage can be improved by SCADA system.

The kVA load served: 23,805,042 x 3 = 71,415,125 kVA*[customer outage minutes] /C

The 33% improvement by SCADA system: 71,415,125 x 33% = 23,805,042 kVA*[customer outage minutes] /C

Using $15 per KVA x hour, the cost saving will be: /C

Outage cost saving = 23,805,042 x $15 / 60 = $5,951,260

The system-wide reduction in Customer Minute Outage (CMO) represents benefits of the order of approximately $5.95 million every year. This one time investment of $1.13 million will ensure that these benefits will continue to be realized; therefore this initiative has a benefit cost ratio well above unity. **/UF, US**

ICM Project – Station Infrastructure and Equipment

Downtown Station Load Transfer Facilities Segment

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Downtown Station Load Transfer Facilities Segment

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $3.34 M to $2.82 M, a reduction of $0.52 M
- Revised number of jobs proposed for 2012/2013 to 3, with jobs for 2014 to be addressed in Phase Two
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system

ICM Project | Downtown Station Load Transfer Facilities Segment

I EXECUTIVE SUMMARY

1. Project Description

This segment includes the completion of the Dufferin – Bridgman feeder tie work in 2012 that was largely completed in 2011, and two new jobs for 2013 that are required to provide feeder ties between Basin and George and Duke stations; and Basin and Carlaw stations, where no such facilities present exist (See Section II). /US

About 21% of the $9.4M Dufferin-Bridgman feeder ties work remains for 2012 which includes /UF completion of electrical work, feeder transfers, some feeder capacity upgrades and commissioning (See Section II). This job plus the other two proposed jobs for 2013 combine for a total cost of $2.8M. None of the proposed work is included in existing rates. /UF, US

Table 1: Proposed Feeder Ties

Job Number	Job Identifier	Cost Estimate ($M)	Year of Execution	
X11620	Feeder Tie Dufferin to Bridgman	1.94	2012	/UF
X11424	Feeder Tie A203BN to A240GD	0.48	2013	/US
X12086	A204BN tie to new Carlaw feeder	0.39	2013	
~~X12340~~	~~Feeder Tie A36DN to A67W~~	~~1.78~~	~~2014~~	
~~X12342~~	~~Feeder Tie A13DN to A35W~~	~~1.81~~	~~2014~~	
	Total	**2.82**		/UF, US

The other two jobs listed in Table 1 will allow rapid transfer of customer loads on the feeder pairs between Basin and George and Duke stations; and Basin and Carlaw stations. The load transfer capability that would become available represents up to roughly 3% of Basin TS loading; 3% of George and Duke TS loading; and 5% of Carlaw TS loading;. It would provide increased reliability for these feeders, from any HONI or THESL incident that impacts station supply. /US

These jobs are expected to collectively provide mitigation for a portion of risks identified at five of the 15 downtown stations, and provide back-up supply to a total of 5,164 customers and 38.4 MVA of load. This capital investment will result in a net benefit of $54,000 through reduced customer interruption costs. /UF, US

3. Why the Project is the Preferred Alternative

Six alternatives were considered:

- Status quo
- Mobile generators
- Mobile switchgear
- Inter-station switchgear ties
- Intra-station switchgear ties
- Station-to-Station Feeder ties

Under the status quo, customers will continue to be exposed to long duration outages in the event of a station failure and the benefits from the investments already made to tie Dufferin and Bridgman stations will not be realized (See Section IV, 1). Neither mobile generators nor mobile station-to-station feeder ties can completely address station failures as explained in Section IV, 2. Both inter and intra-station switchgear ties are typically available only for new switchgear installations and will typically not address all types of potential station failures. As such, these options do not represent viable remedies in the near-term (See Section IV, 3). Station to station feeder ties are the only solution capable of completely addressing any loss-of-

Table 2: Dufferin – Bridgman Feeder Ties

Job Number	Total Cost ($M)	Outstanding Cost ($M)	Year of Execution
W10356	1.33	0	Finished
W10358	1.03	0	Finished
W10359	0.48	0	Finished
W10357	0.73	0	Finished
X11677	0.48	0	Finished
X11620	5.35	1.94	2012
	9.40	1.94	

/UF

An expenditure of approximately $1.94 M, representing approximately 21% of the total project cost, is expected to complete the work necessary to provide complete peak load feeder-to-feeder tie capability for four Dufferin – Bridgman feeder pairs. The load transfer capability that would become available represents up to roughly 29% of total Bridgman TS loading and up to roughly 11% of total Dufferin TS loading. The remaining station loading is associated with other feeders and will need to be addressed in future projects. /UF

In addition, two additional feeder-to-feeder tie jobs are proposed. These projects are identified in Table 3, and the geographic boundaries are illustrated in Figure 1, below, respectively. /US

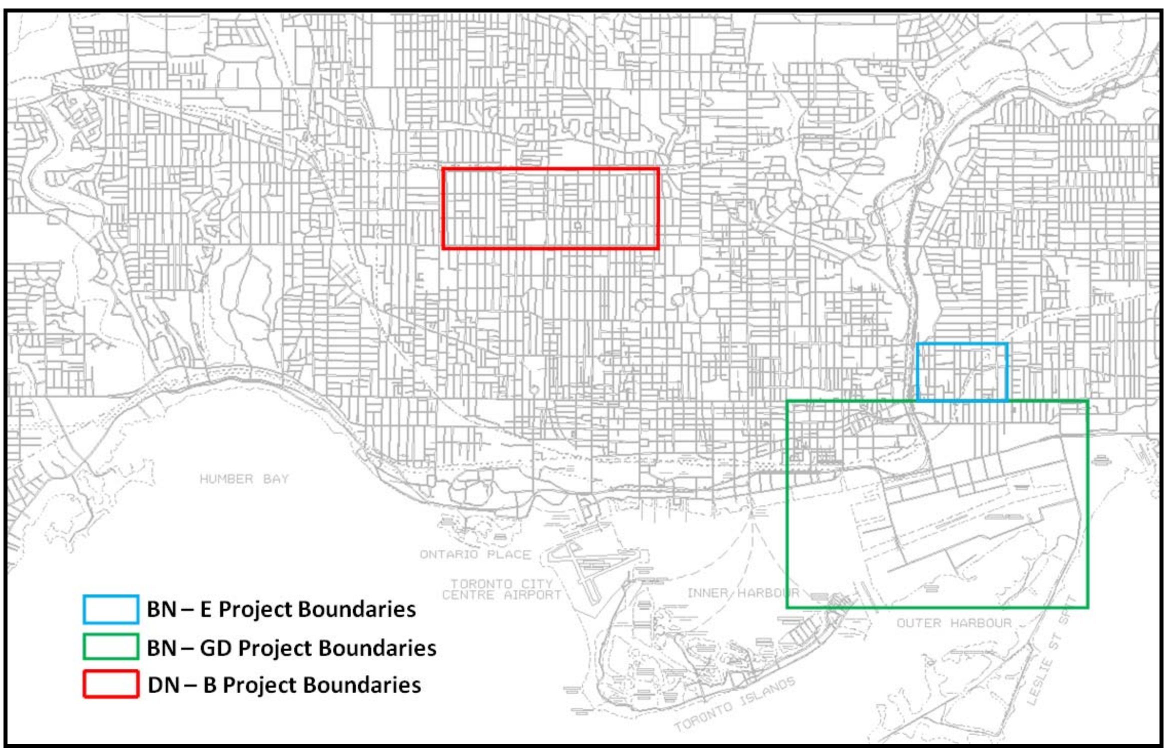
ICM Project | Downtown Station Load Transfer Facilities Segment

Table 3: Proposed Feeder Ties – 2013~~, 2014~~ /US

Job Number	Job Identifier	Cost Estimate ($M)	Year of Execution
X11424	Feeder Tie A203BN to A240GD	0.48	2013
X12086	A204BN tie to new Carlaw feeder	0.39	2013
~~X12340~~	~~Feeder Tie A36DN to A67W~~	~~1.78~~	~~2014~~
~~X12342~~	~~Feeder Tie A13DN to A35W~~	~~1.81~~	~~2014~~
	Total	**0.87**	

/US (X11424 row)

/US (struck rows)



/US

Figure 1: Feeder Ties Area Boundaries

The scope of each of these jobs is similar to that detailed for each individual Dufferin – Bridgman feeder pair. The proposed feeder ties are expected to allow rapid transfer of customer loads on the feeder pairs between Basin and George and Duke stations; and Basin and Carlaw stations. The load transfer capability that would become available represents up to roughly 3% of Basin TS loading; 3% of George and Duke TS loading; and 5% of Carlaw TS loading. /US It would provide increased reliability for these feeders, from any HONI or THESL incident that impacts station supply.

These jobs are expected to collectively provide mitigation for a portion of risks identified at five of the 15 downtown stations, and provide back-up supply to a total of 5164 customers and 38 MVA of load. /US The jobs will allow 100% load transfer capabilities for the specific feeder pairs under peak conditions. Other feeders from these stations would need to be addressed in future projects. Should this work not take place, customers on these feeders would face unmitigated outage durations for any major loss of supply incident at these stations.

outage event cost, $15/kVAh outage duration cost, 1.5 outages per year, 40% of station outage, 9.07-hour outage duration and peak system load). /C

The downtown radial design is depicted in Figure 2 below.

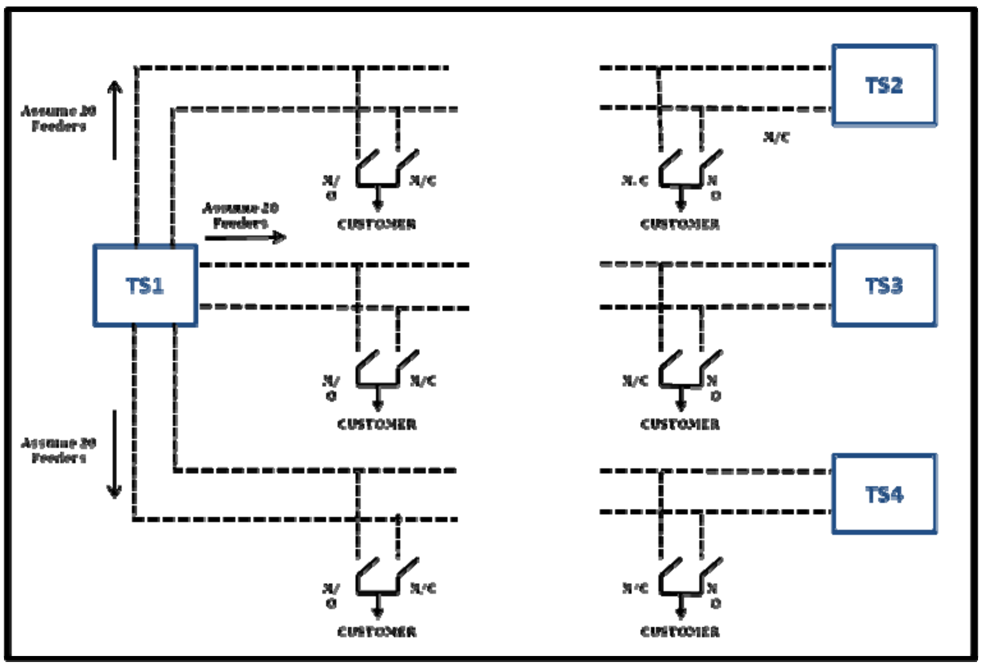


Figure 2: Radial distribution design utilized in downtown area

Outside of the downtown Toronto area, the distribution system is of an open-loop design. This design incorporates many ties between feeders, and in particular, ties between feeders coming from different stations. As a result, most areas can be quickly resupplied by an alternative station when necessary. The open-loop design is depicted in Figure 3 below.

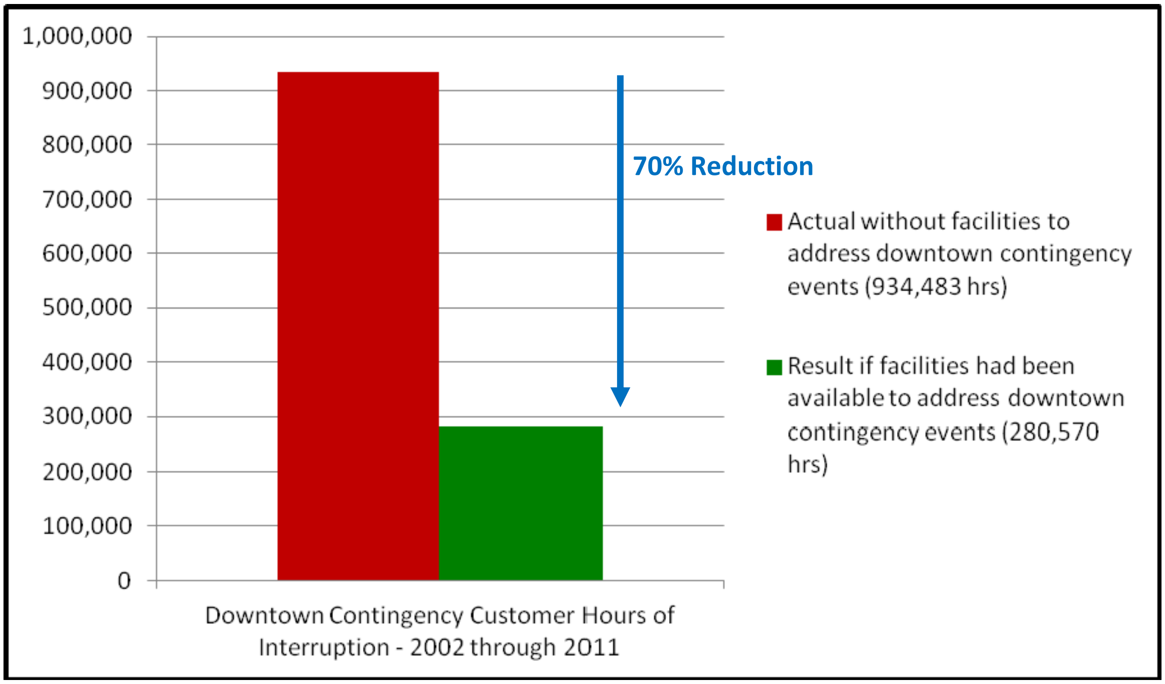


Figure 4: Reliability Impact of Downtown Station Load Transfer Implementation

All four major station outage events in downtown Toronto's history occurred in the last decade. This experience indicates that the conditions in and around the 15 downtown stations are worsening as time progresses, and as a result the risks are increasing. Each of these historical events resulted from causes external to THESL that negatively impacted the station distribution equipment. Therefore, the only certain way to address such failures is to provide a back-up supply to customers.

The purpose of this segment is to provide distribution load transfer capability from one station area to another station area in order to manage the risks of partial, or complete, station outages.

An investment of $2.8M over the period of 2012 through 2013 is expected to complete the work necessary to provide feeder-to-feeder tie capability for six feeder pairs. This work is expected to allow rapid transfer of customer loads on these feeder pairs should mitigate virtually any loss-of-supply incident occur at any of these stations. /UF, US

ICM Project | Downtown Station Load Transfer Facilities Segment

The work to enable station load transfers for the downtown stations must be undertaken over many years. The proposed jobs for 2012 and 2013 represent the highest priority jobs based on /US reasonable project scope and the ability of each station to pick-up the alternate feeder loads.

Intra-station switchgear ties (i.e., ties between switchgear within the same station) can address some loss of HONI supply incidents but not loss of THESL switchgear incidents, and are also generally only practical to add to new station switchgear. For the limited types of loss of supply incidents that these alternatives can address, customers would be expected to experience interruptions of a few hours. New THESL station switchgear is now being designed with enhanced provisions for inter- and intra-station switchgear ties. As a result, these facilities will only become available in the long term.

4. Station-to-Station Feeder Ties

Only station-to-station feeder ties are capable of completely addressing any loss-of-supply incident. Customer load restoration times are also generally short, with an estimated 14 hours with local switch operation and an hour with the future addition of remote operation.

Figure 5 illustrates the typical proposed connections between Dufferin and the neighbouring stations. In order to ensure that sufficient spare station capacity exists to pick up the load from Dufferin at the receiving station, ties must be distributed from Dufferin to Bridgman, Cecil, Strachan and Wiltshire stations. The proposed Dufferin - Bridgman work will complete four feeder to feeder ties between Dufferin and Bridgman stations. This portion of the work is highlighted in red in figure 5. /c

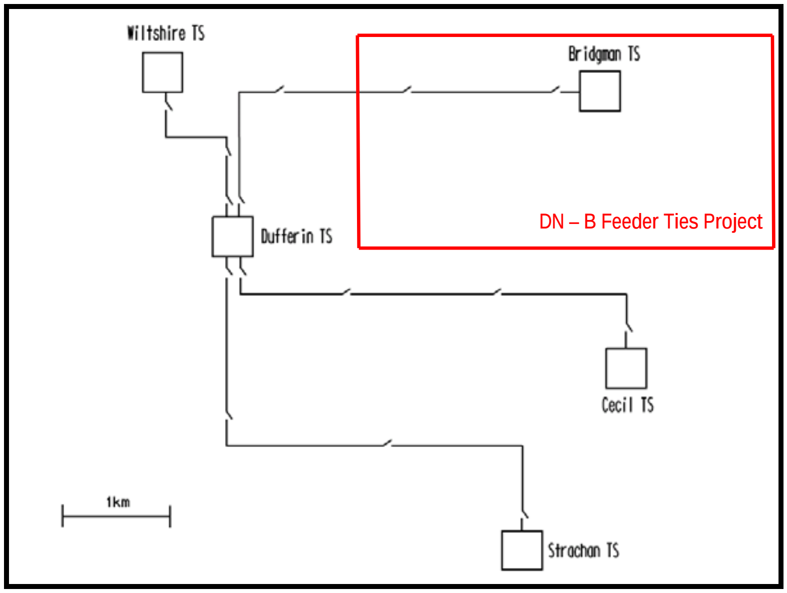


Figure 5: Schematic of Planned 13.8kV Interconnections between Dufferin TS and Neighbouring Stations (Typical)

The approach THESL has taken is to provide feeder ties across the downtown core area, rather than focus on a specific area or station. Feeder-to-feeder tie projects typically involve first installing remotely operable load break switches to permit the isolation of the feeders from the station. Then, remotely operable load break switches would be installed to tie individual feeders to feeders from neighbouring stations. Lastly, cabling is installed to tie feeders to these neighbouring stations. THESL expects that this approach provides the greatest opportunity to mitigate high impact station events for a number of stations and is the most cost effective solution.

In addition to completing the Dufferin-Bridgman feeder ties, two new jobs are required to provide feeder ties between Basin and George and Duke stations; and Basin and Carlaw stations, where no such facilities presently exist. These feeders are presently exposed to unmitigated risks from major loss of supply incidents. /US

The installation of these feeder-to-feeder ties is expected to ultimately allow future loss-of-supply incidents to be managed in a way that customers won't face extended outages.

5. Economic Benefits of Preferred Alternative

If no proactive work were to take place to mitigate the risks of major downtown contingency incidents, the expected PV of outages would be $3.23 million for the feeders involved in these /UF jobs. By executing the proactive feeder installation work identified in Table 1, the PV of all costs (including reduced customer outage costs, capital investment and increased maintenance) would be reduced to $3.17 million. This represents a net benefit of $54,000. The calculations /UF for this analysis can be found in the Appendix.

APPENDIX

Table 3: Benefit-Cost Analysis Summary

DOWNTOWN STATION LOAD TRANSFER FACILITIES ANALYSIS				
A) Base Case – do nothing	**Year 2012**	**Year 2013**	**Year 2014**	
Capital Investment by year	$0	$0	$0	
PV of Outage Duration Cost	$3,226,899			/UF
Base Case PV	**$3.226,899**			
B) Feeder Tie Case	**Year 2012**	**Year 2013**	**Year 2014**	
Capital Investment by year	$1,942,656	$873,542	~~$3,591,941~~	/UF, US
PV of Capital Investment	$2,766,286			
PV of Maintenance Cost	$50,616			/UF
PV of Outage Duration Cost	$355,646			
Feeder Tie Case PV	**$3,172,549**			
Results				
NPV	**$54,351**			/UF

Scenario A – Base Case:

This is the scenario for run to failure with no proactive investments. Costs expected over the next 20 years are included in the calculations. The station outage incident rate is derived from the last ten years of experience in the downtown Toronto area, and applies to both cases. The historic outages used for the calculations are identified in Table 4. Outage duration for the base case is derived from the average outage duration over the last ten years in downtown Toronto, which is 9.07 hours. The kVA interrupted only includes feeders for which ties are proposed in Scenario B. The discount rate used for calculations is 6.06% in both cases. Customer interruption duration cost used is $15 per kVAh in both cases, and represents the opportunity /C cost to customers from lost power. Outage event costs are not included in the calculations as they are identical in both cases.

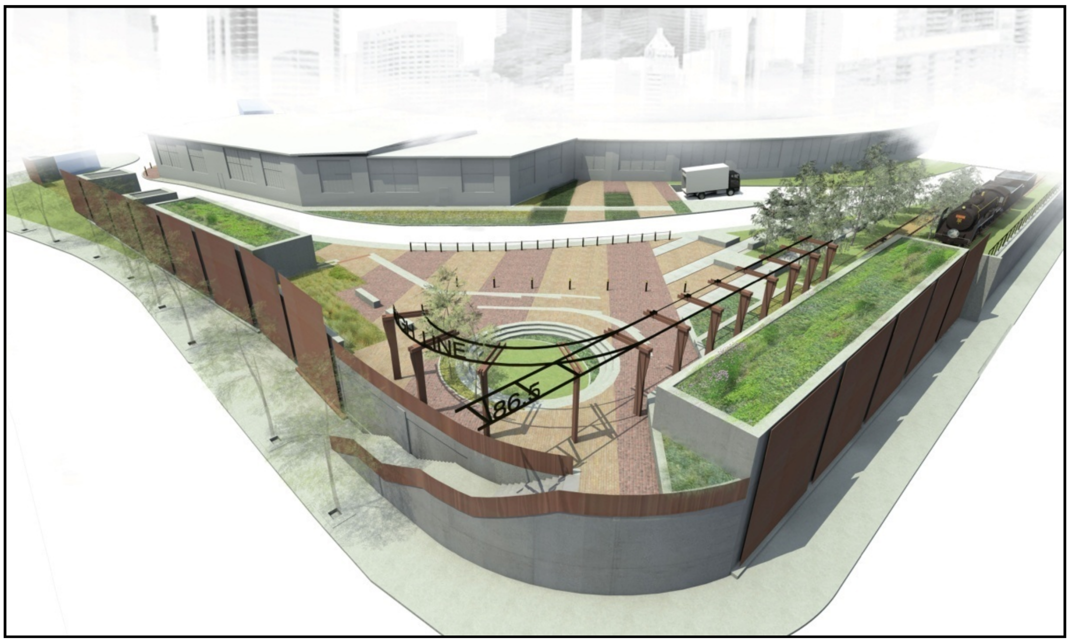
Scenario B – Feeder Tie Case:

This is the scenario where feeder ties are installed over the years 2012 and 2013 as identified in /US Table 1. Capital costs are identified in Table 1. Other costs (including customer outage costs and increased maintenance costs associated with additional equipment), expected over the next 20 years are included in the calculations. The station outage incident rate is derived from the last ten years of experience in the downtown Toronto area as for the Base Case. Customer outage duration for the feeder tie case is assumed to be an hour for each incident beginning with the year following installation of station-to-station feeder ties. The kVA interrupted only includes feeders proposed to have feeder ties installed as identified in Table 1. Maintenance costs include $190 per year per new vault. The discount rate used is 6.06%; the customer interruption duration cost is $15 per kVAh; and the outage event costs are not included, all as /C per the Base Case.

Evaluating both scenarios leads the conclusion that proactive installation of feeder ties is the prudent approach. By mitigating potential customer outages, the net benefit is $54,000. /UF

ICM Business Case Evaluation

Bremner TS



Toronto Hydro-Electric System Limited (THESL)

ICM Project | Bremner TS

SUMMARY OF CHANGES IN THE UPDATE

- Schedule of project updated for each of 2012, 2013, 2014
- Costs by year updated for new schedule; total three-year costs for overall Phase 1 project unchanged
- Load forecasts updated and 2011 actual loads provided by downtown station

EB 2009-0139 and EB 2010-0142[1], described the immediate and short term need for a new source of supply. These applications followed over 20 years of study by THESL and Hydro One Networks Inc. (formerly Ontario Hydro) and the Independent Electrical Supply Operator (IESO, formerly IMO) of the immediate and short term need for additional supply in the downtown and the alternative options available to achieve this. The need horizons are illustrated in Figure 1 below.

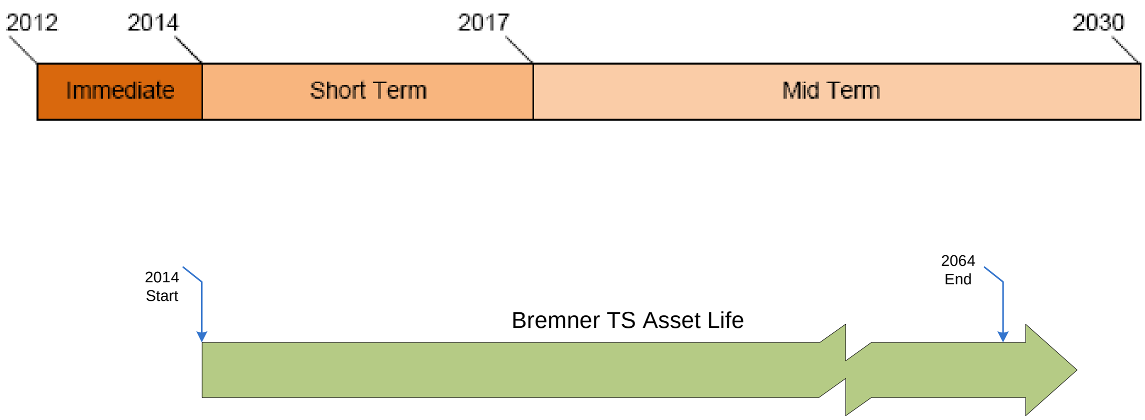


Figure 1: Immediate, Short term and Mid-term Need Timeline

In downtown Toronto, there is an immediate need for additional capacity at Windsor TS in order to enable staged replacements of its end-of-life, air-blast switchgear. There is also a short- and mid-term need for additional capacity to serve load growth in the downtown core.[2]

[1] Detailed in Appendix 1: Previous Bremner TS pre-filed evidence and Interrogatory responses
[2] Since the submission of this ICM Business Case in May 2012, additional potential projects have emerged in the downtown core that indicate that the short term need may be realized sooner than originally anticipated , including the Gehry-Mirvish King West Project, the Oxford Properties Casino Plan and multiple data centres. These projects have not yet been incorporated into Toronto Hydro's load forecasts. Further information may be found in the links below:
- http://www.thestar.com/news/gta/article/1265100--gehry-and-mirvish-toronto-s-star-duo-could-leave-a-towering-mark-on-king
- http://www.thestar.com/news/gta/cityhallpolitics/article/1270290---3-billion-casino-plan-unveiled-for-downtown-toronto
- http://www.datacenterknowledge.com/archives/2012/10/03/cologix-opens-new-space-at-151-front-street/

/u

the Bremner TS where the 115kV voltages will be stepped down, through transformers, for distribution to customers.

The Roundhouse site area, where the Bremner TS will be constructed, is both a federally and municipally designated heritage site. Therefore, the building is required to comply architecturally with heritage requirements applicable to the site as discussed in Appendix 6.

THESL is requesting, under Section 84(a) of the OEB act, that Bremner TS be deemed a distribution asset, for which cost recovery is through distribution rates.

The preliminary development work, including detailed engineering design and land acquisition has been completed on Bremner TS with expenditures approved in EB-2009-0139 and EB-2010-0142. Successful stakeholder engagement has been completed, including Public Information Centres (PICs). Information from these PICs as well as detailed information on the Environmental Site Reports has been compiled and made public on the Toronto Hydro Bremner TS website[3]. A Bremner TS presentation was delivered to the OEB staff on August 19, 2011. The Environmental Assessment for Bremner TS has been completed and THESL has received approval to proceed. Detailed drawings and specifications have been prepared as well as many procurement documents. Requests for Proposals (RFPs) have been issued on long-lead equipment.

THESL proposes to execute Bremner in two phases. For 2012, THESL proposes to initiate preparation of the Bremner TS site for major construction. In addition, THESL proposes to enter into commitments with suppliers and contractors so that major construction can be initiated by Q1 of 2013. Major construction for the project is expected to be completed over a 24 month period and, if construction begins in Q1 2013, the Transformer Station is scheduled to be constructed by the end of 2014. A block diagram has been included in Figure 10 of this /u document to set out the tasks to be completed in 2012 in order to start construction. The 2014 completion date is aligned with the THESL TS Switchgear Replacement ICM for the Windsor TS

[3] See http://www.torontohydro.com/sites/electricsystem/powerup/Pages/BremnerStationProject.aspx

THESL also reviewed solutions for TS installations in other metropolitan jurisdictions to compare and validate current plans and estimates. The conclusions from this analysis reaffirmed that proceeding with the current course of the Bremner TS project is THESL's preferred option.

For 2012, an estimated total of $8.5 million is requested (for THESL) to initiate preparation of the Bremner TS site for major construction. For 2013, an estimated total of $104.1 million is requested so that the 24-month construction phase can be initiated. For 2014, an estimated total of $71.6 million is requested to complete the construction phase. The total amount requested for 2012 to 2014 is $184.1 million.

Table 1: Requested costs for Bremner TS Phase 1 /u

Estimated Project Costs ($, millions)	2012 Test	2013 Test	2014 Test	Total
THESL Budget	8.5	81.1	34.6	124.1
Capital Contribution to Hydro One		23.0	37.0	60.0
Total	8.5	104.1	71.6	184.1

III NEED

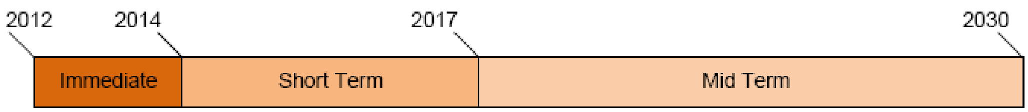


Figure 4: Immediate, Short Term and Mid-Term need timeline

1. Immediate Need (By 2014)

Windsor TS is currently using end-of-life air blast switchgear to supply key customers in Toronto's financial district. This 13.8 kV air blast switchgear, which was installed in 1956, needs to be replaced in stages (one bus at a time). In order to do so, existing loads served by the affected equipment will need to be transferred to another supply source, with 72 MVA capacity. This is an immediate need and action should be taken to complete this transfer as soon as is physically possible. The Windsor TS switchgear upgrade work has been included separately in the Stations Switchgear segment found at Tab 4, Schedule B13.2, Section II, 4.

2. Short-term need (2014 to 2017)

In the short-term, additional capacity will be required to avoid overloading at three of the five key downtown stations.

THESL completes load forecasts for each of the 35 stations in downtown Toronto on a yearly basis. The methodology associated with these forecasts has been summarized in Appendix 2 to this narrative.

Based on THESL's load forecast, Table 2 below summarizes the anticipated load increases for the five downtown stations to 2017. As indicated in Table 2, overloading at Windsor TS is expected to occur by 2017. In addition, overloads at Esplanade TS, Strachan TS, and Cecil TS are expected /u to occur soon thereafter (2018, 2022 and 2022 respectively). Action must therefore be taken to /u have new total capacity of 144 MVA available to avoid these overloads prior to 2017.

Table 2: Load Forecasts for five downtown Toronto Stations (Highlighting Shows Overload)

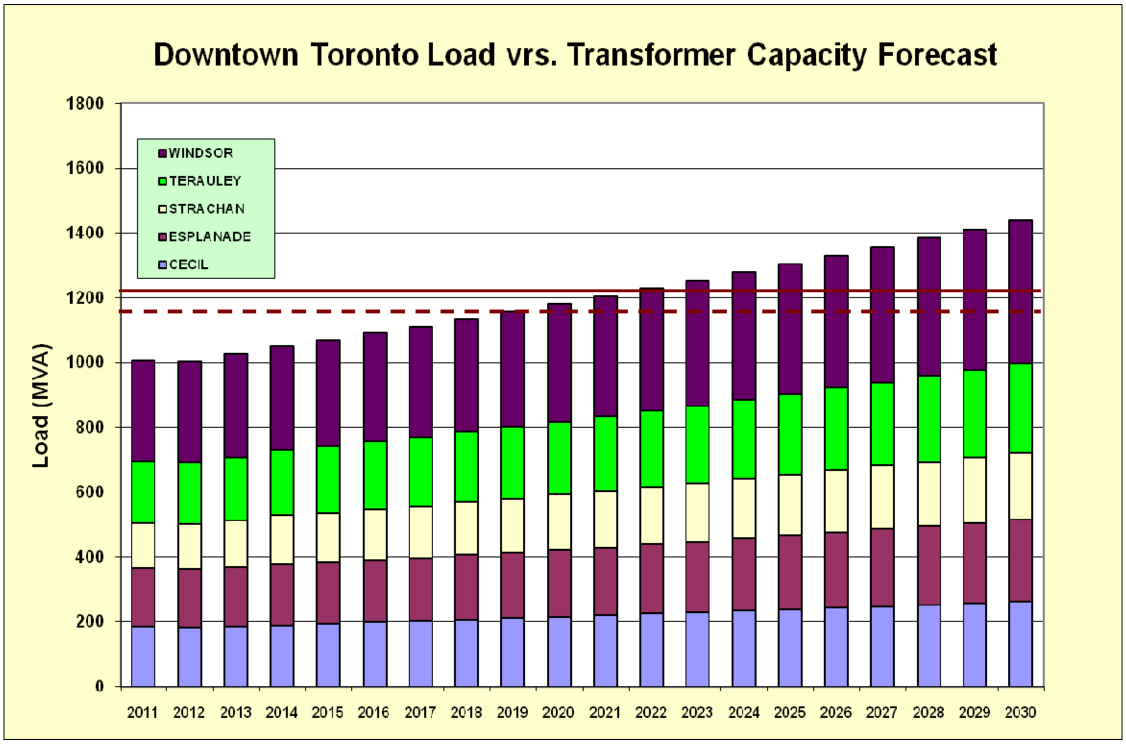
Station	Station Rating	Year						
		2011[6]	2012	2013	2014	2015	2016	2017
Cecil	224	187	183	186	190	195	199	202
Esplanade	198	180	180	184	189	188	191	194
Strachan	175	138	138	143	150	153	157	160
Terauley	240	190	193	196	201	205	209	213
Windsor	340	311	310	316	322	329	335	340
Total	1,177	1006	1004	1025	1052	1070	1091	1109

/u

3. Mid-term need (2018 – 2030)

Also based on THESL's load forecast, Figure 5 below indicates a consistent load growth to 2030 with a load of approximately 288 MVA over and above the total station capacity that is available today. Therefore, for effective life cycle planning it would be prudent to at least incorporate incremental growth options for future expansion, by having the space ready to accommodate for additional switchgear that could supply these loads in future.

[6] In May's ICM submission, the 2011 to 2017 load data had been issued as a forecasted number (based on the 2011 load forecast). With this update, the 2011 load data has been updated to show the actual, historic data for that year. The 2012 to 2017 load data are forecasted numbers (based on the 2012 load forecast). /u



/u

Figure 5: Load Forecasts by station

Note: Dashed horizontal line represents 95% firm capacity of five stations, solid horizontal line represents 100% firm capacity of stations.

4. Consequences of Deferral

In addition to the above noted capacity constraints, the equipment asset condition at Windsor presents what THESL regards as an unacceptable risk. Deferring switchgear replacement at Windsor TS will lead to continued reliance on custom equipment repairs on the aging, obsolete equipment. This stopgap approach is unsustainable and, even with these actions, the reliability of this obsolete equipment will continue to decline, leading to increased risk of failure. Equipment failure at Windsor TS is considered one of THESL's highest risk events due to both the state of equipment and the critical loads it supplies. There is no alternate supply to customers should a switchgear fail, and restoration time would be measured in days, possibly weeks, depending on the failure scenario. The work associated with upgrading Windsor TS has already been planned for 2014 and is discussed separately at Tab 4, Schedule B13.2, Section II, 4.

ICM Project | Bremner TS

In 2010, with approval from the Ontario Energy Board (EB-2009-0139), THESL acquired the land for the new station and engaged a consultant (IBI Group) to start detailed engineering.

In 2011, with approval from the OEB for that year (EB-2010-0142), detailed design for the station was completed to 95%. Concurrently, stakeholder engagement was completed by way of Public Information Centres (PICs) and presentations to key parties. THESL has also been working with IBI Group to process Requests for Proposals (RFPs) for major equipment and construction services for the Transformer Station.

For 2012, THESL's objective is to initiate preparation of the Bremner TS site for major construction and enter into commitments with suppliers and contractors so that major construction of Bremner TS Phase 1 can begin by January 2013. In order to enter into long-term commitments with suppliers and contractors, approval is required for 2012, 2013 and 2014 funding.

For 2013, THESL's objective is to initiate Bremner TS phase 1, which includes construction of the cable tunnel and the Transformer Station building.

For 2014, THESL's objective is to complete reassembly of the Machine Shop building and commission the site by the end of that year.

/u

A summary of tasks requiring execution for the two-year construction process for Bremner TS has been illustrated in Figure 10.

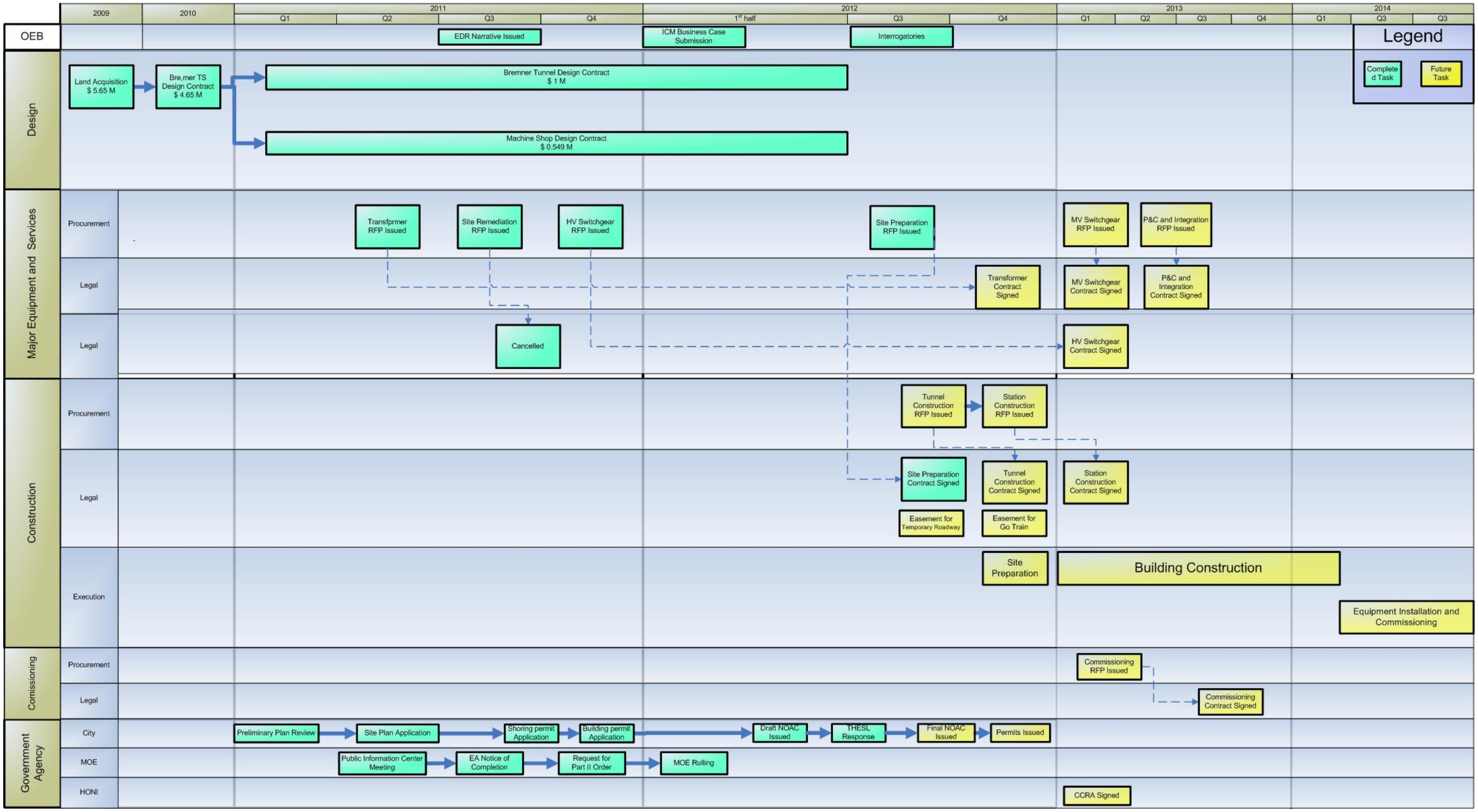


Figure 10: Tasks required for executing Bremner TS project /u

5.2.2. Windsor TS Switchgear Upgrades

Completion of the Bremner TS project in Q4 2014 will enable initiation of the much needed /u switchgear upgrades at Windsor TS in that same year. A separate request for Windsor TS has been included in Tab 4, Schedule B13.2, Section II, 4.

5.2.3. Asset Classification

THESL intends to use Bremner TS solely to provide distribution services to customers at voltages less than 50kV. Though technically a transmission asset, THESL is requesting, under Section 84(a) of the OEB act, that Bremner TS be deemed a distribution asset, and that cost recovery be effected through distribution rates. Such a classification has been granted in the past by the OEB for similar Transformer Station assets for THESL, Oakville Hydro and Guelph Hydro.

5.2.4. Required Capital Cost Estimates

5.2.4.1. Total THESL Cost Estimates for Bremner TS Project, Phase 1

In 2010, order of magnitude costs for the completion of Phase 1 of Bremner TS were the basis for the decision to proceed with the Bremner TS project and were derived from the best information available at the time.

In 2011, upon completion of detailed engineering design for the Bremner TS Project, an updated cost estimate was completed. Table 10 below compares the 2010 and 2012 cost estimates.

1 **Table 11: Estimated THESL Costs for Bremner TS, listed by task ($ million)**
2 **(Excluding HONI Capital Contribution)**

Task	**2010 Actual**	**2011 Actual**	**Total Actual**	**2012 Test**	**2013 Test**	**2014 Test**	**Total Test**	**Grand Total**
Land acquisition	5.6		5.6				-	5.6
Construction of Building				2.4	28.7	22.2	53.3	53.3
Procurement of Major Equipment				1.5	40.6	10.5	52.6	52.6
Distribution Modification		0.8	0.8	1.5	-	-	1.5	2.3
Detailed Design / Construction PM		4.0	4.0	1.7	0.6	0.5	2.7	6.7
Construction of Cable Tunnel				1.4	11.2	1.4	14.0	14.0
Total	**5.6**	**4.8**	**10.4**	**8.5**	**81.1**	**34.6**	**124.1**	**134.5**

/u

3 As stated in the "Project Timelines" section of this document, the year-by-year cost estimates
4 are based on major construction starting in January 2013, completion of the TS building and
5 cable tunnel in Q1 2014 and completion of the Machine Shop building and total site
6 commissioning by end of 2014.

5.2.4.3. Year-by-Year Cost Estimates for Bremner TS Project - Hydro One

A separate ICM project for the capital contribution to Hydro One has been included at Tab 4, Schedule B18, Section II, 1.

5.2.4.4. Year-by-Year Cost Estimates for Bremner TS Project - Combined

The combined THESL and Hydro One cost estimates to complete the Bremner TS project are summarized in Table 12 below:

Table 12: Estimated Capital costs for Bremner TS Project

	2010 Actual	2011 Bridge	2012 Test	2013 Test	2014 Test	Total
THESL Budget	5.6	4.8	8.5	81.1	34.6	134.5
Capital Contribution to Hydro One		0.4	0	23.0	37.0	60.4
Total	5.6	5.2	8.5	104.1	71.6	194.9

/u

VII CONCLUSIONS

In the OEB's decision, dated January 5, 2012, THESL's Bremner Transformer Station Project was noted as being potentially eligible for ICM funding.

An immediate need for new capacity exists in the City of Toronto in order to upgrade end of life equipment at Windsor TS. The City also has short term (increasing loads at five key stations downtown) and mid-term (future load growth) needs.

Having Bremner TS in service by Q3 2014 is the preferred solution to address these needs.

Preliminary work for the Bremner TS project has been approved in past applications to the OEB (EB-2009-0139, EB-2010-0142).

THESL is requesting, under Section 84(a) of the OEB act, that Bremner TS be deemed a distribution asset, with cost recovery provided through distribution rates.

Construction of Bremner TS Phase 1 is the next stage of the project and requires approval for multi-year funding so that long-term commitments to suppliers and contractors can be made.

Bremner TS would be built in 2 phases. Phase 1, the phase covered by this ICM filing, would last from 2012 to 2014 and would address the immediate need to upgrade Windsor TS. Phase 2 is expected to commence in 2021 and would involve installation of new equipment in the Bremner TS facility in order to address future loads. Funding for Bremner TS Phase 2 is not included in this application.

The total project budget for Phase 1 (2012-2014), including Hydro One and THESL costs, is $194.9 million. To date, a total of $ 10.8 million has been spent on land acquisition and design services. For 2012, a total of $8.5 million has been requested so that development can continue /u
and the multi-year construction of Phase I can be initiated. For 2013, a total of $104.1 million /u

has been requested to continue construction. For 2014, a total of $71.6 million has been /u requested to complete the construction of Phase I.

Table 15: Summary of Actual and Estimated Costs for Bremner TS Phase 1

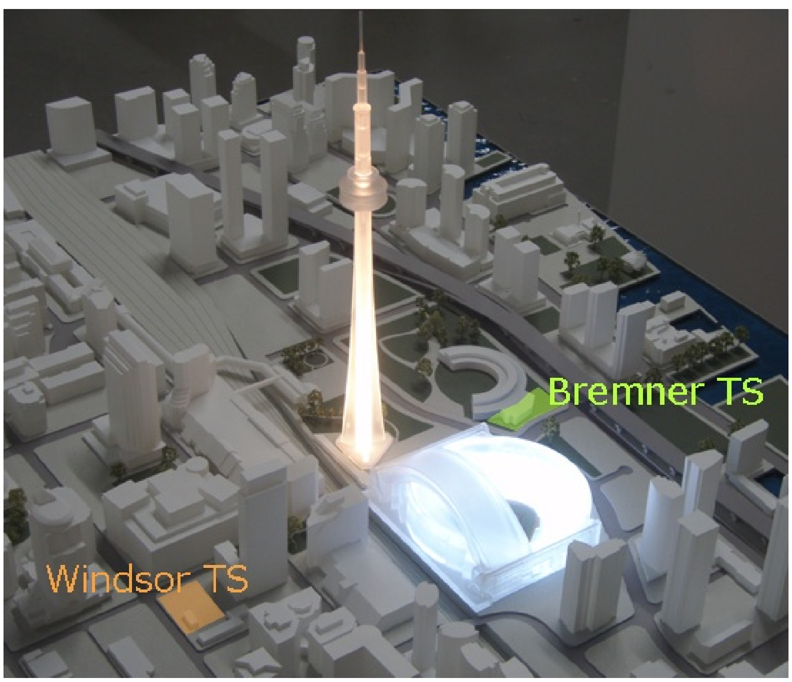
	2010 Actual	2011 Bridge	2012 Test	2013 Test	2014 Test	Total
THESL Budget	5.6	4.8	8.5	81.1	34.6	134.5
Capital Contribution to Hydro One		0.4	0	23.0	37.0	60.4
Total	5.6	5.2	8.5	104.1	71.6	194.9

/u

Appendix 2: Load Growth

In Downtown Toronto Area

Figure 1 Downtown Core (photo courtesy Myles Burke Architectural Models)



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1. Introduction:

1.1 Purpose[1]

This appendix further discusses load growth of Toronto downtown transformer stations based upon stated assumptions and THESL methodology. The primary purpose of this appendix is to demonstrate the load growth in proximity of the Bremner Transformer Station by examining forecasts, historical data and proposed customer connections in the Toronto downtown area circumscribed by the service areas of the five downtown transformer stations.

Two important components of the THESL load forecast are the natural load growth and the new customer connection requests. In this document, THESL validates the assumptions associated with calculation of natural load growth in the downtown Toronto core (2% growth per year). THESL also examines the magnitude of actual customer connection requests and future developments in the City of Toronto.

Table 1 Load Forecasts (MVA) by Station

Station	Station Rating	Year															
		2011 [2]	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Cecil	224	187	183	186	190	195	199	202	207	211	215	220	225	228	234	238	244
Esplanade	198	180	180	184	189	188	191	194	200	203	207	210	216	220	225	229	232
Strachan	175	138	138	143	150	153	157	160	164	166	170	174	176	179	183	187	192
Terauley*	240	190	193	196	201	205	209	213	217	222	226	230	234	240	244	250	254
Windsor	340	311	310	316	322	329	335	340	348	355	363	371	378	385	392	399	407
Total	1177	1006	1004	1025	1052	1070	1091	1109	1136	1157	1181	1205	1229	1252	1278	1303	1329

/U

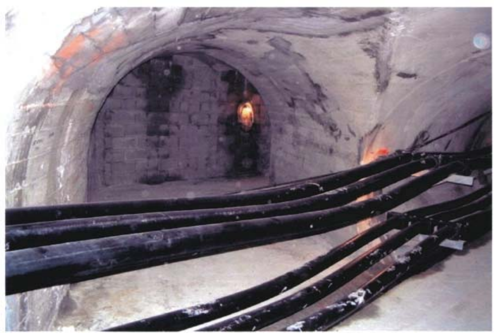
[1] This document is not replacement for official THESL stations load forecast which includes all THSEL's Stations

[2] In May's ICM submission, the 2011 to 2017 load data had been issued as a forecasted number (based on the 2011 load forecast). With this update, the 2011 load data has been updated to show the actual, historic data for that year. The 2012 to 2017 load data are forecasted numbers (based on the 2012 load forecast).

1.2 Background

THESL distributes electricity to its customers in downtown corridor via 13.8kV feeders from the 115kV/13.8kV substations. This appendix does not focus on transmission planning issues directly nor does it reflect transmission capacity limitations. However, it is worth noting that the new Bremner TS has for many years been included in HONI plan to meet the future load growth of the Toronto downtown area. For example, Figure 2 below indicates a 'break out' at HONI's existing Front Street tunnel, installed in 2007 with the intention of connecting said tunnel to Bremner TS.

Figure 2 Existing break out at HONI transmission tunnel for Bremner TS tunnel



The resolution of the transmission capacity issue of downtown Toronto is considered in ongoing cooperative planning between THESL and HONI.

2. Load Growth methodology

2.1 Forecasting Process

As the purpose of the forecast is to assess station bus capacity adequacy, the summer and winter maximum peak demands are forecast, rather than monthly peak demands.

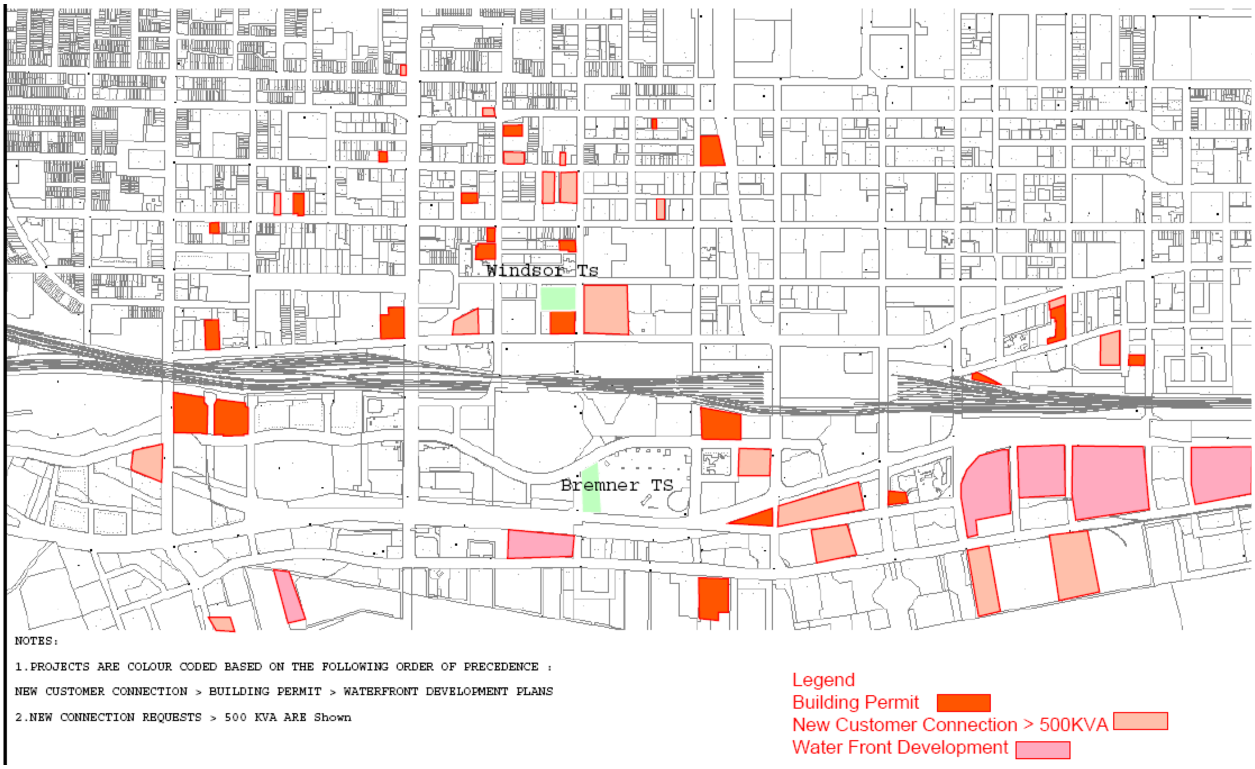
The process for calculating peak demands follows three steps:

a) Historical summer/winter peak demand for a bus is weather corrected,

b) New loads are added to the weather- corrected demands according to the build-up formula, and

c) Growth rates are applied to obtain annual peak demand forecasts for the Study period. The natural growth rate for the first two years of the study period is assumed to be zero. The forecast increase in demand is exclusively driven by new customer connections.

Figure 6 Downtown Toronto Load Growth



3. Summary

The natural load growth in the downtown core has been set at 2% since 2009 for the purposes of the load forecast. In previous sections, THESL has shown that load growth over the last 5 years is 2.16%, validating the load growth assumptions.

It should be noted that over the last 4 years, THESL has experienced an elevated growth rate of approximately 3.5% in the downtown core as a result of the local construction boom. This growth is consistent with the City of Toronto Official Plan and THESL customer connection requests.

Therefore, the 2% natural growth assumptions used in THESL midterm load forecasts to 2030 can be characterized as conservative.

Appendix 5

Bremner TS Site Integration

5.0 Cost Comparison of Options

The costs for Option A and Option B have been summarized in Table 3-2. The costs for Option A are a ‘Class B’ estimate and based on a 95% complete design. The costs for Option B are a ‘Class D’ or ‘order of magnitude’ estimate and based on a design concept only and will therefore have a relatively higher margin of error.

Table 2: Comparison of Costs for Options

Task	**Cost ($ million)**		**% Variance from Option A**
	Option A	**Option B**	
Land acquisition	**5.6**	**5.6**	
Distribution Modification	**2.3**	**2.3**	
Procurement of Major Equipment	**52.6**	**52.6**	
Detailed Design / Construction PM	**6.7**	**9.0**	**34.3%**
Construction of Building			
Machine Shop Disassembly/Reassembly	8.8	0.8	
Shoring & Excavation	16.7	10.0	
Structural Work	21.5	24.8	
Finishes	2.2	1.8	
Mechanical	4.0	4.4	
Sub-Total	**53.3**	**41.8**	**- 21.6 %**
Construction of Cable Tunnel	**14.0**	**14.9**	**6.4 %**
Total*	**134.5**	**126.2**	**-6.5 %**

/c

* Totals are exclusive of Hydro One capital contribution costs for the project. For Option B, Hydro One costs are expected to increase due to an increased length of high voltage cabling (as a result of the longer cable tunnel).

ICM Business Case Evaluation

HONI Capital Contributions

Toronto Hydro-Electric System Limited (THESL)

ICM Project | HONI Capital Contributions

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 capital contributions from $77.40M to $72.88M, a reduction of $4.52M
- 2014 jobs and capital contributions shown in strike-through, with the exception of Bremner-related contributions
- Restructured 2012 and 2013 capital contributions to recognize contributions required to date in 2012 and the current forecast of jobs that require capital contributions
- Added capital contributions in respect of Strachan TS A3-4 ($3.27 M) and Glengrove TS A5-6 ($2.20 M) jobs in 2012
- Corrected numerical and typographical errors

ICM Project | HONI Capital Contributions

I EXECUTIVE SUMMARY

THESL is required to provide capital contributions to Hydro One Network Inc. (HONI) for non-contestable work on the transmission system to install new transmission assets or replace existing ones to support THESL work on the distribution system. The main driver for THESL work is the need to increase supply capacity to connect new customers and to meet current and future load growth.

Required capital contributions to HONI consist of $24.76 million in 2012 and $48.12 million in 2013 ~~and $36.00 million in 2014~~, with an addition capital contribution of $37 million in 2014 in respect of Bremner TS. Detailed work descriptions appear in Section III of this document. /UF, US

There are two major jobs with large capital contribution required over the next three years. The first is the Bremner TS job with an estimated capital contribution requirement of $60 million. The second is the Leaside-Birch transmission reinforcement job with an estimated capital contribution requirement of $32.88 million. The third segment of estimated capital contributions totalling $15.02 million is required to support THESL switchgear replacements and /UF engineering studies at five transformer stations. The last segment of capital contribution /C totalling an estimated $1.98 million is required for HONI to perform engineering feasibility /UF studies to expand capacity at six transformer stations.

The urgent need for these capital contributions, the prudence, the costs, and the details of these jobs are described below.

1. Project Description

1.1. Overview

HONI connection work on the transmission system is necessary to allow electricity to flow from the HONI transmission system to THESL's distribution system to provide power service to customers. This work will provide improved supply reliability for Toronto and is essential for providing increased system capacity. In particular, capacity is needed in the densely loaded

ICM Project | HONI Capital Contributions

financial core district of Toronto. Each capital contribution cost is examined and agreed between THESL and HONI through a Connection and Cost Recovery Agreement.

Capital Contributions to HONI are necessary investments for HONI to install equipment on the transmission system to support THESL projects on the distribution system. HONI is the only supplier permitted to perform non-contestable work on transmission system assets to address THESL capacity issues. The capital contributions to HONI in 2012-2013, and the 2014 capital contribution in respect of Bremner TS are summarized in Table 1 below: /US

Table 1: Summary of Capital Contribution to HONI in 2012-2014

Project Title	2012 Estimated Cost ($, millions)	2013 Estimated Cost ($, millions)	2014 Estimated Cost ($, millions)	
Bremner TS Capital Contribution	$0	$23.00	$37.00	/UF, US
Leaside-Birch Transmission Reinforcement	$17.60	$15.28	-	
Wiltshire TS switchgear replacements and engineering studies	$0.07	$3.17	~~$3.00~~	
Strachan TS switchgear replacements and engineering studies	$3.34	$3.07	~~$3.00~~	/UF
Windsor TS switchgear engineering Study	-	$0.10	~~$3.00~~	/C
Duplex TS A5-6 switchgear replacement and engineering study	$0.07	$3.00	-	
Glengrove TS A5-6 switchgear replacement	$2.20			/UF
Malvern TS 2 new CBs and engineering study	$1.30	-	-	
Leslie MS switchgear replacement and engineering Study	$0.18	-	-	

ICM Project | HONI Capital Contributions

Project Title	2012 Estimated Cost ($, millions)	2013 Estimated Cost ($, millions)	2014 Estimated Cost ($, millions)
Horner TS second bus expansion engineering study	-	$0.15	-
Runnymede TS second bus expansion engineering study	-	$0.15	-
Bridgman TS transformer upgrade engineering study	-	$0.10	-
Esplanade TS second bus expansion engineering study	-	$0.10	-
Capital Contribution by year:	**$24.76**	**$48.12**	**$37.00**
Total Capital Contributions to HONI:	**$72.88**		**$37.00**

/UF, US

Cost estimates have been based upon agreed studies or the cost of previous similar work adjusted for changes in scope of work.

1.2. Segment Description

1.2.1. Bremner TS Supply

There are immediate, short-term, and mid-term needs for additional capacity in the downtown Toronto core. THESL has investigated a number of possibilities to address this need, such as bus-to-bus load transfer and additional buses at existing Windsor TS, expansion of adjacent transformer stations (Esplanade TS and Strachan TS), or construction of a new transformer station (Bremner TS). Of these possible options, the expansion of adjacent transformer stations (Esplanade TS and Strachan TS) and construction of the Bremner TS were identified as the most practical solutions to meet the identified need. Detailed economic comparisons of these alternatives were conducted and are outlined in the ICM Project for Bremer TS. The evidence presented in that document shows that having Bremner TS in service by 2014 is the preferred approach to address the supply needs for the downtown core.

Estimated capital contributions to HONI are $23 million in 2013 and $37 million in 2014. /UF, US

1.2.2. Leaside-Birch

Additional transmission line capacity is required from Leaside TS to Bridgman TS to meet load growth for the Toronto Midtown area. The work was proposed in previous HONI rate filings and received regulatory approval in June 2010. Construction started in 2011 and will be continued in 2012 and 2013 with completion scheduled for 2014. An estimated total capital contribution of $32.88 million is required, consisting of $17.60 million in 2012 and $15.28 million in 2013. /US

1.2.3. Wiltshire, Strachan, Windsor, Duplex , Glengrove TS Switchgear Replacements /US

Replacements of incoming circuit breakers and engineering studies by HONI are required to improve safety and reliability, and to meet current and future load growth. An estimated capital contribution in total of $15.02 million is required over 2012-2013~~-2014~~, consisting of $5.68 million in 2012 and $9.34 million in 2013, ~~and $9 million in 2014~~. /UF, US

1.2.4. Malvern, Leslie, Horner, Runnymede, Bridgman and Esplanade TSs

Capital contributions are required for HONI to perform engineering feasibility studies to expand station capacity to meet load growth. A total capital contribution of estimate of $1.98 million is required, consisting of $1.48 million in 2012 and $500K in 2013. /UF

2. Why These Project Are Needed Now

The projects are needed now to install additional capacity on transmission system to meet the load growth on the THESL distribution system.

2.1. Bremner TS job

The distribution system requires additional capacity to meet load growth in downtown financial district, the new loads from waterfront developments, and to allow replacements of heavily loaded switchgear at Windsor TS. The Bremner TS project is described at Tab 4, Schedule B17.

2.2. Leaside-Birch job

The current load of the Midtown area exceeds transmission line capacity during the summer peaks under the first contingency. To avoid rotating outages to customers during summer peak load, an additional 115kV circuit is required now. This project has already been approved by the Board and THESL's capital contribution is required in accordance with the Transmission System Code.

2.3. Wiltshire, Strachan, Windsor, Duplex, and Glengrove TS /US

Replacements of HONI incoming circuit breakers are required now in tandem with THESL replacements of switchgear. THESL's switchgear replacement projects are described at Tab 4, Schedule B13.2.

2.4. Malvern, Leslie, Horner, Runnymede, Bridgman and Esplanade TS

Engineering feasibility studies are required now from HONI to expand station capacity to meet load growth on the THESL distribution system. Due to the long lead times needed for station expansion and installation of new busses, the engineering feasibility studies are required now to provide enough time to carry out the projects in time to meet the needs.

3. Why the Proposed Project Is the Preferred Alternative

3.1. Bremner TS job

See separate ICM Business Case Evaluation for Bremner TS at Tab 4, Schedule B17. Bremner TS is an important enabling job for other area stations.

3.2. Leaside-Birch job

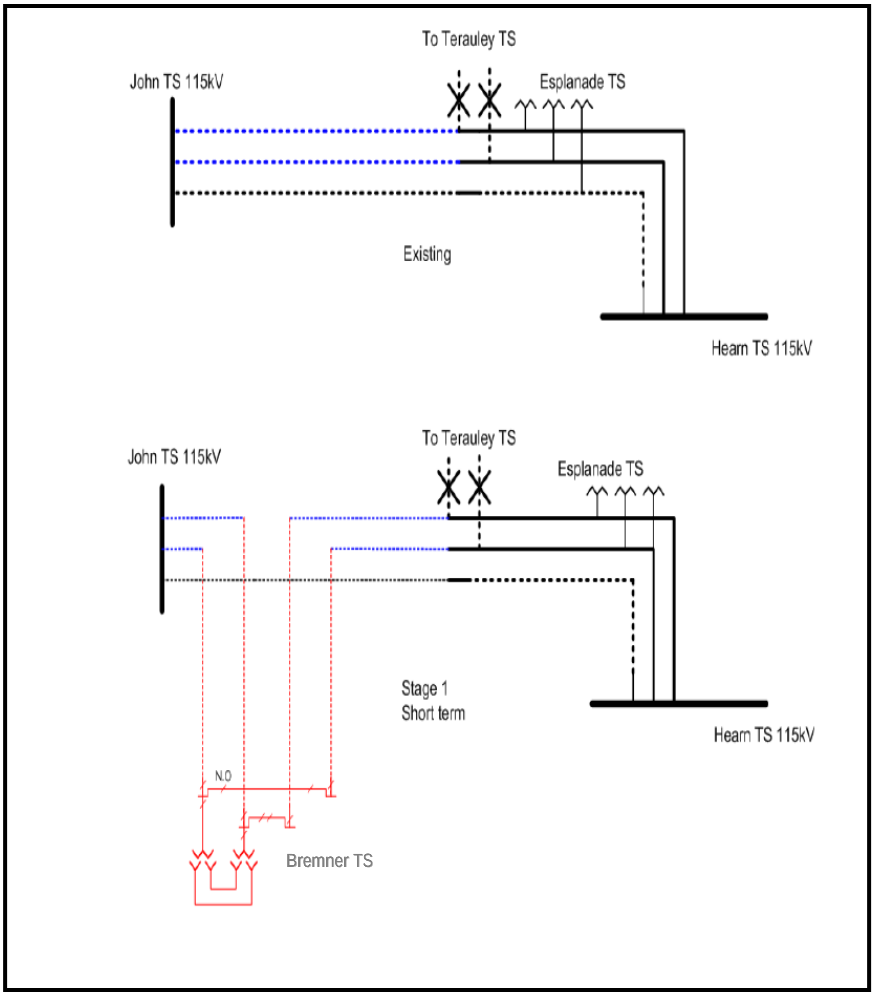
This transmission project has already been approved by the Board and the capital contribution follows from that approval.

3.3. Wiltshire, Strachan, Windsor, Duplex, Glengrove TS Replacements /US

The alternative option is operating the existing equipment on a "run to fail" basis. However, the outage impact of that option on customers is intolerable because emergency repair of the equipment would likely take a week and replacement of the equipment would likely take 24 months. In addition, the cost of replacement under emergency conditions after the equipment has failed is much higher than under planned replacement conditions.

3.4. Malvern, Leslie, Horner, Runnymede, Bridgman and Esplanade TS

The alternative option is to transfer load to adjacent stations before connecting new customers until there is no available capacity at adjacent stations. However, since load has nearly reached the maximum capacity at several stations, this alternative option is not feasible due to lack of available capacity at adjacent stations such as Horner TS, Runnymede TS, Bridgman TS, and Esplanade TS.



1 **Figure 2: Bremner TS Interconnection: Single-Line Diagram**

Since connection work from HONI transmission lines is necessary to supply power to THESL equipment at Bremner TS, and this connection work is non-contestable, the only available option is for HONI to carry out the work on transmission assets, and for THESL to pay the corresponding capital contribution to HONI. HONI has informed THESL that an estimated capital contribution of approximately $60 million is required, which consists of $23 million in 2013, and $37 million in 2014. /US

3. TS Switchgear Replacements and Engineering Studies

3.1. Wiltshire TS Switchgear Replacements and HONI Capital Contributions

The main drivers for Wiltshire TS A3-4 switchgear replacement are safety (existing switchgear is /US non-arc-resistant), aging, high maintenance, increased capacity for future load growth, and mitigation of the risk of significant customer outages. The load on Wiltshire TS A3-4 switchgear in 2012 is 20MVA An estimate for a major outage duration is between eight hours to 168 hours /US (one week) to repair and put switchgear back in service. The need to replace Wiltshire A3-4 switchgear is described separately in the evidence for TS Switchgear. /US

Since the incoming circuit breakers connected to the A3-4 switchgear and HONI transformers /US connected to A11-12 at Wiltshire TS are owned by HONI, there is no option for work to be performed by companies other than HONI. The work to be performed by HONI at Wiltshire TS is non-contestable according to the Transmission System Code and HONI is the only supplier.

To initiate the Wiltshire TS A3-4 switchgear replacements THESL is required to fund HONI /US engineering studies to determine project feasibility, and to provide the estimated amount of the required capital contribution for HONI to replace the incoming circuit breakers connected to the existing A3-4 switchgear and to upgrade HONI transformers connected to A11-12 at Wiltshire /US TS. This transformer upgrade is required to increase capacity and to provide 4-wire system configuration to the A11-12 bus for conversion of 4 kV system. The estimated costs of capital contribution to HONI for Wiltshire TS are as shown below:

Table 3: Capital Contribution for Wiltshire TS

Job Description	Capital Contribution Estimate ($, millions)	Year
Wiltshire TS, A3-4 switchgear replacement engineering study	$0.07	2012
Wiltshire TS, A5-6 switchgear replacement engineering study	$0.07	2013
Wiltshire TS, transformers upgrade for A1-2 bus engineering study	0.10	2013
Wiltshire TS, A3-4 replace incoming circuit breakers capital contribution	$3.00	2013
~~Wiltshire TS, A5-6 replace incoming circuit breakers capital contribution~~	~~$3.00~~	~~2014~~
Total:	**$3.24**	

/UF

If funding for THESL's capital contributions is not available, THESL expects that HONI will not carry out the engineering study needed to determine project feasibility and the required capital contribution for HONI to replace HONI's incoming circuit breakers and upgrade HONI's transformers. This could result in delay or possible cancellation of THESL A3-4 switchgear /US replacements. THESL has already invested $95,000 in the planning and design of Wiltshire TS A3-4 switchgear.

The ultimate system impact will likely be increased risks of outages as THESL continues to rely on the non-arc resistant A3-4 switchgear at Wiltshire TS, and new capacity of 4-wire /US configuration is not available if HONI transformers are not upgraded, preventing THESL from proceeding with conversion of 4kV bus load to 13.8kV system at Wiltshire TS. This increased risk is expected to impact approximately 17,000 customers connected to Wiltshire TS, currently relying in whole or in part on the A3-4 switchgear for electricity distribution service. /US

3.2. Strachan TS Switchgear Replacement and HONI Capital Contributions

The main drivers for Strachan TS A3-4 and A7-8 switchgear replacements are safety (existing /US
switchgear is non-arc-resistant), aging, high maintenance, increase capacity for future load growth, and mitigation of the risk of significant customer outages. The load on Strachan TS A3-4 /US
and A7-8 switchgear in 2012 are 27 MVA and 37 MVA respectively. An estimate for a major /US
outage duration is between eight hours to 168 hours (one week) to repair and put switchgear back in service. The need to replace Strachan TS switchgears is described in the evidence for TS Switchgear.

Since the incoming circuit breakers connected to the A3-4 and A7-8 switchgear at Strachan TS /US
are owned by HONI, there is no option for work to be performed by companies other than HONI. The work to be performed by HONI at Strachan TS is non-contestable according to Transmission System Code and HONI is the only supplier.

HONI has completed the replacement of incoming breaker work on Strachan A3-4. /US

To initiate the Strachan TS A7-8 switchgear replacement THESL is required to fund HONI /US
engineering studies to determine project feasibility and to provide the estimated required capital contribution for HONI to replace the incoming circuit breakers connected to the existing A7-8 switchgear at Strachan TS. The estimated costs of capital contribution to HONI for /US
Strachan TS are as shown below.

Table 4: Capital Contribution for Strachan TS

Job Description	Capital Contribution Estimate ($, millions)	Year	
Strachan TS, A3-4 switchgear replacement capital contribution	$3.27	2012	/UF, US
Strachan TS, A7-8 switchgear replacement engineering study	$0.07	2012	
Strachan TS, A5-6 switchgear replacement engineering study	$0.07	2013	
Strachan TS, A7-8 switchgear replacement capital contribution	$3.00	2013	/C
~~Strachan TS, A5-6 replace incoming circuit breakers capital contribution~~	~~$3.00~~	~~2014~~	
Total:	**$6.41**		/UF

If funding for THESL's capital contribution is not available, THESL expects that HONI will not carry out engineering study to determine project feasibility and the required capital contribution for HONI to replace HONI's incoming circuit breakers at Strachan TS. This could result in delay or possible cancellation of THESL A7-8 switchgear replacements. /US

If the HONI capital contributions were denied, the likely ultimate system impact will be increased risks of outages as THESL continues to rely on the non-arc resistant A7-8 switchgear at /US Strachan TS. This increased risk would impact approximately 15,600 customers currently relying in whole or in part on the A7-8 switchgear at the Strachan TS for electricity distribution service. /US

3.3. Windsor TS Switchgear Replacement and HONI Capital Contributions

The main drivers for Windsor TS A5-6 switchgear replacement are safety (existing switchgear is non-arc-resistant), aging, obsolescence (brick structure enclosure), high maintenance (for the air blast system), increased capacity for future load growth, and mitigation of the risk of significant customer outages serving the financial district. The load on Windsor TS A5-6 switchgear in 2012 is 55 MVA. An estimate for a major outage duration is between eight hours to 168 hours (one week) to repair and put switchgear back in service. /C

Since the incoming circuit breakers connected to the A5-6 switchgear at Windsor TS are owned by HONI, there is no option for work to be performed by companies other than HONI. The work to be performed by HONI at Windsor TS is non-contestable according to Transmission System Code and HONI is the only supplier. /C

To initiate the Windsor A5-6 switchgear replacement in 2014, THESL is required to fund a HONI engineering study to determine project feasibility in 2013, and to provide the estimated required capital contribution for HONI to replace the incoming circuit breakers connected to the existing A5-6 switchgear at Windsor TS. The estimated costs of capital contribution to HONI for Windsor TS are as shown below: /US /US

Table 5: Capital Contribution for Windsor TS

Job Description	Capital Contribution Estimate ($, millions)	Year
Windsor TS, A5-6 switchgear replacement engineering study	$0.10	2013
~~Windsor TS, A5-6 replace incoming circuit breakers capital contribution~~	~~$3.00~~	~~2014~~
Total:	**$0.10**	

/UF

If funding for THESL's capital contribution is not available, THESL expects that HONI will not carry out the engineering study to determine project feasibility and THESL's required capital contribution to replace HONI's incoming circuit breakers at Windsor TS. As a consequence, the immediate impact is expected to be a delay or possible cancellation of switchgear replacement. The ultimate likely system impact will be increased risks of outages as THESL continues to rely on the non-arc-resistant and aging A5-6 switchgear at Windsor TS. This increased risk would

If funding for THESL's capital contribution is not available, THESL expects that HONI will not carry out the engineering study to determine project feasibility and the capital contribution required for HONI to replace its incoming circuit breakers at Duplex TS. As a consequence, the likely impact is delay or possible cancellation of THESL A5-6 switchgear replacement at Duplex TS. The ultimate likely impact will be increased risks of outage as THESL continues to rely on the existing A5-6 switchgear at Duplex TS where risks of water flooding in the basement exist due to the potential malfunction of the deluge system on the main floor.

Since the incoming circuit breakers connected to the A5-6 switchgear at Duplex TS are owned by HONI, there is no alternative option for work to be performed by companies other than HONI. The work to be performed by HONI at Duplex TS is non-contestable according to Transmission System Code and HONI is the only supplier.

3.5. Glengrove TS A5-6 Switchgear Replacement and HONI Capital Contributions

The main driver for Glengrove TS A5-6 switchgear replacement is to mitigate the risk of significant customer outages (27 MVA load with estimate outage duration of eight hours to 168 hours (one week) to repair and put switchgear back in service).

The work has been completed by HONI and THESL is required to make a capital contribution to HONI for replacement of incoming circuit breakers.

/UF, US

Table 7: Capital Contribution for Glengrove TS

Job Description	Capital Contribution Estimate ($, millions)	Year
Glengrove A5-6 switchgear replacement capital contribution	$2.20	2012
Total:	**$2.20**	

If funding for THESL's capital contribution is not available, HONI may postpone or cancel further work on other switchgear replacement projects.

ICM Project | HONI Capital Contributions

Since the incoming circuit breakers connected to the A5-6 switchgear at Glengrove TS are owned by HONI, there is no alternative option for work to be performed by companies other than HONI. The work to be performed by HONI at Glengrove TS is non-contestable according to Transmission System Code and HONI is the only supplier. /UF, US

/US

4. Other HONI Capital Contributions

4.1. Malvern TS 2 New Circuit Breakers and HONI Capital Contribution

Existing feeders NT47M3 at Sheppard West TS are heavily loaded (18MVA) and have experienced a high number of outages, with the 12-month rolling average of 14 interruptions from February 2007 to December 2011. The feeder is direct-buried cable and was installed from 1974 to 1978 (34 to 38 years old), with the long feeder length creating a voltage drop issue.

The purpose of this job is to provide two additional circuit breakers at Malvern TS in 2012 to allow THESL install two additional 27.6kV feeders to supply new customer load and to provide additional capacity to relieve the existing heavily loaded feeder NT47M3 at the adjacent Sheppard West TS. The work is required now to reduce the outage impact of NT47M3 on system reliability (with an 18MVA load, a 12-month rolling average of 14 interruptions from February 2007 to December 2011, with an average outage duration of 5.5 hours, affecting 6,430 customers) and to provide approximately 32 MVA additional capacity to connect new customers. Without the new circuit breakers and feeders, connection of new customers will be at higher cost due the need to run long cables from Sheppard TS to provide service to customers

ICM Project | **HONI Capital Contributions**

For the medium-term, a second 192 MVA bus expansion at Horner TS is required to relieve load at the adjacent Manby TS. Due to the long lead time of approximately five to six years required to install a new 192 MVA bus at Horner TS, an engineering study is required now to identify any constraints on the transmission line and determine the cost for possible reinforcements to provide a feasible supply for the additional 192 MVA bus at Horner TS. Without the second bus, Horner TS load will reach 95% of station capacity (182MVA load with 192MVA capacity) in 2016 and will reach 100% of station capacity in 2021.

Initial consultation with HONI indicates that there is adequate space to install the second 192 MVA bus at Horner TS. HONI has also informed THESL previously that there would be no space readily available, without major transmission system rearrangements, for installation of an additional bus at Manby TS. Therefore, the most feasible option to relieve load at Manby TS is to install the second bus at Horner TS. The new capacity from the second bus at Horner TS will be used to connect new customers in the Manby-Horner area, to balance load among Manby TS and Horner TS, and to increase reliability to area customers.

Since the 27.6kV bus at Horner TS is owned by HONI, and this engineering study is a non-contestable work, there is no alternative source for the engineering study. THESL estimates a capital contribution of $150,000 is required for HONI to perform this engineering study as shown in Table 9 below.

Table 9: Horner TS Second Bus Expansion - Capital Contribution for HONI Engineering Study

Job Description	Capital Contribution Estimate ($, millions)	Year	
Horner TS second bus expansion engineering study	$0.15	2013	/c
Total:	**$0.15**		

If funding is not available, THESL expects that HONI will not carry out engineering study to determine project feasibility and the cost required to install a second bus at Horner TS. This will contribution of $150,000 is required for HONI to perform the engineering study as shown in Table below.

Table 10: Runnymede TS Second Bus Expansion - Capital Contribution for HONI Engineering Study

Job Description	Capital Contribution Estimate ($, millions)	Year
Runnymede TS second bus expansion HONI engineering study	$0.15	2013
Total:	**$0.15**	

/c

If funding is not available, THESL expects that HONI will not carry out engineering study to determine project feasibility and the cost to install a second bus at Runnymede TS. As load continues to grow at Runnymede TS, additional capacity must be installed to meet current and future load growth. The likely impact of not being able to install additional capacity at Runnymede TS is that THESL cannot connect new customers' load from Runnymede TS, and significant risks of outages arise to approximately 20,700 customers, if overloaded equipment fails at Runnymede TS. Until the second bus is installed, new customers' load will be supplied by adjacent stations which are located at farther distance, meaning longer distribution routes for cables and structures and more expense to connect new customers who are located nearer to Runnymede TS.

4.5. Bridgman TS Transformer Upgrade HONI Engineering Study

The main driver for the engineering study for Bridgman TS transformer upgrade is the need to increase transformer capacity for the A5-6H bus, and to provide 4-wire capacity for conversion of aging and deteriorated 4kV system at High Level MS.

THESL A5-6H switchgear at High Level MS is rated at 72 MVA. This 72 MVA bus rating is higher than the existing transformer capacity of 36 MVA. Providing larger transformer capacity will allow THESL to use the greater capacity of A5-6 switchgear at High Level MS (i.e., 72MVA). /c additional transformation capacity at Bridgman TS is that conversion of deteriorated 4kV system cannot proceed; as a result, approximately 7,750 customers in the area will face increased risks of outages.

4.6. Esplanade TS Second Bus Expansion and HONI Capital Contribution /C

The main driver for this engineering study for second bus expansion at Esplanade is the future need to install additional capacity to meet new load demand from West Don Lands and East Bayfront development plans.

THESL has forecasted the load at Esplanade TS will reach 95% of station capacity in 2021, without the taking into account loads from the West Don Lands and East Bayfront developments. Due to the long lead time for installation of the second bus at Esplanade TS, an engineering study is required now to determine the project feasibility and the associated cost for a feasible transmission supply for the second bus at Esplanade TS**.** The new capacity is required to meet anticipated load growth for West Don Lands 80 acres development of approximately 6,000 residential units[1] and the East Bay front 55 acres development of approximately 6,000 residential units[2]. New connection requests continue to be received at Toronto Hydro for waterfront revitalization.

Since the building structures and the property at Esplanade TS are owned by HONI, and the work is non-contestable, there is no alternative source for the engineering study. THESL estimates a capital contribution of $100,000 is required for HONI to perform this engineering study as shown in Table below.

[1] See http://www.waterfrontoronto.ca/explore_projects2/west_don_lands

[2] See http://www.waterfrontoronto.ca/explore_projects2/east_bayfront

Table 12: Esplanade TS Second Bus Expansion - Capital Contribution for HONI Engineering Study

Job Description	Capital Contribution Estimate ($, millions)	Year
Esplanade TS second bus expansion HONI engineering study	$0.10	2013
Total:	**$0.10**	

/C

If funding is not available, THESL expects that HONI will not carry out an engineering study to determine project feasibility and the cost required to install a second bus at Esplanade TS. As load continues to grow at Esplanade TS, additional capacity must be installed to meet current and future load growth from Waterfront revitalization developments. The expected impact of not being able to install additional capacity at Esplanade TS is that THESL cannot connect new customers' load from the West Don Lands and East Bay Front developments, and increased risks of outages to approximately 6,620 customers, if overloaded equipment failure occurs at Esplanade TS.

III DETAILED DESCRIPTION OF THE JOBS

1. LISTING OF ALL JOBS

The list of jobs that require capital contribution to HONI is shown below.

Table 13: List of jobs requiring Capital Contribution to HONI

Estimate Number	Job Title	Estimated Cost ($, millions)	Year
22463	Bremner TS Capital Contribution 2013	$23.00	2013
25117	Bremner TS Capital Contribution 2014	$37.00	2014
20757	Leaside-Birch Transmission Reinforcement Capital Contribution	$17.60	2012
24733	Leaside-Birch Transmission Reinforcement Capital Contribution	$15.28	2013
24744	Wiltshire TS A3-4 Capital Contribution	$3.00	2013
~~24748~~	~~Wiltshire TS A5-6 Capital Contribution~~	~~$3.00~~	~~2014~~
24740	Wiltshire TS A1-2 transformer upgrade HONI Engineering study	$0.10	2013
24510	Wiltshire TS A3-4 switchgear replacement HONI Engineering Study	$0.07	2012
24743	Wiltshire A5-6 switchgear replacement engineering study	$0.07	2013
24745	Strachan TS A7-8 Capital Contribution	$3.00	2013
~~24749~~	~~Strachan TS A5-6 Capital Contribution~~	~~$3.00~~	~~2014~~
24511	Strachan TS A7-8 switchgear replacement HONI Engineering Study	$0.07	2012

/UF

Estimate Number	Job Title	Estimated Cost ($, millions)	Year	
24741	Strachan TS A5-6 switchgear replacement HONI Engineering Study	$0.07	2013	
27113	Strachan TS A3-4 capital contribution	$3.27	2012	/UF, /US
~~24751~~	~~Windsor TS A5-6 capital contribution~~	~~$3.00~~	~~2014~~	
24742	Windsor TS A5-6 switchgear replacement engineering Study	$0.10	2013	
24747	Duplex TS A5-6 Capital contribution	$3.00	2013	
24512	Duplex TS A5-6 switchgear replacement HONI Engineering Study	$0.07	2012	
27114	Glengrove TS A5-6 capital contribution	$2.20	2012	/UF, /US
22109	Malvern TS two new CBs HONI Capital Contribution Agreement	$1.28	2012	
24507	Malvern TS two new CBs HONI Engineering Study	$0.02	2012	
24509	Leslie MS switchgear replacement Capital Contribution estimate cost	$0.15	2012	
24508	Leslie MS switchgear replacement HONI Engineering Study	$0.03	2012	
24736	Horner TS second bus expansion HONI Engineering study	$0.15	2013	
24737	Runnymede TS second bus expansion HONI Engineering study	$0.15	2013	
24739	Bridgman/High Level transformers upgrade HONI Engineering study	$0.10	2013	
24738	Esplanade TS second bus expansion HONI Engineering study	$0.10	2013	
	Total:	**$109.88**		/UF

1 The map for all capital contribution work is shown below.

Table 14: Addresses of Capital Contribution Jobs

Map Reference Number	Station	Address
1	Bremner TS	Bremner Blvd and Rees St
2	Leaside-Birch	1080 Millwood Ave
3	Malvern TS	1702 Neilson RD
4	Duplex TS	400 Duplex St
5	Strachan TS	6 Strachan Ave
6	Wiltshire TS	13-19 Wiltshire Ave
7	Leslie MS	5733 Leslie St
8	Horner TS	455 Kipling Ave
9	Runnymede TS	99 Woolner Ave
10	Esplanade TS	106 Lower Sherbourne St
11	Bridgeman/High Level	MacPherson Ave and Huron St
12	Windsor TS	253 Wellington St W
13	Glengrove TS	2829 Yonge St

/UF ,US

2. BREMNER TS CAPITAL CONTRIBUTION

2.1. Job Objectives

The purpose of this job is to develop a new station, Bremner TS, to be located at Bremner Boulevard and Rees Street in downtown Toronto. THESL owns the site and will be the station developer. The job will include construction of a new underground cable tunnel, site preparation, construction of the station building, installation of electrical equipment and site landscaping work.

2.2. Job Scope of Work

The scope of work for Bremner TS capital contribution involves procurement and installation of:

- Install High voltage cabling from Front St breakout to Bremner TS

- Install four high voltage surge arrestors
- Install high voltage switchgear on HONI side
- Install Protection and control facilities
- Provide DC station services for HONI switchgear room
- Provide AC station services for HONI rooms
- Provide coordination services during the construction phase.

2.3. Job Map and Locations

Refer to Figure 5 in section 3.1 for map location.

2.4. Required Capital Costs

Currently, the cost provided for capital contribution to HONI for Bremner TS are estimates only. HONI is in the process of firming up this cost, based on their detailed design.

Table 15: Bremner TS Capital Contribution Requirement

Estimate Number	Job Title	Estimated Cost ($, millions)	Year
22463	Bremner TS Capital Contribution	$23.00	2013
25117	Bremner TS Capital Contribution	$37.00	2014
	Total:	**$60.00**	

/US

3. LEASIDE-BIRCH TRANSMISSION REINFORCEMENT

3.1. Job Objectives

The objectives of this job are the following:

1) Replace an end-of-life underground cable section of the 115 kV L14W circuit between Bayview Junction (“Jct.”) and Birch Jct.

4. TS SWITCHGEAR REPLACEMENTS AND ENGINEERING STUDIES

4.1. WILTSHIRE TS SWITCHGEAR REPLACEMENTS AND ENGINEERING STUDIES

4.1.1. Job Objectives

The purpose of this job is for Hydro One to perform engineering studies and to carry out replacement of incoming circuit breakers connected to the Wiltshire TS A3-4 switchgear, and to upgrade HONI transformers connected to A11-12 switchgear. /US

4.1.2. Job Scope of Work

Hydro One is expected to provide cost estimates, replace incoming circuit breakers, and replace transformers as described in the following:

- Modification of the current double bus, single breaker A3-A4 switchgear configuration to a double bus, dual breaker arrangement on HONI side /US
- Replace existing HONI incoming cells with ten new, Hydro One owned cells (four cells for transformers, two cells for capacitor, four cells for links), to be located on the first floor of Building A
- Remove existing 2000 A LV transformer secondary cables and install new 3,000 A cables to supply the new switchgear
- Modification of the switchgear bus configuration from 3-wire to 4-wire
- Collaboration with THESL to install/modify and test all necessary Protection and Control equipment and commission the new protection schemes
- Purchase and installation of all necessary capacitor bank breakers and associated equipment required to meet switchgear configuration changes
- Purchase and installation of instrument transformers for revenue metering that meet all IESO requirements
- Replace HONI transformers connected to A11-A12 to increase supply capacity to 72 MVA to A11-A12 bus, and provide 4-wire configuration to A11-A12 bus.

4.1.3 Job Map and Locations

Refer to Figure 5 in Section 3.1 for map location.

4.1.3. Required Capital Contribution to HONI Costs

Table 17: Wiltshire TS Capital Contributions to HONI jobs

Estimate Number	Job Title	Estimated Cost ($, millions)	Year
24744	Wiltshire TS A3-4 Capital Contribution	$3.00	2013
~~24748~~	~~Wiltshire TS A5-6 Capital Contribution~~	~~$3.00~~	~~2014~~
24740	Wiltshire TS A1-2 transformer upgrade HONI Engineering study	$0.10	2013
24510	Wiltshire TS A3-4 switchgear replacement HONI Engineering Study	$0.07	2012
24743	Wiltshire A5-6 switchgear replacement engineering study	$0.07	2013
	Total:	**$3.24**	

/UF

4.2. STRACHAN TS SWITCHGEAR REPLACEMENTS AND ENGINEERING STUDIES

4.2.1. Job Objectives

The purpose of this job is for HONI to perform engineering study and to carry out replacements of incoming circuit breakers connected to Strachan TS A7-8 switchgears. /US

4.2.2. Job Scope of Work

Hydro One is expected to perform engineering studies and to carry out the replacements of incoming circuit breakers at Strachan TS as described below:

- Modification of the current double bus, single breaker A7-8 switchgear configuration to a double bus, dual breaker arrangement Gas Insulated Switchgear (GIS). /US

- Replacement of Hydro One's incoming circuit breakers with four new circuit breakers, two on each side of the replacement A11-A12 switchgear
- Remove existing 2000 A LV transformer secondary cables and install new 3000A cables to supply the new switchgear
- Modification of the switchgear bus configuration from 3-wire to 4-wire
- Collaboration with THESL to install/modify and test all necessary Protection and Control equipment and commission the new protection schemes
- Purchase and installation of instrument transformers for revenue metering that meet all IESO requirements

4.2.3. Job Map and Locations

Refer to Figure 5 in Section 3.1 for map location.

4.2.4. Required Capital Costs

Table 18: Strachan TS Capital Contributions to HONI jobs

Estimate Number	Job Title	Estimated Cost ($, millions)	Year	
24745	Strachan TS A7-8 Capital Contribution	$3.00	2013	
~~24749~~	~~Strachan TS A5-6 Capital Contribution~~	~~$3.00~~	~~2014~~	
24511	Strachan TS A7-8 switchgear replacement HONI Engineering Study	$0.07	2012	
24741	Strachan TS A5-6 switchgear replacement HONI Engineering Study	$0.07	2013	
27113	Strachan TS A3-4 switchgear replacement capital contribution	$3.27	2012	/UF, US
	Total:	**$6.41**		/UF

4.3.4. Required Capital Costs

Table 19: Windsor TS Capital Contributions to HONI jobs

Estimate Number	Job Title	Estimated Cost ($, millions)	Year
~~24751~~	~~Windsor TS A5-6 capital contribution~~	~~$3.00~~	~~2014~~
24742	Windsor TS A5-6 switchgear replacement engineering Study	$0.10	2013
	Total:	**$0.10**	

/UF

4.4. DUPLEX TS SWITCHGEAR REPLACEMENT AND ENGINEERING STUDY

4.4.1. Job Objectives

The purpose of this job is for HONI to perform engineering study to determine job feasibility and to replace the incoming circuit breakers connected to Duplex TS A5-6 switchgear.

4.4.2. Job Scope of Work

Hydro One is expected to perform engineering and to replace incoming circuit breakers at Duplex TS as described below:

- Modification of the current double bus, single breaker Duplex TS A5-6 switchgear configuration to a double bus, dual breaker arrangement Gas Insulated Switchgear (GIS).
- Replacement of Hydro One's incoming circuit breakers with four new circuit breakers, two on each side of the replacement Duplex TS A5-6 switchgear
- Remove existing LV transformer secondary cables and install new 3000A cables to supply the new switchgear
- Modification of the switchgear bus configuration from 3-wire to 4-wire
- Collaboration with THESL to install/modify and test all necessary Protection and Control equipment and commission the new protection schemes

- Purchase and installation of instrument transformers for revenue metering that meet all IESO requirements

4.4.3. Job Map and Locations

Refer to Figure 5 in Section 3.1 for map location.

4.4.4. Required Capital Costs

Table 20: Duplex TS Capital Contributions to HONI jobs

Estimate Number	Job Title	Estimated Cost ($, millions)	Year
24747	Duplex TS A5-6 Capital contribution	$3.00	2013
24512	Duplex TS A5-6 switchgear replacement HONI Engineering Study	$0.07	2012
	Total:	**$3.07**	

4.5. GLENGROVE TS SWITCHGEAR REPLACEMENT

4.5.1. Job Objectives

The purpose of this job is for HONI to replace the incoming circuit breakers connected to Glengrove TS A5-6 switchgear.

/UF US

4.5.2. Job Scope of Work

Hydro One completed the replacement of incoming circuit breakers at Glengrove TS as described below:

- Replacement of Hydro One's incoming circuit breakers with four new circuit breakers for Glengrove TS A5-6 switchgear
- Remove existing LV transformer secondary cables and install new 3000A cables to supply the new switchgear

- Modification of the switchgear bus configuration from 3-wire to 4-wire
- Collaboration with THESL to install/modify and test all necessary Protection and Control equipment and commission the new protection schemes
- Purchase and installation of instrument transformers for revenue metering that meet all IESO requirements

4.5.3. Job Map and Locations

Refer to Figure 5 in Section 3.1 for map location.

4.5.4. Required Capital Costs

/UF US

Table 21: Glengrove TS Capital Contribution to HONI

Estimate Number	Job Title	Estimated Cost ($, millions)	Year
27114	Glengrove TS A5-6 switchgear replacement Capital contribution	$2.20	2012
	Total:	**$2.20**	

/UF

5. OTHER CAPITAL CONTRIBUTIONS

5.1. MALVERN TS 2 NEW CIRCUIT BREAKERS AND ENGINEERING STUDY

5.1.1. Job Objectives

The purpose of this job is for HONI to provide and install 2 new 27.6kV circuit breakers at Malvern TS. HONI has completed the engineering study and informed THESL that a capital contribution of $1,275,047 is required to install the 2 new circuit breakers.

5.1.2. Job Scope of Work

The scope of work is for HONI to perform engineering study and install two feeder positions, M23 and M24, at Malvern TS for connection by the THESL. The scope of work includes items as described below:

1) Feeder Positions

ICM Project

Feeder Automation

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Feeder Automation

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $24.1 M to $22.6 M, a reduction of $1.5 M
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012 and the continuing priority needs of the system
- Corrected non-asset risk and updated number of switching points in FIM analyses
- Corrected numerical and typographical errors

Table 1: Business Case Evaluation of Job Areas

Project Location	Project Cost Allocated ($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Horner TS and Manby TS	$3.40	$358.39	**118.81**
Fairchild TS	$2.78	$211.58	**84.38**
Cavanagh TS and Agincourt TS	$7.82	$861.34	**111.14**
Scarborough East TS	$7.66	$416.55	**57.47**

/C

The general scope of work for these jobs consists of two phases. The first phase involves choosing feeders that will benefit from automation. The second phase is effectively sectionalizing the feeder. Feeder selection was based on reliability, network configuration, and restoration capacity. Feeders were first selected on based on their reliability and focusing on the number of outages that occurred on the trunk. Since this project builds on the existing FA implementation, feeder selection also was based on designing a system that could connect into the existing FA implementation through interconnection with other FA feeders. Non-automated tie-points will be included where considered necessary to backfeed into established FA feeders. Each feeder selected must be able to backfeed into a section and resupply a faulted feeder.

The number of feeders that can be addressed in an area at any one time is limited to maintain operational flexibility in the case of an outage. Power system controllers require a sufficient number of feeders available to ensure adequate flexibility to restore an area in the event of an outage. One method used to maximize the amount of FA deployment is to work in multiple areas of the system, the east, west and north areas of the city, at the same time.

By focusing on trunk feeders and effectively deploying an FA scheme to specific areas, THESL has prepared a focused project that is expected to have a significant positive impact on SAIDI and SAIFI.

2. Why the Project is Needed Now

The project needs to be constructed on the selected feeders now for three reasons:

(a) to reduce the current reliability impact of feeder trunk outages,

(b) to reduce the risk of future outages due to the high probability of equipment failure, and

(c) to ensure effective FA saturation on the system.

Of the customer interruptions (CI) on the selected feeders, 68% are attributable to the trunk /c portions these feeders; for customer hours interrupted (CHI), 58% are attributable to the feeder trunk (See Figure 1). By deploying FA on these feeders a potential reliability savings of 51% for /c CI and 44% of CHI on the feeders can be achieved (See Section III). /c

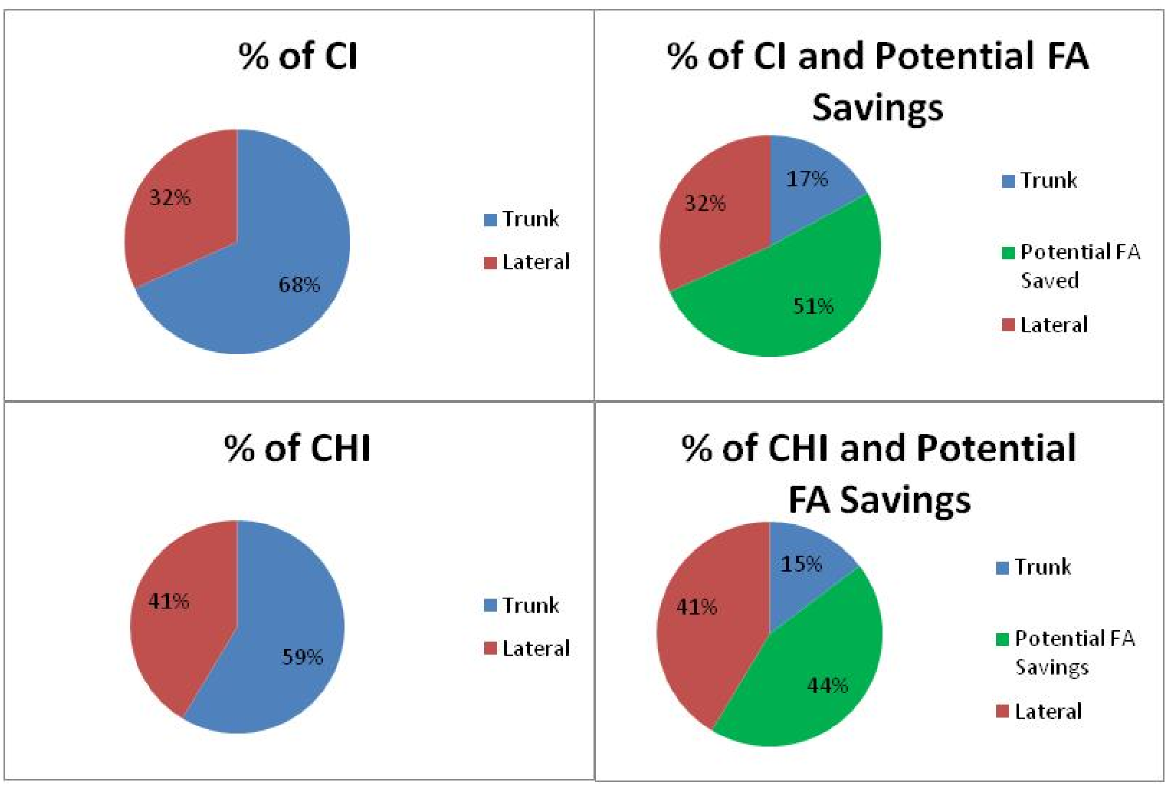


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Figure 1: Reliabilty Impact and FA Savings on Selected Feeders

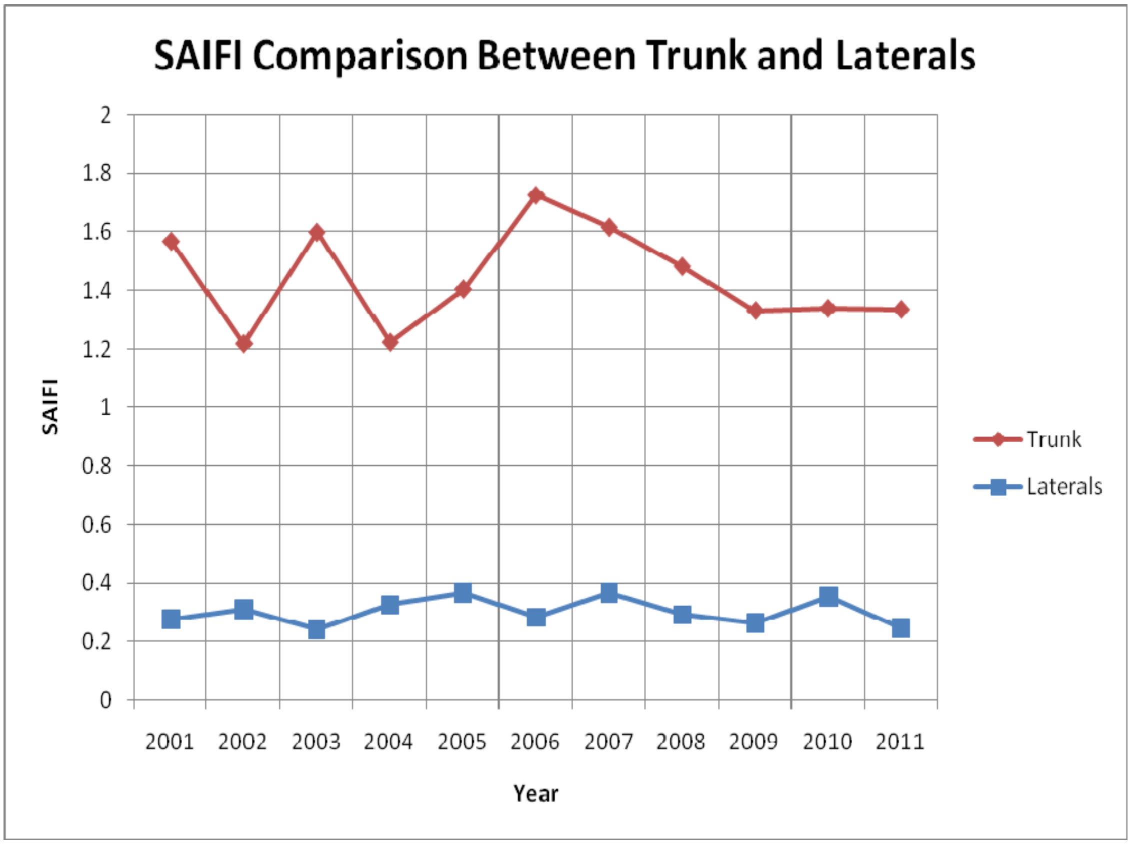


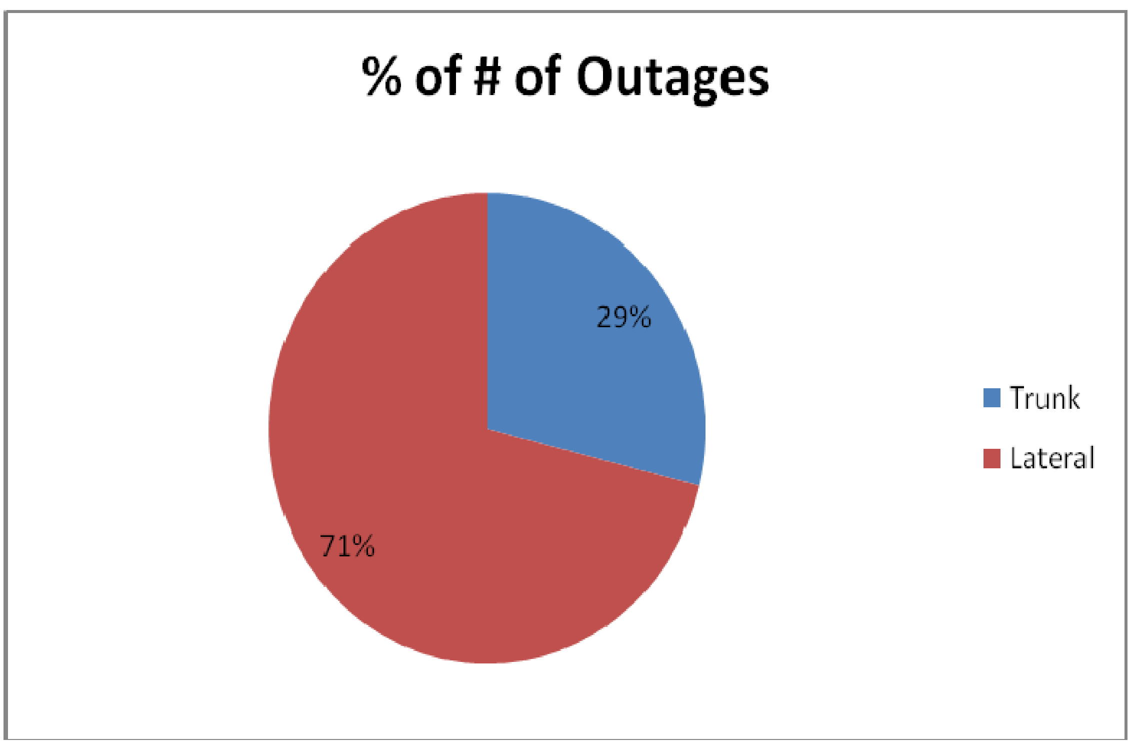
Figure 6: SAIFI Comparison between Trunk and Laterals

Historical reliability data for feeders planned for inclusion in FA over the next three years are shown in Table 3. Figures 7and 8 present graphical representations of lateral and trunk comparisons using the averages of the last five years. Figure 7 shows that, on average, more than two thirds of the outages over this period occur on laterals. As shown in Figure 8, however, trunk outages have a much larger impact on both CI and CHI (68% and 58%, /C
respectively). In other words, the roughly two thirds of the faults occurring on laterals cause only one-third of the customers interruptions (CI) and 41% of the customer hours interrupted /C
(CHI). This aligns with the SAIDI and SAIFI graphs illustrated above in Figures 5 and 6.

1 **Table 3: Historical Reliability Data of Selected Feeders for the FA Scheme**

Year	Total Feeder Outages			Total Trunk Outages			Potential FA Savings	
	Number of Outages	CI	CHI	Number of Outages	CI	CHI	CI	CHI
2007	176	222,039	94,557.7	53	159,808	48,750.8	119,856	36,563.1
2008	139	109,777	64,741.1	40	72,475	39,256.4	54,356	29,442.3
2009	145	177,342	181,106.6	45	131,076	133,744.6	98,307	100,308.5
2010	122	130,569	69,405.1	33	75,501	26,157.0	56,626	19,617.8
2011	108	113,426	109,680.5	28	74,596	56,420.4	55,947	42,315.3
Total	**690**	**753,153**	**519,491.0**	**199**	**513,456**	**304,329.3**	**385,092**	**228,246.9**
Avg.	**138**	**150,631**	**103,898.2**	**39.8**	**102,691**	**60,865.9**	**77,018**	**45,649.4**

/C



2 **Figure 7: Percentage of Trunk and Lateral Outages on Selected Feeders**

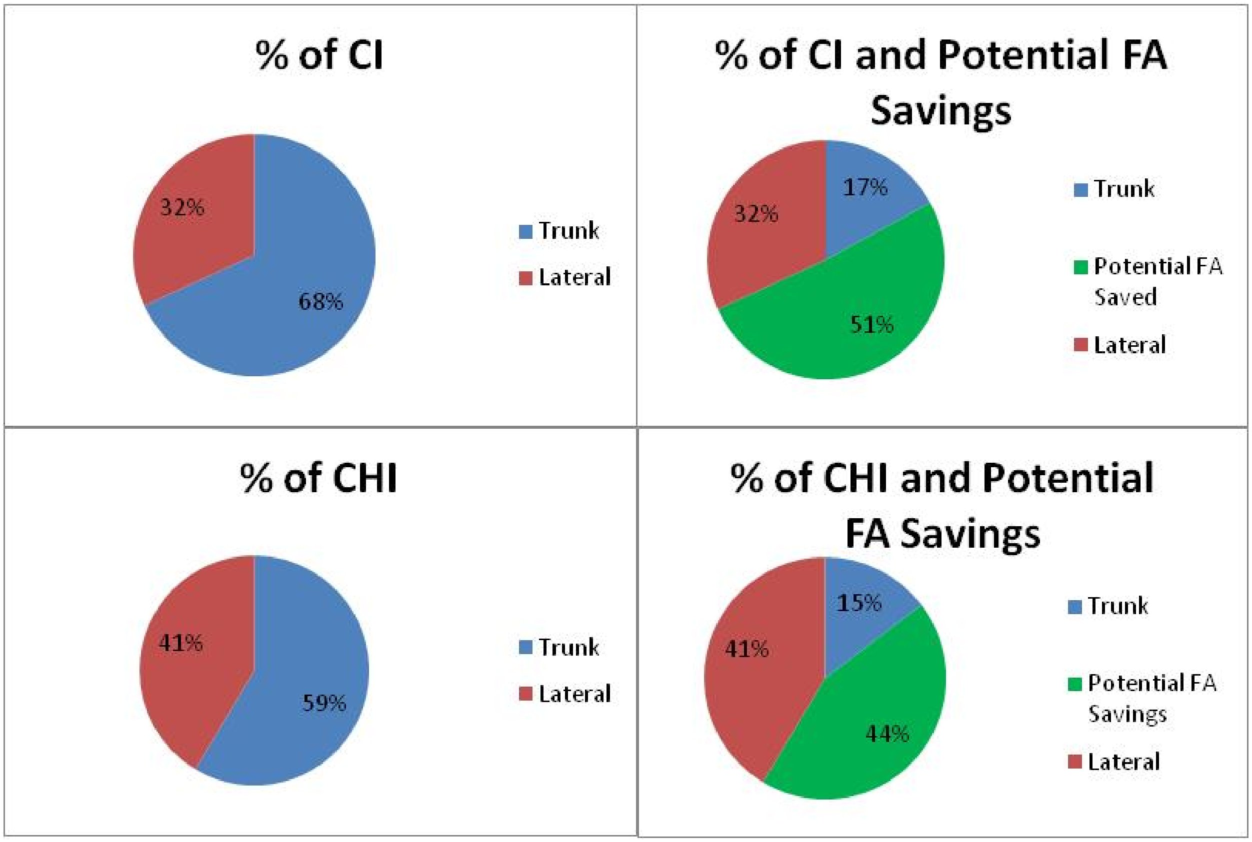


Figure 8: Reliabilty Impact and FA Savings on Selected Feeders

As shown above, outages on feeder trunks are the major source of both CI and CHI because trunk outages are lengthy and affect all the customers on a feeder. As long as there is no effective method to mitigate the impact of trunk related outages, it will be difficult to improve or even maintain current reliability levels as aging assets begin to fail at a higher frequency. The most cost effective solution to mitigate the impact of trunk outages is to deploy an FA scheme focusing on areas containing feeders with poor trunk reliability.

The true system benefits of FA can only be achieved by deploying it widely so that multiple feeders and switching points are covered. If the FA jobs proposed here are delayed until the next cost of service filing the number of feeders and areas that can be addressed will be reduced. The number of feeders that can be addressed in an area at any one time must be limited to maintain operational flexibility in the case of an outage. This is limitation is necessary to allow power system controllers to have a sufficient number of feeders available to restore an

IV PREFERRED ALTERNATIVE

1. Alternatives Considered and Assessed

THESL's FA program is a cost-effective option to mitigate the system reliability consequences of outages in areas with poorly performing trunk feeders. THESL evaluated the FA program, the preferred alternative, against four other alternatives that also could be used to mitigate trunk related outages on these feeders:

- Do nothing. Respond to outages using existing switching capacity and processes.
- Reduce the impact of a fault on the trunk by adding more switching capability via manual switches;
- Reduce the impact of a fault on the trunk by adding more switching capability via SCADA enabled switches; and
- Reduce the probability of a fault on the trunk by rebuilding large portions of feeder trunks, up to and including the entire trunk portion.

2. Preferred Alternative – Install FA on Selected Feeder Trunks

The material above shows the benefits of installing FA, which tends to significantly reduce the impact and the duration of outages by eliminating all the manual intervention from the controller and the field crew. As load growth continues, with new condominiums, the expansion of the TTC and future commercial development, the ability to perform load transfers via tie feeders will diminish. As a result, THESL will be required to undertake additional and more complex analyses of multiple feeders to sectionalize and re-supply feeder segments. Through an FA implementation, this analysis can be performed automatically with self-healing switches and pre-determined sections that automate load transfers. The cost and benefits associated with the preferred alternative are set out in Appendix 1.

As shown by Figure 9 below, installing FA is expected to improve the benefit/cost ratio (B/C) /C
compared to manual switches (the green line) and shows an even greater improvement for FA compared to SCADA switches (the red line). The reason for the greater B/C ratio in the latter comparison is that the incremental cost of installing FA is relatively low once SCADA switches are already installed on the feeder. In contrast, if a feeder has only manual switches, FA

requires the installation of SCADA switches as well as automation technology, which leads to substantially higher cost.

Figure 9 is based on the relative values for a single outage, but the value of FA increases if there are multiple outages on the feeder. The feeders to be addressed in the proposed jobs are likely to experience frequent outages because they have been selected to target the worst performing feeders. Tables D.1 through D.4 in Appendix 3, list the costs of implementation and the benefits /C
for each proposed job.

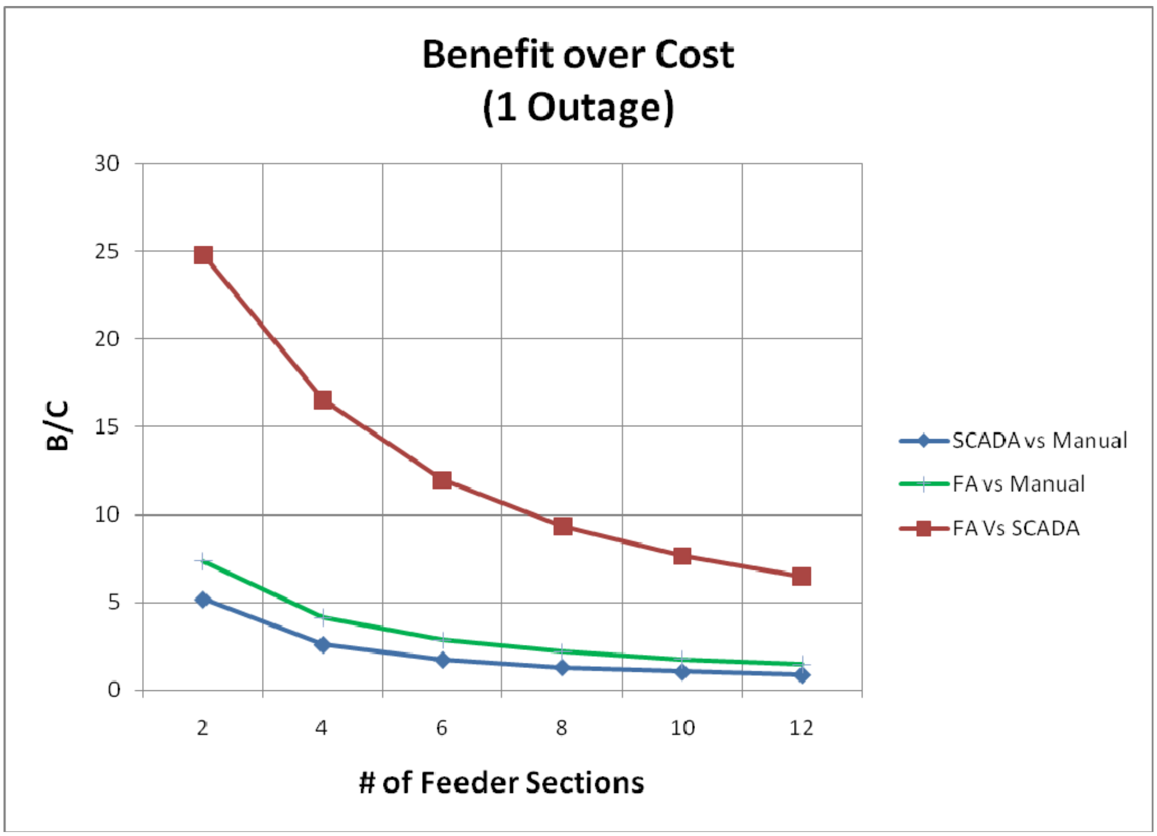


Figure 9: Comparison B/C Ratios for Various Alternatives

3. Alternative 1: No Investment.

Under this alternative, THESL will continue to respond to outages using existing manual switching capacity and current processes and protocols. By not investing in any improvement current reliability levels are likely to decline due to the high probability equipment failure that

V JOB INFORMATION OVERVIEW

1. Implementation Plan

THESL intends to expand upon its existing 2010 FA pilot project to maximize the benefits of the proposed expenditures. By expanding FA to the interconnecting feeders located on the periphery of the existing network, the options for automatic restoration are enhanced. The first expansion project is expected to incorporate the remaining of the feeders at Fairbanks T.S. to the FA arrangement

The second expansion project, scheduled for 2012, will incorporate the remaining feeders at Bathurst T.S. into the existing FA grid. Furthermore, there will be further expansion into Fairchild T.S. in 2012. Where necessary and feasible, each expansion project also will /US incorporate existing non-automated tie-points into the expansion, which will make the existing FA feeders more efficient and the network more flexible. This approach is expected to increase the number of feeders in the mesh network and allow for more restoration options.

The project is expected to continue with further expansion in the east and west of Toronto by incorporating new areas to improve the reliability to the worst performing feeders in those areas. In Scarborough, THESL will create a new network targeting the worst performing feeders from Cavanagh T.S. and Agincourt T.S. in 2012, and Scarborough East in 2013. In Etobicoke, starting in 2012, THESL intends to create a new network involving feeders from Manby T.S. and /US Horner T.S. and targeting the worst performing feeders in that area. This will be the initial hub of expansion in west-end of Toronto and expansion will continue to incorporate other poorly performing feeders in the area. This is expected to allow this new system to target multiple parts of the city rather than focusing exclusively on the central North York location. This approach is expected to produce greater coverage and a more rapid diffusion of the benefits of FA.

2. Business Case Evaluation (BCE) Results

THESL undertook a business case evaluation of FA projects being proposed for Etobicoke, North York, and Scarborough to demonstrate the benefits of FA in each area. The results are shown in Table 4. As Table 4 demonstrates, the proposed work in each area provides significant benefits compared to its cost of implementation.

Table 4: Business Case Evaluation of FA Target Area Projects

Project Location	Project Cost Allocated ($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Horner TS and Manby TS	$3.40	$358.39	118.81
Fairchild TS	$2.78	$211.58	84.38
Cavanagh TS and Agincourt TS	$7.82	$861.34	111.14
Scarborough East T.S.	$7.66	$416.55	57.47

/UF

The effectiveness of each Feeder Automation project can be further highlighted by determining the difference in cost of ownership between the existing overhead assets installed along the feeder trunk circuits, and the cost of ownership of those same assets with FA implemented as explained in Appendix 3. With an FA system in place, the average estimated outage duration per feeder trunk asset will be reduced considerably. This difference in ownership cost includes quantified risk costs, which take into account the assets' probability of failure, and the various direct and indirect costs associated with in-service asset failures, including the costs of customer interruptions, emergency repairs and replacement, as well as non-asset-related risks associated with the existing overhead plant, including outages caused by animals, human activity and weather-related events.

As shown in Table 4 above, carrying out immediate work in Etobicoke, Horner TS and Manby TS, will result a net present value of approximately $358.39 million, which represents the difference between these cost of ownership values and the total project cost of $3.40 million. There is a benefit-to-cost ratio of 118.81 that is produced when this difference in cost of ownership is divided by the capital cost of the project.

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This project has an additional cost of $0.36 million due to network improvement with the addition of repeater radios and sight acceptance test. These additions will benefit the FA network being constructed in this area and will create a communication backbone to assist any FA projects that will expand onto this network in the future. /C

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Carrying out immediate work in North York, Fairchild TS, will result a net present value of approximately $211.58 million, which represents the difference between the cost of ownership values and the total project cost of $2.78 million. There is a benefit-to-cost ratio of 84.38 that is produced when this difference in cost of ownership is divided by the capital cost of the project. This project has an additional cost of $0.35 million due to network improvement with the addition of repeater radios and sight acceptance test. These additions will benefit the FA network being constructed in this area and will create a communication backbone to assist any FA projects that will expand onto this network in the future. Furthermore, there has been a change in the project that brought the cost down by $0.11 million.

Carrying out immediate work in Scarborough will result a net present value of approximately $861.34 million, which represents the difference between the cost of ownership values and the total project cost of $7.82 million and a benefit-to-cost ratio of 111.14 for the Cavanagh TS and Agincourt TS project. For the Scarborough East TS project there is a net present value of $416.55 million, which represents the difference between the cost of ownership values and the total project cost of $7.66 million. There is a benefit-to-cost ratio of 57.47 that is produced when this difference in cost of ownership is divided by the capital cost of the project. The Scarborough East project has an additional cost of $0.28 million due to network improvement with the addition of repeater radios. This addition will benefit the FA network being constructed in this area and will create a communication backbone to assist any FA projects that will expand onto this network in the future. /UF, US

The business case evaluation results for the proposed FA work in each area show that the proposed FA installations will provide high value. This result is largely attributable to large number of outages and associated high risk cost due to the presence of failing equipment on these feeders. Based on the business case evaluation, these projects should be undertaken immediately. Customers will receive substantial benefits from the reliability improvement that this project will produce. Further details for each of these business cases and corresponding calculations are provided in, Appendix 3.

VI SPECIFIC JOBS PROPOSED

1. LISTING OF ALL JOBS

1.1. Listing of all Jobs

Table 5: Cost of Proposed FA Jobs

Job Title	Job Year	Cost Estimate ($ M)
Feeder Automation 2012 – Cavanaugh TS and Agincourt TS	2012	$7.82
Feeder Automation 2012 – Horner T. S. and Manby T. S.	2012	$3.40
Feeder Automation 2012 – Fairchild T. S.	2012	$2.78
Feeder Automation 2013 – Scarborough East T.S.	2013	$7.66
Jobs Total:		**$21.66**
Reconciliation for job cost changes < $100,000 and rounding		**$0.91**
Reconciled Total:		**$22.57**

/UF, US

1.2. General Scope of Work

The general scope of work for these jobs consists of two phases. The first phase involves choosing feeders that will benefit from automation. The second phase is effectively sectionalizing the feeder. Feeder selection was based on reliability, network configuration, and restoration capacity. Feeders were first selected on based on their reliability and focusing on the number of outages that occurred on the trunk. Since this project builds on the existing FA implementation, feeder selection also was based on designing a system that could connect into the existing FA implementation. This will require utilizing non-automated tie-points considered to be necessary to backfeed into established FA feeders. The design considered feeders experiencing poor reliability in the area and interconnected with one another. Each feeder selected must be able to backfeed into a section and resupply a faulted feeder.

The design principle used for sectionalizing a feeder was to create segments with equal numbers of customers connected and similar amounts of load. Exceptions were made in cases where the feeder backfeeding into a segment had limited capacity. In these instances, efforts were undertaken to ensure that the load of that segment was reduced to accommodate the capacity limitations. In most cases, the existing infrastructure will be reused to reduce costs. Existing SCADA switches will be reused and a retrofit module installed in the RTU. This provides substantial savings when compared to installing a new SCADA switch with a new RTU.

2. Feeder Automation 2012 – Cavanagh T.S. and Agincourt T.S.

2.1. Job Objectives

The objective of this job is to introduce a new FA mesh network to address the worst performing feeders in Scarborough incorporating 13 feeders from Cavanagh T.S. and Agincourt T.S. These stations were chosen due to their poor reliability, their location and ability to expand to other stations, and the number of overhead switches available. Once this job is completed, THESL intends to use it as a starting point for expansion to other feeders in Scarborough.

The selected feeders demonstrate poor reliability and high impact trunk outages affecting the customer (CHI). In the last five years, these feeders have had had 206,560 customers interruptions and 103,807.0 of CHI. If feeder automation had been installed five years ago, with the assumption that 75% of the feeder would be restored during a trunk outage, a savings of 154,920 CI and 77,855.3 CHI would have been realized. These feeders are excellent candidates for FA and an opportunity for THESL to improve the reliability for the customers in this area.

Additional factors also motivated the selection of these feeders. Cavanagh T.S. and Agincourt T.S. are centred in the middle of Scarborough and provide excellent expansion opportunities to allow FA to be further integrated into the system. Greater integration is expected to facilitate lower cost or quicker implementation expansion that will increase the amount and speed of benefit accrual.

Table 6: Outage Data for 2012 FA Feeders (Cavanagh T.S. and Agincourt T.S.)

Year	Total Feeder Outages			Trunk Outages			Forecasted Savings if FA is Implemented	
	Number of Outages	CI	CHI	Number of Outage	CI	CHI	CI	CHI
2007	58	103,791	44,673.3	24	79,722	27,905.0	59,792	20,928.7
2008	39	42,579	23,373.1	10	23,332	8,690.4	17,499	6,517.8
2009	47	63,280	52,854.3	17	55,851	33,906.2	41,888	25,429.6
2010	35	31,429	22,087.9	3	9,219	4,724.5	6,914	3,543.3
2011	25	57,780	59,766.9	10	38,436	28,581.1	28,827	21,435.8
Total	**204**	**298,859**	**202,755.4**	**64**	**206,560**	**103,807.0**	**154,920**	**77,855.3**

2.2. Scope of Work

This job anticipates implementing FA on 13 feeders from these two stations. At the completion of this job, it is estimated there were will be 57 self healing switching nodes on this network. It will require retrofitting 27 existing SCADA switches, installing seven new switches, and upgrading 23 manual switches to self-healing switches. This is summarized in Table 7, and Figure 10 provides a schematic of the plan with feeder and switch locations.

Table 7: 2012 FA Cavanagh T.S. and Agincourt T.S. Unit Count

Total of Switch Installations	
Type of Install	**Cavanagh T.S. and Agincourt T.S.**
Retrofit Existing SCADA	27
R1 to R2 Switch Upgrade	0
Install a New Switch	7
Replace Manual Switch	23
Total	**57**

2.3. Job Map and Locations

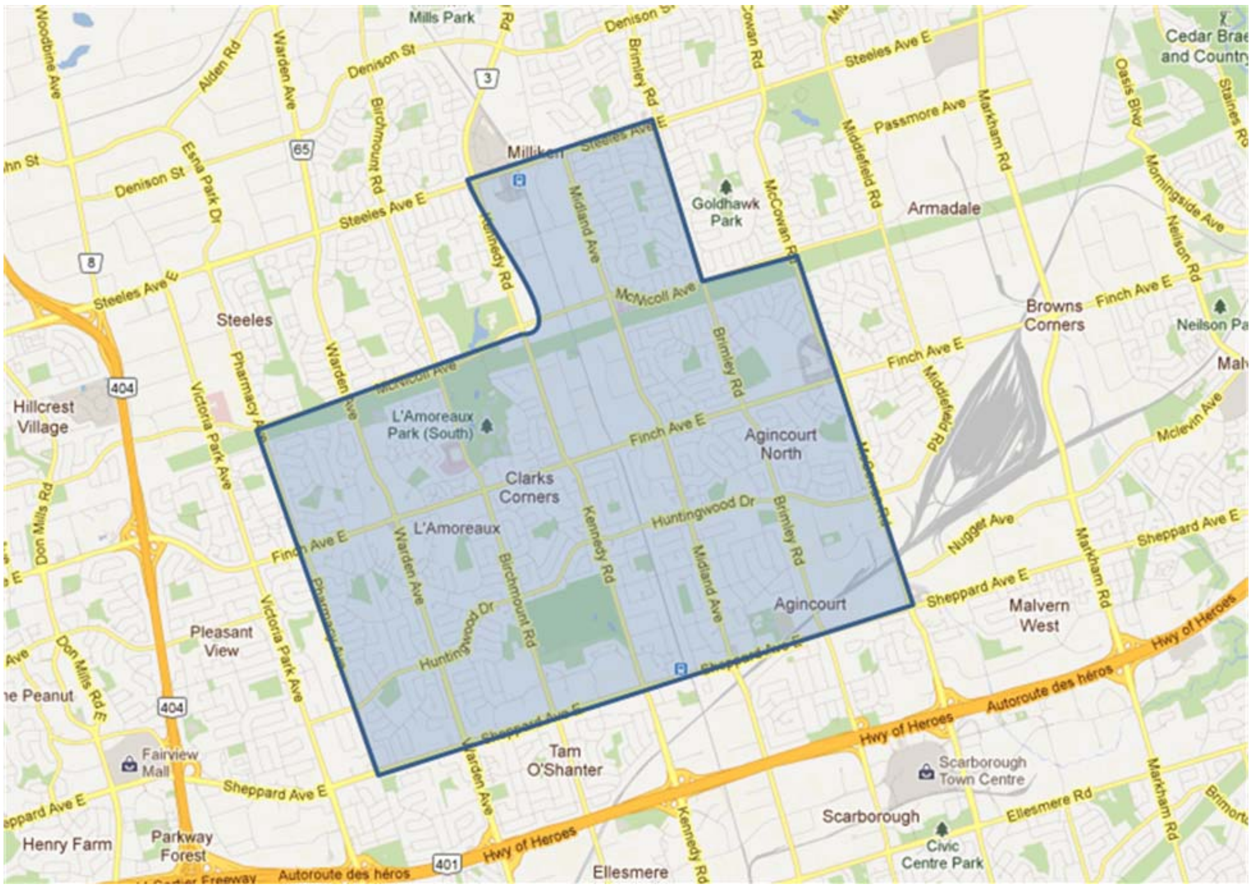

Figure 10: 2012 Feeder Automation Cavanagh TS and Agincourt TS Map

2.4. Required Capital Costs

Table 9: Total Cost for the 2012 Feeder Automation Cavanagh T.S. and Agincourt T.S. Job

Feeder Automation 2012 – Cavanagh TS and Agincourt TS			
Project Estimate Number	**Project Title**	**Project Year**	**Cost Estimate ($ M)**
22443	E12591 - PPEast 2012 Feeder Automation Project on SCNA502M22	2012	$0.63
22444	E12592 - PPEast 2012 Feeder Automation Project on SCNA502M23	2012	$0.79
22445	E12593 - PPEast 2012 Feeder Automation Project on SCNA502M24	2012	$0.46
22446	E12594 - PPEast 2012 Feeder Automation Project on SCNA502M26	2012	$0.71
22449	E12597 - PPEast 2012 Feeder Automation Project on SCNA502M29	2012	$0.50
22450	E12598 - PPEast 2012 Feeder Automation Project on SCNT63M1	2012	$0.21
22452	E12600 - PPEast 2012 Feeder Automation Project on SCNT502M32	2012	$0.53
22453	E12601 - PPEast 2012 Feeder Automation Project on SCNT63M11	2012	$0.37
22455	E12603 - PPEast 2012 Feeder Automation Project on SCNT63M4	2012	$0.46
22456	E12604 - PPEast 2012 Feeder Automation Project on SCNT63M5	2012	$0.82
22457	E12605 - PPEast 2012 Feeder Automation Project on SCNT63M6	2012	$0.62

/c

Feeder Automation 2012 – Cavanagh TS and Agincourt TS			
Project Estimate Number	**Project Title**	**Project Year**	**Cost Estimate ($ M)**
22458	E12606 - PPEast 2012 Feeder Automation Project on SCNT63M12	2012	$0.58
22459	E12607 - PPEast 2012 Feeder Automation Project on SCNT63M8	2012	$0.56
22447	E12595 - PPEast 2012 FA Project - Radio Coordination Study & Repeater Radio Installation	2013	$0.35
22448	E12596 - PPEast 2012 Feeder Automation Project - Site Acceptance Tests	2013	$0.22
		Total:	**$7.82**

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2.5. Job Business Case Evaluation (BCE) Results

The 2012 FA job will improve reliability of the 13 new feeders from Cavanagh T.S. and Agincourt T.S. and provide flexible switching capabilities that currently do not exist. The reliability of these feeders, as shown in Table 6, is poor with numerous high impact trunk outages. Carrying out immediate work on these feeders will result in present value benefits of approximately $861.34M. The proposed project will cost $7.82 million to implement. The resulting benefit-to-cost ratio is 111.14. FA will allow THESL to mitigate the risk of these feeders. /UF, US

Table 10: BCE of Cavanagh T.S. and Agincourt T.S. Job

Project Location	Project Cost Allocated ($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Cavanagh TS and Agincourt TS	$7.82	$861.34	111.14

/UF, US

At completion, this job is expected to have 46 self-healing switching nodes on this network. This figure will be achieved by retrofitting eight existing SCADA switches, upgrading 13 non-standard R1 switches to R2 switches, installing ten new switches, and upgrading 15 manual switches to self healing switches. This work is summarized in Table 11 and Figure 12 provides a schematic of the plan with feeder and switch locations. Furthermore, this job is expected to upgrade 14 switches from the obsolete MOSCAD network and incorporate them into the new Speednet network.

Table 11: 2012 FA Unit Count /US

Total of Switch Installations	
Type of Install	**Manby TS and Horner TS**
Retrofit Existing SCADA	8
R1 to R2 Switch Upgrade	13
Install a New Switch	10
Replace Manual Switch	15
Total	**46**

3.3. Job Map and Locations

Figure 12: 2012 Feeder Automation Job for Manby T.S. and Horner T.S. /US

1 **Table 12: 2012 FA Manby T.S. and Horner T.S. Switch Locations** /US

Feeder Automation 2012 - Etobicoke - Manby T. S. and Horner T. S.					
Feeder	**Scope**	**Switch ID**	**Type**	**Location**	**Notes**
30M1	W13371	OSC69948	Upgrade	P464 Kipling Ave	Riser Switch
		New Switch 30M1_1	Replace	P415 Royal York Rd	Sectionalizer
		OSC17906	Upgrade	P159 Evans Ave	Sectionalizer
		OSC16303	Replace	P551 Royal York Rd	30M1/38M13
		OSC58022	Replace	P205 Evans Ave	Sectionalizer
		OSC73106	Upgrade	P884 Islington Ave	TP 30M1/38M8
		OSC75130	Upgrade	P445 Royal York Ave	Sectionalizer
		OSL61906	Replace	P327 Royal York Ave	TP 30M1/30M8
30M2	W13375	New Switch 30M2_1	Replace	P210 Horner Ave	Riser Switch
		OSC4821	Replace	P311-1 Cavell Ave	Sectionalizer
		OSL34893	Upgrade	P2269 Lake Shore Blvd	TP 30M2/30M8
30M4	W13377	OS95321	Replace	P215 Horner Ave	Riser Switch
		OSC2489	Replace	P40 New Toronto Ave	Sectionalizer
		OSC62786	Replace	P204 Islington Ave	TP 30M4/30M9
		OSL10621	Replace	P2636 Lake Shore Ave	TP 30M4/30M9
		OSL43741	Replace	P134 Mimico Ave	Sectionalizer
		OSL97364	Replace	P229 Royal York Rd	TP 30M4/30M2
30M8	W13378	New Switch 30M8_1	Replace	P220 Horner Ave	Riser Switch
		New Switch 30M8_2	Replace	P222 Judson St	Sectionalizer
		OSC10447	Replace	P31 Legion Rd	Sectionalizer
		OSC41616	Replace	P157 Park Lawn Rd	TP 30M8/38M13
		OSL1646	Replace	P177 Evans Ave	TP 30M8/30M1
30M9	W13379	New Switch 30M9_2	Replace	P2988 Lake Shore Blvd W	Sectionalizer
		New Switch 30M9_3	Replace	P2884 Lake Shore Blvd W	Sectionalizer
		New Switch 30M9_4	Replace	P11 Royal York Rd	Sectionalizer
		New Switch 30M9_1	Replace	P452 Kipling Ave	Riser Switch
		OSC67457	Replace	P100 Birmingham Ave	Sectionalizer
		OSC8146	Upgrade	P197 Royal York Rd	TP 30M9/30M4
		OSC93977	Upgrade	P3146 Lake Shore Blvd W.	TP 30M9/30M10
		OSL89332	Replace	P456 Kipling Ave	TP 30M9/30M1
38M12	W13380	New Switch 38M12_1	Replace	P1005 The Queensway	Sectionalizer
		OS38668	Replace	P87 Kipling Ave	Riser
		OSC10670	Replace	P787 The Queensway	TP 38M12/30M1
		OSC35254	Upgrade	P651 Kipling Ave	Sectionalizer
		OSL37500	Replace	P589 Kipling Ave	TP 38M12/30M3

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/US

Feeder Automation 2012 - Etobicoke - Manby T. S. and Horner T. S.					
Feeder	**Scope**	**Switch ID**	**Type**	**Location**	**Notes**
38M4	W13384	OS98419	Replace	P67 North Queen St	Riser Switch
		OSC12081	Replace	P659 Kipling Ave	Sectionalizer
		OSC21749	Replace	P619 Kipling Ave	TP 38M4/30M1
		OSL55267	Replace	P723 Kipling Ave	TP 38M4/38M12
38M5	W13383	OS32405	Replace	P840 Kipling Ave	Riser Switch
		OSC58580	Upgrade	P888 Islington Ave	TP 38M5/30M1
		OS42073	Replace	P197 Norseman St	Sectionalizer
38M8	W13381	OS23912	Replace	P820 Kipling Ave	Riser Switch
		OSC31218	Replace	P1024 Islington Ave	Sectionalizer
		OSC65479	Replace	P65 Jutland Rd	TP 38M8/38M12
		New Switch 38M8_1	Replace	P245 Norseman St	TP 38M8/38M5

3.4. Required Capital Costs

Table 13: 2012 FA Required Capital Costs

Feeder Automation 2012 - Horner T. S and Manby T. S.			
Project Estimate Number	Project Title	Project Year	Cost Estimate ($M)
24191	W13384 - 2012 FA - Etobicoke - Manby TS (38M4)	2012	$0.29
24187	W13383 - 2012 FA - Etobicoke - Manby TS (38M5)	2012	$0.16
24193	W13381 - 2012 FA - Etobicoke - 38M8	2012	$0.30
24154	W13380 - 2012 FA - Etobicoke - 38M12	2012	$0.26
24185	W13379 - 2012 FA - Etobicoke - Horner TS (30M9)	2012	$0.49
24183	W13377 - 2012 FA - Etobicoke - Horner TS (30M4)	2012	$0.45
24178	W13375 - 2012 FA - Etobicoke - Horner TS (30M2)	2012	$0.23
24188	W13378 - 2012 FA - Etobicoke - Horner TS (30M8)	2012	$0.40
24177	W13371 - 2012 FA - Etobicoke - Horner TS (30M1)	2012	$0.46
26136	W13483 - FA 2012 - P3 - Etobicoke Repeater Radio Survey/Install	2013	$0.20
26149	W13485 - P3 - FA 2012 - Etobicoke SAT	2013	$0.16
		Total:	$3.40

/UF, US

3.5. Job Business Case Evaluation (BCE) Results

Analyzing the reliability of the selected feeders shows that the outages occurring on the trunk have the greatest impact on the customers connected to these feeders. This can be seen in Table 14. Even though the number of outages that have occurred on the trunk are less than half of the total amount of outages that occur on the feeder, they contribute over 90% of the customer hours interrupted (CHI) on these feeders. Managing the trunk outages with self-healing switches is expected to reduce the CHI value on these feeders and also the number of customers affected by each outage. This confirms that these feeders are good candidates for feeder automation. Carrying out immediate work on these feeders will result in an approximate net present value of approximately $358.39 million as shown in Table 15. The proposed project /C will cost $3.40 million to implement resulting in a benefit-to-cost ratio of 118.81. /C, /UF

Table 14: 2012 FA Feeders Reliability History

Year	Total Feeder Outages			Trunk Outages			Potential FA Savings	
	Number of Outages	**CI**	**CHI**	**Number of Outage**	**CI**	**CHI**	**CI**	**CHI**
2007	26	3,202	2,392.4	8	2,389	1,289.7	1,792	967.3
2008	23	17,669	23,403.6	11	17,321	22,616.8	12,991	16,962.6
2009	27	22,910	54,133.5	10	17,878	52,369.3	13,409	39,276.9
2010	12	21,141	2,307.0	5	19,667	2,136.8	14,750	1,602.6
2011	17	22,674	19,171.1	6	17,145	18,455.8	12,859	13,841.8
Total	**105**	**87,596**	**101,407.6**	**40**	**74,400**	**96,868.3**	**55,800**	**72,651.2**

Table 15: BCE for Horner T.S. and Manby T.S. Job

Project Location	Project Cost Allocated ($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Horner TS and Manby TS	$3.40	$358.39	118.81

/C

4. 2012 Feeder Automation – Fairchild T.S. /US

4.1. Job Objectives

The objective of this job is to expand the existing feeder automation network eastward from the North York network, incorporating new feeders from Fairchild T.S. The North York network was initiated by a pilot project in 2010. Since the pilot project, THESL has designed two phases to incorporate the remainder of Fairbanks T.S. and Bathurst T.S. This job will continue to expand this network at Fairchild T.S. to improve customer reliability in this area. This is a mixed use area consisting of residential and non-residential customers. This area is also considered one of the four centres for development and growth in the city and is planned to include facilities such as condominiums and office buildings. An expansion of FA eastward will improve the reliability in one of Toronto's developing neighbourhoods.

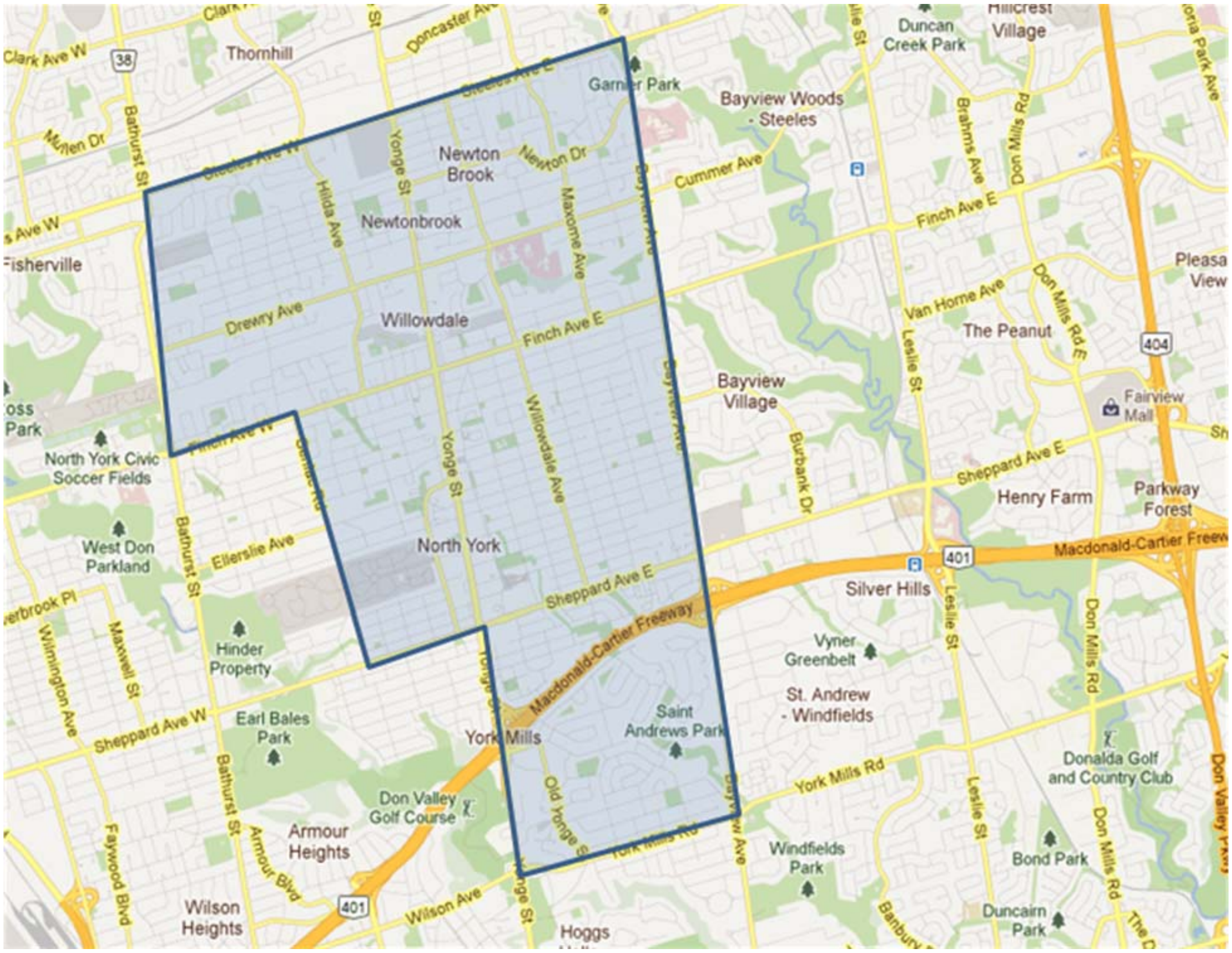
4.2. Job Scope of Work

This scope of work for this job focuses on expanding the FA scheme onto eight feeders from Fairchild T.S. This is expected to incorporate these feeders onto the developed FA grid from Bathurst T.S. and will contribute to expanding the grid in North York. This will improve switching flexibility in the FA scheme. It is expected to establish more restoration options by introducing additional tie-points and automating the non-automated tie-points. This job will incorporate 44 self-healing switches into this network. This figure includes retrofitting 18 existing SCADA switches, installing seven new switches and upgrading 19 manual switches as shown in Table 16.

Table 16: 2012 FA Fairchild T.S. Unit Count /US

Total of Switch Installations	
Type of Install	**Fairchild TS**
Retrofit Existing SCADA	18
R1 to R2 Switch Upgrade	0
Install a New Switch	7
Replace Manual Switch	19
Total	**44**

1 **4.3. Job Map and Locations**



2 **Figure 13: 2012 FA Fairchild T.S. Map** /US

1 **Table 17: 2012 FA Fairchild T.S. Job Breakdown** /US

2012 Feeder Automation – Fairchild T.S.					
Feeder	**Scope Package**	**Switch ID**	**Type**	**Location**	**Notes**
80M2	W13367	OS95875/S1424	Manual	P97 Drewry Ave	Riser on the egress
		LC33	Manual	P85 Drewry Ave	Tie-point 80M4
		OSC3851/S47	R2	P459 Patricia Ave	Sectionalizer
		OSC59862/S186	R2	P5952 Bathurst St	Tie-point 80M8
		New SW1	NEW	P95 Cactus Ave.	Sectionalizer
		New SW2	NEW	P6200 Bathurst St	Sectionalizer
80M4	W13368	OS54675/OSL56852	Manual	P75 Drewry Ave	Riser on the egress
		OSC22676	R2	P61 Cummer Ave	Sectionalizer
		OSC61755	R2	P956 Willowdale Ave	Tie-point 80M6
		OS90738	Manual	P367 Cummer Ave	Sectionalizer
		OSC47012	R2	P497 Cummer Ave	Tie-point 80M21
		New SW2	NEW	P1131 Willowdale Ave	Tie-point 80M21
80M21	W13373	OSL97899	Manual	P309 Steeles Ave W	Tie-point 80M10
		OSC19741	R2	P11 Steeles Ave W	Sectionalizer
		OS77279	Manual	P3587 Bayview Ave	Sectionalizer
		OSC3939	R2	P375 Steeles Ave W	Tie-point 51M3
		OSC67980	R2	P3324 Bayview Ave	Tie-point 80M6
80M6	W13369	OS87184	Manual	P17-2 Hendon Ave.	Sectionalizer
		OSC64725	R2	P851 Willowdale Ave	Sectionalizer
		OSC4679	R2	P338 Willowdale Ave	Sectionalizer
		New SW1	NEW	P218 Willowdale Ave	Sectionalizer
		OSC4778	R2	P110 Willowdale Ave	Tie-point 80M29
80M8	W13370	New SW1	NEW	P5760 Bathurst St	Sectionalizer
		OSC573	R2	P4976 Bathurst St	Tie-point 80M1
		OSC48420	R2	P539 Finch Ave W	Sectionalizer
		OS6680	MANUAL	P75 Grantbrook St.	Sectionalizer
80M1	W13366	OSC7353	R2	P363 Senlac Rd	Sectionalizer
		OSL42108	Manual	P251 Finch Ave.	Sectionalizer
		OSL11444	Manual	P58 Senlac Rd	Sectionalizer
		New SW1	NEW	P28 Greenview Ave.	Sectionalizer
		OS63486	Manual	P205 Churchill Ave.	Sectionalier
		OSL92822	Manual	P223 Sheppard Ave W	Tie-point 85M27

ICM Project | Feeder Automation

/US

2012 Feeder Automation – Fairchild T.S.					
Feeder	**Scope Package**	**Switch ID**	**Type**	**Location**	**Notes**
80M29	W13374	OS11106	Manual	P103 Willowdale Ave	Riser on the egress
		OS98881	Manual	P197 Avondale Ave	Sectionalizer
		OS57616	Manual	P229 Upper Highland Cres	Sectionalizer
		OSL44267	Manual	P152 York Mills Rd	Sectionalizer
		OSC9200	R2	P288 York Mills Rd	Tie-point 51M21
		OSC1727	R2	P52 York Mills Rd	Tie-point 85M8
80M10	W13372	OS59180	Manual	P103 Drewry Ave	Riser on the egress
		LC30	Manual	P177 Goulding Ave	Tie-point 80M2
		New SW1	NEW	P127 Hilda Ave	Sectionalizer
		OSC209	R2	P203 Hilda Ave	Sectionalizer
		OSC70288	R2	P160 Cactus Ave	Tie-point 80M2
		OSL39372/S424	Manual	P6168 Bathurst St	Tie-point 80M10

4.4. Required Capital Costs

Table 18: 2012 FA Fairchild T.S. Job Cost /US

Feeder Automation 2012 - Fairchild T. S.				
Project Estimate Number	Project Title	Project Year	Cost Estimate ($M)	
24192	W13367 - 2012 FA - North York - Fairchild TS (80M2)	2012	$0.34	
24195	W13368 - 2012 FA - North York - Fairchild TS (80M4)	2012	$0.34	
24199	W13374 - 2012 FA - North York - Fairchild TS (80M29)	2012	$0.39	/US
24200	W13366 - 2012 FA - North York - Fairchild TS (80M1)	2012	$0.42	
24196	W13369 - 2012 FA - North York - Fairchild TS (80M6)	2012	$0.23	
24197	W13370 - 2012 FA - North York - Fairchild TS (80M8)	2012	$0.19	
24198	W13372 - 2012 FA - North York - Fairchild TS (80M10)	2013	$0.24	/UF, US
24194	W13373 - 2012 FA - North York - Fairchild TS (80M21)	2012	$0.27	
26147	W13484 - P3 - FA 2012 Fairchild TS - Survey/Repeater Radio Installation	2013	$0.19	/US
26150	W13486 - P3 - FA 2012 Fairchild TS SAT	2013	$0.16	
		Total:	$2.78	

4.5. Job Business Case Evaluation (BCE) Results

Deploying a feeder automation scheme on these feeders can significantly reduce the impact of the outages on the feeder trunk and the number of customers that would otherwise experience a sustained outage. These reliability improvements are expected to become even more significant based on the development that is occurring in this area. Significant customer growth is occurring in both residential and non-residential load.

Beyond reliability benefits, this job is also necessary to expand the effectiveness of previous FA installations nearby. Thus it not only is expected to improve reliability for the customers on the targeted feeders, but also will improve performance on the existing automated feeders that currently have non-automated tie-points. Carrying out immediate work on these feeders will result in an approximate net present value of approximately $211.58 million. The proposed /UF project will cost $2.78 million to implement and it is expected to provide a benefit-to-cost ratio of 84.38 as shown in Table 19. /UF /UF

Table 19: BCE for Fairchild T.S. Job

Project Location	Project Cost Allocated ($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Fairchild TS	$2.78	$211.58	84.38

/C

Table 20: 2012 FA Fairchild T.S. Feeder Reliability /US

Year	Total Feeder Outages			Trunk Outages			Potential FA Savings	
	Number of Outages	CI	CHI	Number of Outage	CI	CHI	CI	CHI
2007	60	47,817	25,539.3	21	37,395	16,059.4	28,046	12,044.5
2008	45	33,673	32,950.4	9	16,549	19,375.3	12,412	14,531.5
2009	32	23,929	19,526.2	11	20,767	8,809.0	15,575	6,606.8
2010	38	32,494	23,486.9	10	11,958	7,516.3	8,969	5,637.2
2011	15	6,235	13,639.4	4	3,661	3,404.2	2,746	2,553.1
Total	**190**	**144,148**	**115,142.2**	**55**	**90,330**	**55,164.1**	**67,748**	**41,373.1**

/C

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5. 2013 Feeder Automation – Scarborough East T.S. /US

5.1. Job Objectives

The objective of this job is to continue expanding the Scarborough feeder automation network and proactively mitigate the risk of a future outage in this area of the city. This job will expand the FA network to include Scarborough East T.S. This feeder automation network is slated for construction for 2013, and is to be the take off point for additional expansion in the east end of Toronto. This job will upgrade 14 feeders and incorporate them into the Scarborough FA network that is to be created in 2012.

5.2. Job Scope of Work

The scope of work for this job is to incorporate 14 feeders onto the FA scheme from Scarborough East T.S. This will continue expansion of the FA network from the proposed job in the east end of Toronto. This job will provide improved operational flexibility and efficiency by expanding on the FA scheme. This job is designed to incorporate 71 self-healing switches into this network. This figure will include retrofitting 14 existing SCADA switches, installing 14 new switches installed, and upgrading 43 manual switches as shown in Table 26. This job will create a significant improvement of feeder functionality and the ability to restore service after an outage.

Table 26: 2013 FA Scarborough East Unit Count /US

Total of Switch Installations	
Type of Install	**Scarborough East T.S.**
Retrofit Existing SCADA	14
R1 to R2 Switch Upgrade	0
RTU Upgrade	0
Install a New Switch	14
Replace Manual Switch	43
Total	**71**

5.3. Job Map and Locations

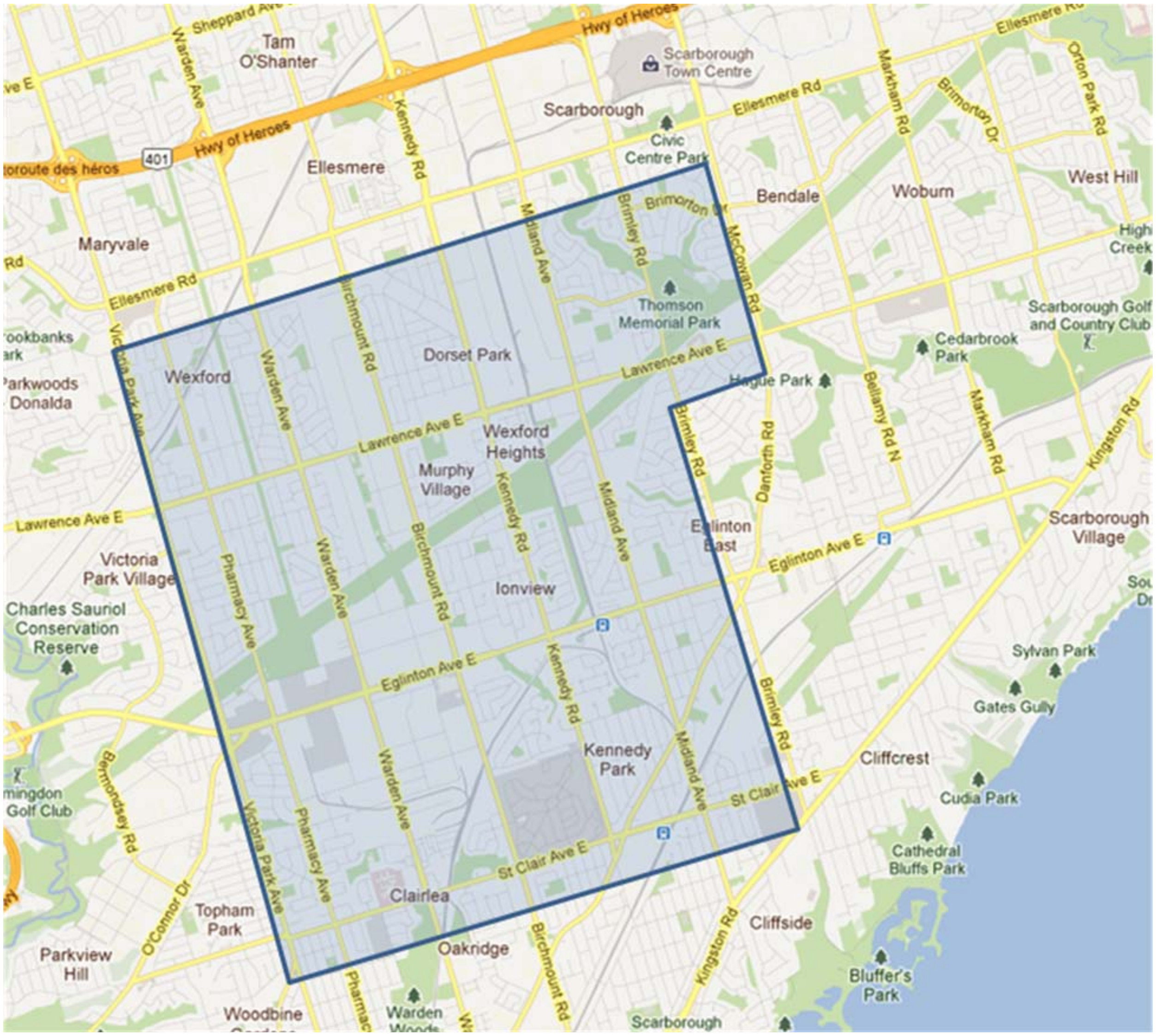


Figure 15: 2013 FA Scarborough T.S. East Map

/US

1 **Table 27: 2013 FA Scarborough Job Breakdown**

/US

Feeder Automation 2013 - Scarborough East T.S.					
Feeder	**Scope Package**	**Switch ID**	**Type**	**Location**	**Notes**
E5M2	E14387	OS28708	Replace	P939-4A Kennedy Rd	Sectionalizer
		OSL26434	Replace	P100 Thermos Rd	Tie point E5M1
		OSC11803	Upgrade	P49 Bertrand Ave	Tie point R43M25
		OSL2215	Replace	P10 Ashtonbee Rd	Sectionalizer
		OSL939	Replace	P14-F Ashtonbee Rd	Sectionalizer
		OSC-1	New Switch	P14-F Ashtonbee Rd	Sectionalizer
		OSC-1	New Switch	22-238 Ashtonbee Rd	Sectionalizer
E5M4	E14388	OS2871	Replace	P939-4D Kennedy Rd	Sectionalizer
		OSL46348	Replace	P1568 Pharmacy Ave	Tie point 502M24
		LC28474	Replace	P911-2 Hydro One Row	Tie point E5M8
		OSL26066	Replace	P14 Underwriters Rd	Tie point E5M9
		23LIS-7	Replace	23-447 Warden Ave	Sectionalizer
		OSL26219	Replace	P17-12 Hydro One Row	Sectionalizer
E5M6	E14389	OS28715	Replace	P939-4B Kennedy Rd	Sectionalizer
		OSL22275	Replace	P1535-6 Hydro One Row	Tie point E5M6
		OS44769	Replace	3-283 Victoria Park Ave	Tie point 53M5
		OSC10521	Upgrade	P630 Pharmacy Ave	Tie point R43M27
		OSC-1	New Switch	P863 Pharmacy Ave	Sectionalizer
		OSC-1	New Switch	P12-320 Pharmacy Ave	Sectionalizer

/US

Feeder Automation 2013 - Scarborough East T.S.					
Feeder	**Scope Package**	**Switch ID**	**Type**	**Location**	**Notes**
E5M8	E14390	OSL21776	Replace	P911-1 Hydro One Row	Sectionalizer
		OSL21775	Replace	P1723-A Victoria Park Ave	Tie point 53M6
		OSC11234	Upgrade	P1987 Lawrence Ave E.	Tie point E5M9
		OSC32426	Upgrade	P1313 Pharmacy Ave	Tie point E5M4
		OSC-1	New Switch	P13-197 Wexford Blvd	Sectionalizer
E5M10	E14391	OS25242	Replace	P2251-A Lawrence Ave E.	Sectionalizer
		OS25198	Replace	P2265 Lawrence Ave E.	Tie point E5M29
		OSL47932	Replace	P9 Rolark Dr	Tie pointE5M9
		OSC-1	New Switch	24-354 Birchmount Rd	Sectionalizer
		OSC-1	New Switch	P1502 Birchmount Rd	Sectionalizer
E5M21	E14392	OSL31983	Replace	P3 LRT	Sectionalizer
		OSC15342	Upgrade	P1061 Ellesmere Serv Rd SE.	Tie point E5M29
		OS61429	Replace	P1423 Ellesmere Rd	Sectionalizer
		SUG-426 S1	Replace		Tie point H9M28
		OSC-1	New Switch	P1175 Ellesmere Rd	Sectionalizer
E5M22	E14393	OSL32181	Replace	P4 LRT	Sectionalizer
		OSL33477	Replace	P824 Midland Ave	Tie point E5M5
		OSL3600	Replace	P744 Brimley Rd	Sectionalizer
		OSC3515	Upgrade	56-35 Brimley Rd	Sectionalizer

/US

Feeder Automation 2013- Scarborough East T.S.					
Feeder	**Scope Package**	**Switch ID**	**Type**	**Location**	**Notes**
E5M23	E14394	OSL32429	Replace	P2 LRT	Sectionalizer
		OSC2007	Upgrade	P821 Brimley Rd	Tie point E5M22
		OSC9874	Upgrade	65-45 McCowan Rd	Tie point H9M28
		OSC-1	New Switch	3051-A Lawrence Ave E.	Sectionalizer
E5M24	E14395	OSL51826	Replace	P878-B Lawrence Ave E.	Sectionalizer
		OSL51903	Replace	P878-A Lawrence Ave E.	Tie point E5M23
		OSC47319	Upgrade	P374 Progress Ave	Tie point E5M26
		OSL52191	Replace	P1630 Brimley Rd	Sectionalizer
		OSC46418	Upgrade	P1988 Brimley Rd	Tie point 502M32
E5M25	E14396	OS34127	Replace	P805 Brimley Rd	Sectionalizer
		OSL3728	Replace	P255-C Brimley Rd	Tie point E5M22
		OSC36264	Upgrade	P111 Brimley Rd	Tie point R43M29
		OSC-1	New Switch	P55-152 Brimley Rd	Sectionalizer
E5M26	E14397	OSL3276	Replace	P21 Lawrence Serv Rd SW.	Sectionalizer
		OSL49694	Replace	P2160 Midland Ave	Sectionalizer
		PSC32511	Upgrade		Tie point 502M26
		OS58147	Replace	P34 Progress Ave	Sectionalizer
		OSC40834	Upgrade	P2190 Midland Ave	Tie point 63M5
		OSC-1	New Switch	P42-175 Progress Ave	Sectionalizer

/US

Feeder Automation 2013- Scarborough East T.S.					
Feeder	**Scope Package**	**Switch ID**	**Type**	**Location**	**Notes**
E5M27	E14398	OSL32839	Replace	P11 Lawrence Serv Rd	Sectionalizer
		OSL48418	Replace	P506 Midwest Rd	Tie point E5M26
		OSL34944	Replace	P2759 Lawrence Ave E.	Tie point E5M23
		OSL51479	Replace	P1925 Midland Ave	Tie point E5M21
		OSC-1	New Switch	49-571 Midland Ave	Sectionalizer
		OSC-1	New Switch	P200 Midwest Rd	Sectionalizer
E5M29	E14399	OSL32855	Replace	P1041 Kennedy Rd	Sectionalizer
		OSL48363	Replace	P1164 Kennedy Rd	Tie point E5M30
		OS55079	Replace	P2 Munham Gate	Sectionalizer
		OSC-1	New Switch	32-33 Kennedy Rd	Sectionalizer
E5M30	E14400	OSL3313	Replace	P1035 Kennedy Rd	Sectionalizer
		OSC40880	Replace	P1933 Kennedy Rd	Tie point E5M29
		OSC38185	Upgrade	32-48 Ellesmere Rd	Tie point E5M10
		OSL47935	Replace	P1428 Kennedy Rd	Sectionalizer

5.4. Required Capital Costs

Table 28: 2013 FA Scarborough Job Cost Feeder Automation– Scarborough East T.S. /US

2013 FA Scarborough East T.S.			
Project Estimate Number	**Project Title**	**Project Year**	**Cost Estimate ($ M)**
24675	E14387-P03 East Feeder Automation SCNAE5M2	2013	$0.73
24680	E14388-P03 East Feeder Automation SCNAE5M4	2013	$0.68
24681	E14389-P03 East Feeder Automation SCNAE5M6	2013	$0.62
24685	E14390-P03 East Feeder Automation SCNAE5M8	2013	$0.46
24689	E14391-P03 East Feeder Automation SCNAE5M10	2013	$0.55
24709	E14392-P03 East Feeder Automation SCNAE5M21	2013	$0.59
24690	E14393-P03 East Feeder Automation SCNAE5M22	2013	$0.40
24704	E14394-P03 East Feeder Automation SCNAE5M23	2013	$0.35
24691	E14395-P03 East Feeder Automation SCNAE5M24	2013	$0.47
24699	E14396-P03 East Feeder Automation SCNAE5M25	2013	$0.40
24730	E14397-P03 East Feeder Automation SCNAE5M26	2013	$0.61
24700	E14398-P03 East Feeder Automation SCNAE5M27	2013	$0.67
24732	E14399-P03 East Feeder Automation SCNAE5M29	2013	$0.45
24702	E14400-P03 East Feeder Automation SCNAE5M30	2013	$0.40
23912	E12679-East 2013 FA Repeater Radio Installation for Scarborough TS	2013	$0.28
		Total:	**$7.66**

/C

/US

5.5. Job Business Case Evaluation (BCE) Results /C

Historically, these feeders have performed poorly and have had consistent outages on the trunk. There was some reliability improvement seen in 2011, however, this appears to be an anomaly and THESL anticipates that the feeder's future reliability will return to the levels experienced in prior years (See Table 3). Feeder Automation is a proactive solution that will mitigate the impact of a trunk outage to the customers on these feeders. Furthermore, expanding the Scarborough network will create a tighter more robust design with the existing feeders and assist in incorporating future FA. The feeders in this area of Toronto require modernization because the majority of them have only a few remote switches and the majority of switching operations require manual intervention. Carrying out immediate work on these feeders will result in an approximate net present value of approximately $416.55 million. The proposed project will cost $7.66 million to implement and it will provide a benefit-to-cost ratio of 57.47 as shown in Table 29. /UF, /C

Table 29: BCE of Scarborough East T.S.

Project Location	Project Cost Allocated ($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Scarborough East T.S.	$7.66	$416.55	57.47

/C /UF

Table 30: 2013 FA Scarborough East T.S. Feeder Reliability /US

Year	Total Feeder Outages			Total Trunk Outages			Potential FA Savings	
	Number of Outages	CI	CHI	Number of Outages	CI	CHI	CI	CHI
2007	24	23,812	8,676.0	12	23,662	8,451.3	17,747	6,338.5
2008	14	14,177	6,794.5	7	11,009	6,058.2	8,257	4,543.7
2009	19	52,894	50,768.7	11	40,523	39,570.5	30,392	29,677.9
2010	26	29,572	13,527.2	13	22,667	10,029.0	17,000	7,521.8
2011	11	6,730	8,652.4	2	2,915	1,782.0	2,186	1,336.5
Total	**94**	**127,185**	**88,418.8**	**45**	**100,776**	**65,891.0**	**75,582**	**49,418.3**

failure which include direct and indirect cost attributes associated with in-service asset failures, costs of customer interruptions, emergency repairs and replacement.

- NAR2 represents the NPV calculation of non-asset risks associated with the new state, taking into account for the effects of Feeder Automation on the impact cost of non-asset incidents. Further explanation of the Non-Asset Risk calculation is provided in Section 5.2.

The overall project net present value is calculated as per the following formula shown below:

- Project NPV = (COO_E – COO_N) – Project Cost, which is shown as "Project Net Benefit" in Tables D.1 through D.4, below. /C

The benefit-cost ratio is calculated as per the following formula shown below:

- Benefit-Cost Ratio = (COO_E – COO_N)/Project Cost

Thus, the Project NPV value reflects the difference in the cost of ownership between the existing construction and new construction, after the total cost of the project has been subtracted.

The Tables below show the BC ratios for the work proposed in the various areas. Tables D.1 through D.4 show the B/C ratios for each of the specific jobs proposed. /C

1 **Table D.1: BCE of Cavanagh T.S. and Agincourt T.S. Job**

Project Location	Project Cost Allocated ($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Cavanagh TS and Agincourt TS	$7.82	$861.34	111.14

/c

2 **Table D.2: BCE for Horner T.S. and Manby T.S. Job**

Project Location	Project Cost Allocated($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Horner TS and Manby TS	$3.40	$358.39	118.81

/c

1 **Table D.3: BCE for Fairchild T.S. Job** /C

Project Location	Project Cost Allocated ($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Fairchild TS	$2.78	$211.58	84.38

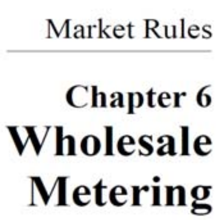
2 **Table D.4: BCE of Scarborough East T.S.** /C

Project Location	Project Cost Allocated ($ M)	Project Net Benefit ($ M)	Option Benefit/Cost Ratio
Scarborough East T.S.	$7.66	$416.55	57.47

ICM Project

Metering

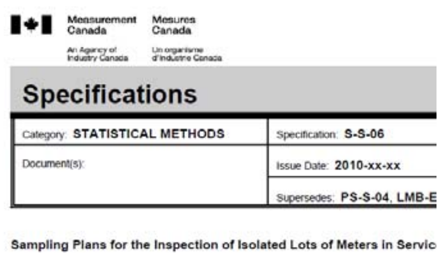
Wholesale Metering Market Settlement Compliance



Market Rules

Chapter 6
Wholesale
Metering

Seal Expiring Meters



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Mesures Canada — Un organisme d'Industrie Canada

Specifications

Category: STATISTICAL METHODS	Specification: S-S-06
Document(s):	Issue Date: 2010-xx-xx
	Supersedes: PS-S-04, LMB-E

Sampling Plans for the Inspection of Isolated Lots of Meters in Servic

Toronto Hydro-Electric System Limited (THESL)

ICM Project | Metering

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget by $0.32 M
- 2014 jobs and spending shown in strike-through
- Corrected numerical and typographical errors

1.3. C. Summary of Relief Requested

The estimated incremental cost of completing these measures in the 2012-2013 period (which costs are not covered by PCI funded rates) are: /US

Item	2012	2013	~~2014~~	Total
Wholesale Metering Market Settlement Compliance	$1.0M	$6.3M	~~$9.1M~~	$7.3M
Seal Expiring Meters	$5.0M	$0.9M	~~$1.0M~~	$5.9M
2012-2013 Total	**$6.0M**	**$7.2M**	~~**$10.1M**~~	**$13.2M**

/UF

2. Why the Project is Needed Now

2.1. Wholesale Metering Market Settlement Compliance

THESL's legacy transformer replacement efforts in 2012-2014 is required to ensure THESL completes the upgrades to its delivery points in 2012, 2013 and 2014 necessary to complete full meter upgrades at all applicable delivery points by 2021 in accordance with its IESO approved proposal. These upgrades are required in response to the following two drivers:

(i) In order to remain in compliance with the Independent Electricity System Operator (IESO) Market Rules, THESL is required to replace its legacy transformers with modern instrument transformers (current transformers and potential transformers) to ensure its wholesale metering points meet all of the criteria set forth in the Market Manuals (MDP_PRO_0022) and the Market Rules (MDP_RUL_0002_06 and MDP_RUL_0002_06A). THESL has committed to a long-term plan with the IESO to complete full meter upgrades at all applicable delivery points by 2021. This plan was initiated by way of a letter to the IESO on August 11, 2009 and approved by the IESO on November 27, 2009. Once wholesale metering upgrades are complete (currently scheduled to continue through 2021), there will be a total of 223 meter installations upgraded (of which 87 have been completed prior to 2012, 67 will be addressed in 2012-2014 (the request that is subject of this ICM filing), leaving 69 metering upgrades for the treatment of compliance issues by both Market Participants and the IESO.

THESL views this work as non-discretionary work that is required to remain compliant with the requirements of Measurement Canada and the IESO Market Rules. THESL should perform the work in accordance with the schedule outlined in Table 2. Any delay in this scope of work could easily delay the overall implementation of compliant wholesale metering across the entire THESL service territory. If the IESO does not perceive progress on this compliance effort, this could in turn result in fines if THESL is found to be in non-compliance with the IESO Mark Rules that could range from $10,000 to more than $100,000 for each wholesale transformer station depending on the number of meters and metering equipment in breach. THESL would incur these penalties in addition to the requirements to perform this work should THESL fail to stay on schedule. The fines/penalties would escalate if THESL does not address any Market Rules breaches expeditiously to the point of suspension or termination of THESL's Market Participant status.

THESL will upgrade meter installations by replacing instrument transformers and meters, installing and splitting existing metering points such that each individual delivery point has a dedicated meter. The number of upgrades required in each of 2012 and 2013 ~~and 2014~~ is provided in Table 1 below.

Table 1: Wholesale Metering Upgrades

	Test Year 2012	**Test Year 2013**	~~**Test Year 2014**~~	**2012-2013 Total**
Number of Wholesale Metering Points	6	28	~~33~~	34

A detailed schedule of wholesale metering upgrades by location is provided in Table 2 below.

1 **Table 2: Wholesale Metering Upgrades by Location**

Job Estimate Number	Job Title	Job Year	Cost Estimate ($M)
TH4038	IESO Compliant Metering at Leslie TS (T4J and T4Q)	2012	$0.66
P0057669	IESO Compliant Metering at Strachan TS (T15-A9A10 and T13-A9A10)	2012	$0.18
P0055759	IESO Compliant Metering at Wiltshire TS (T5-A11A12 and T2-A11A12)	2012	$0.18
TH 7009	IESO Compliant Metering at Bermondsey TS (T1J, T1Q, T2J, T2Q, T3B, T3Y, T4B, T4Y)	2013	$1.80
TH7006	IESO Compliant Metering at Scarboro TS (T21J, T21Q, T22J, T22Q, T23B, T23Y, T24B, T24Y)	2013	$1.80
TH7010	IESO Compliant Metering at Dufferin TS (T2A5A6, T2A7A8, T4A5A6, T4A7A8)	2013	$0.90
TH7015	IESO Compliant Metering at Fairbank TS (Y Bus, Z Bus, B Bus, Q Bus)	2013	$0.90
TH7007	IESO Compliant Metering at Ellesmere TS (T3J, T3Q, T4J, T4Q)	2013	$0.90
~~TH7021~~	~~IESO Compliant Metering at Gerrard TS (T1A4A5, T2A2A2, T3A1A2 and T4A4A5)~~	~~2014~~	~~$1.00~~
~~TH7017~~	~~IESO Compliant Metering at Warden TS (J Bus and Q Bus)~~	~~2014~~	~~$0.40~~
~~TH7008~~	~~IESO Compliant Metering at Basin TS (T3A5A6, T3A7A8, T5A5A6, T5A7A8)~~	~~2014~~	~~$1.00~~
~~TH7013~~	~~IESO Compliant Metering at Main TS (T3 and T4)~~	~~2014~~	~~$1.20~~
~~TH7005~~	~~IESO Compliant Metering at Manby TS (T13 and T14)~~	~~2014~~	~~$0.50~~
~~TH7016~~	~~IESO Compliant Metering at Runnymede TS (T3 and T4)~~	~~2014~~	~~$0.50~~

/UF

Job Estimate Number	Job Title	Job Year	Cost Estimate ($M)
~~TH7011~~	~~IESO Compliant Metering at Bridgman TS (T5 and T11)~~	~~2014~~	~~$1.00~~
~~TBD~~	~~IESO Compliant Metering at Leaside TS (M1, M2, M3, M4, M8, T19, T20, T21)~~	~~2014~~	~~$1.80~~
~~TBD~~	~~IESO Compliant Metering at Esplanade TS (M11, M12, M13)~~	~~2014~~	~~$0.70~~
~~TBD~~	~~IESO Compliant Metering at Terauley TS (T2, T3)~~	~~2014~~	~~$0.50~~
~~TBD~~	~~IESO Compliant Metering at Strachan TS (T13, T15)~~	~~2014~~	~~$0.50~~
2012-2013	**Total ICM Metering projects**	**Total:**	**$7.32**

/UF

2. Seal Expiring Meters

THESL is required to comply with the metering requirements set out by Measurement Canada in Sections 9, 11 and 12 of the *Electricity and Gas Inspection Act*. These requirements state that all meters must be resealed at specific intervals in order to ensure that a customer's electricity use is being metered accurately.

Specifically:

Subsection 9(1) provides:

> "Subject to subsections (2) and (3), where a contractor or purchaser intends to use or cause to be used a meter for the purpose of obtaining the basis of a charge for electricity or gas supplied by or to him, the meter shall not, until it has been verified and sealed in accordance with this Act and the regulations, be put into service."

Subsection 11(2) provides:

> "Any approval granted under subsection 9(3) or (4) or accreditation granted under section 10 may, by notice given in prescribed manner, be revoked by

As noted above, some of the meters are mounted on asbestos backer boards (See Figure 4, Figure 5 and Figure 6 for illustrative examples) and it is prudent for THESL to remove this potential hazard when completing the meter replacement. This is expected to mitigate, if not eliminate this safety issue, as any activity to change or by-pass these meters may result in /C creation of asbestos air-born particles, which present a potential safety risk to THESL crews and to the public. Furthermore, if a meter with an asbestos board fails it may not be possible to replace immediately on a reactive basis, resulting in an extended power outage to the customer.

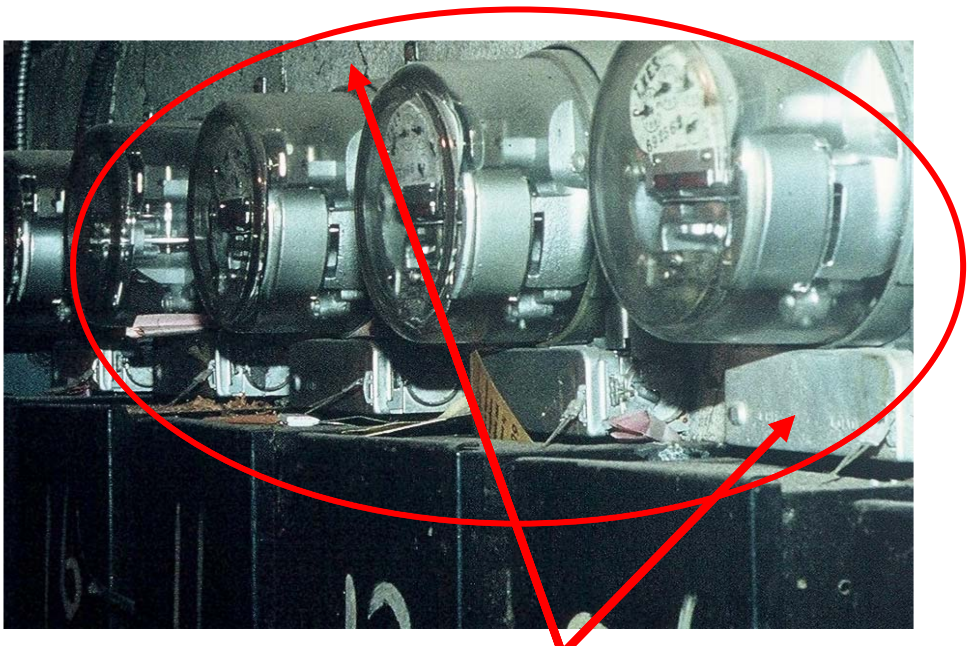


Figure 4: Example of Meters installed on Asbestos Backer Boards #1

III DESCRIPTION OF WORK

1. Listing of all Jobs

Project Estimate Number	Job Title	Job Year	Cost Estimate ($M)
TH4038	IESO Compliant Metering at Leslie TS (T4J and T4Q)	2012	$0.66
P0057669	IESO Compliant Metering at Strachan TS (T15-A9A10 and T13-A9A10)	2012	$0.18
P0055759	IESO Compliant Metering at Wiltshire TS (T5-A11A12 and T2-A11A12)	2012	$0.18
25315 25316	ICM re-verification/reseal	2012	$5.0 /UF
TH7009	IESO Compliant Metering at Bermondsey TS (T1J, T1Q, T2J, T2Q, T3B, T3Y, T4B, T4Y)	2013	$1.80
TH7006	IESO Compliant Metering at Scarborough TS (T21J, T21Q, T22J, T22Q, T23B, T23Y, T24B, T24Y)	2013	$1.80
TH7010	IESO Compliant Metering at Dufferin TS (T2A5A6, T2A7A8, T4A5A6, T4A7A8)	2013	$0.90
TH7015	IESO Compliant Metering at Fairbank TS (Y Bus, Z Bus, B Bus, Q Bus)	2013	$0.90
TH7007	IESO Compliant Metering at Ellesmere TS (T3J, T3Q, T4J, T4Q)	2013	$0.90
24983	2013 RC4250 Re-verification Meter Replacement New	2013	$0.90
~~TH7021~~	~~IESO Compliant Metering at Gerrard TS (T1A4A5, T2A2A2, T3A1A2 and T4A4A5)~~	~~2014~~	~~$1.00~~
~~TH7017~~	~~IESO Compliant Metering at Warden TS (J Bus and Q Bus)~~	~~2014~~	~~$0.40~~

Project Estimate Number	Job Title	Job Year	Cost Estimate ($M)
~~TH7008~~	~~IESO Compliant Metering at Basin TS (T3A5A6, T3A7A8, T5A5A6, T5A7A8)~~	~~2014~~	~~$1.00~~
~~H7013~~	~~IESO Compliant Metering at Main TS (T3 and T4)~~	~~2014~~	~~$1.20~~
~~TH7005~~	~~IESO Compliant Metering at Manby TS (T13 and T14)~~	~~2014~~	~~$0.50~~
~~TH7016~~	~~IESO Compliant Metering at Runnymede TS (T3 and T4)~~	~~2014~~	~~$0.50~~
~~TH7011~~	~~IESO Compliant Metering at Bridgman TS (T5 and T11)~~	~~2014~~	~~$1.00~~
~~TBD~~	~~IESO Compliant Metering at Leaside TS (M1, M2, M3, M4, M8, T19, T20, T21)~~	~~2014~~	~~$1.80~~
~~TBD~~	~~IESO Compliant Metering at Esplanade TS (M11, M12, M13)~~	~~2014~~	~~$0.70~~
~~TBD~~	~~IESO Compliant Metering at Terauley TS (T2, T3)~~	~~2014~~	~~$0.50~~
~~TBD~~	~~IESO Compliant Metering at Strachan TS (T13, T15)~~	~~2014~~	~~$0.50~~
~~24985~~	~~2014 RC4250 Re-verification Meter Replacement New~~	~~2014~~	~~$1.00~~
		2012-2013 Total:	**$13.2**

/UF

2. Proposal for Leslie TS – Replace T4J and T4Q Wholesale Revenue Metering

2.1. Job Objectives

THESL is the MSP and intends to exit from Hydro One Networks Inc. (HONI)-owned wholesale revenue metering installations. THESL intends to abandon the metering installations and build new low voltage installations. This proposal is for the work associated with de-registering the existing two wholesale revenue metering points and with making ready two new fully compliant IESO wholesale metering installations.

2.2. Job Scope of Work

The switchyard site is a 230/27.6 kV transformer station supplying local loads. There are two transformers, designated as T4J and T4Q connected via 230kV lines. Both transformers T4J and T4Q are the subject of this revenue metering upgrade.

2.3. Location

The assets being replaced are located at Leslie TS, 5655 Leslie Street, Toronto, Ontario, M2H 1W6.

2.4. Required Capital Costs

Estimate Number	Job Phase	Estimated Cost ($M)
TH4038	Leslie TS – Replace T4J and T4Q Wholesale Revenue Metering	$0.66
	Total:	**$0.66**

/UF

3. Proposal for Strachan TS – IESO Compliant Metering at Strachan TS (T13-A9A10 and T15-A9A10)

3.1. Job Objectives

THESL is the MSP and expects to exit from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Strachan TS. This proposal is for the work associated with de-registering the existing one wholesale revenue metering points and with making ready two new fully-compliant IESO wholesale metering installations.

10.4. Required Capital Costs

Estimate Number	Job Phase		Cost ($M)
TH7021	Gerrard TS (NT33) – Replace T1A4A5, T2A1A2, T3A1A2, and T4A4A5 Wholesale Revenue Metering		$1.00
		Total:	$1.00

11. Proposal for Warden TS – Replace J Bus and Q Bus Wholesale Revenue Metering

11.1. Job Objectives

THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Warden TS. This proposal is for the work associated with de-registering the existing four wholesale revenue metering points and with making ready four new fully-compliant IESO wholesale metering installations.

11.2. Job Scope of Work

The switchyard site is a 230/27.6 kV, 60 Hz transformer station supplying local loads. There are two power transformers (T3 and T4) providing step down transformation from the 230 kV system to 27.6 kV system. Both transformers are within the scope of this revenue metering upgrade.

11.3. Location

The assets being replaced are located at Warden TS, 699 Warden Avenue, Toronto, Ontario, M1L 3Z5.

~~11.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~	~~Estimated Cost ($M)~~
~~TH7017~~	~~Warden TS – Replace J Bus and Q Bus Wholesale Revenue Metering~~	~~$0.40~~
	~~Total:~~	~~$0.40~~

~~12. Proposal for Basin TS (NT4) – Replace T3A5A6, T3A7A8, T5A5A6, and T5A7A8 Wholesale Revenue Metering~~

~~12.1. Job Objectives~~

~~THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Basin TS. This proposal is for the work associated with de-registering the existing four wholesale revenue metering points and with making ready four new fully-compliant IESO wholesale metering installations.~~

~~12.2. Job Scope of Work~~

~~The switchyard site is a 115/13.8 kV, 60 Hz TS supplying local loads. There are two power transformers (T3 and T5) providing step down transformation from the 115 kV system to the THESL owned 13.8 kV system. Both transformers are within the scope of this revenue metering upgrade.~~

~~12.3. Location~~

~~The assets being replaced are located at Basin TS, 25 Basin Street, Toronto, Ontario, M4M 1A1.~~

~~12.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~	~~Estimated Cost ($M)~~
~~TH7008~~	~~Proposal for Gerrard TS (NT33) – Replace T1A4A5, T2A1A2, T3A1A2, and T4A4A5 Wholesale Revenue Metering~~	~~$1.00~~
	~~**Total:**~~	~~**$1.00**~~

~~13. Proposal for Main TS – Replace T3 and T4 Wholesale Revenue Metering~~

~~13.1. Job Objectives~~

~~THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Main TS. This proposal is for the work associated with de-registering the existing four wholesale revenue metering points and with making ready two new fully-compliant IESO wholesale metering installations.~~

~~13.2. Job Scope of Work~~

~~The switchyard site is a 115/13.8 kV transformer station supplying local loads. There are two transformers, designated as T3 and T4, connected via 115 kV, 60 Hz lines. They are both subject of this revenue metering upgrade.~~

~~13.3. Location~~

~~The assets being replaced are located at Main TS, 131 Stephenson Avenue, Toronto, Ontario, M4C 1G2.~~

13.4. Required Capital Costs

Estimate Number	Job Phase	Estimated Cost ($M)
TH7013	Proposal for Main TS – Replace T3 and T4 Wholesale Revenue Metering	$1.20
	Total:	**$1.20**

14. Proposal for Manby TS (NA38) – Replace T13 and T14 Wholesale Revenue Metering

14.1. Job Objectives

THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Manby TS. This proposal is for the work associated with de-registering the existing two wholesale revenue metering points and with making ready two new fully-compliant IESO wholesale metering installations.

14.2. Job Scope of Work

Manby TS (T13/T14) consists of two 220/28 kV, 50/67/93 MVA power transformers, each with a winter 10-day Limited Time Rating (LTR) of 120.6 MVA. A meter only upgrade of the T13/T14 2EL metering installation was done in 2008 but a full metering upgrade is now needed to satisfy the requirements of Market Rules. Before beginning work Hydro One will complete a detailed design of two new IESO compliant metering installations; one to meter the energy being delivered by transformer T13 and the other to meter that of transformer T14.

14.3. Location

The assets being replaced are located Manby TS, located in the City of Toronto, at 850 Kipling Avenue, Toronto, Ontario, M8Z 5G5.

~~14.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~		~~Estimated Cost ($M)~~
~~TH7005~~	~~Manby TS (NA38) – Replace T13 and T14 Wholesale Revenue Metering~~		~~$0.50~~
		~~**Total:**~~	~~**$0.50**~~

~~15. Proposal for Runnymede (NT11) – Replace T3 and T4 Wholesale Revenue Metering~~

~~15.1. Job Objectives~~

~~THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Runnymede TS. This proposal is for the work associated with de-registering the existing one wholesale revenue metering points and with making ready two new fully compliant IESO wholesale metering installations.~~

~~15.2. Job Scope of Work~~

~~Runnymede TS is a 115/27.6 kV transformer station supplying local loads. There are two transformers, designated as T3 and T4, connected via 115kV, 60 Hz lines K11W and K12W. Both transformers are the subject of this revenue metering upgrade.~~

~~15.3. Location~~

~~The assets being replaced are located at Runnymede (TS), located in the City of Toronto, on 99 Woolner Avenue, South of Eglinton Avenue and east from Jane Street.~~

~~15.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~		~~Estimated Cost ($M)~~
~~TH7016~~	~~Runnymede (NT11) – Replace T3 and T4 Wholesale Revenue Metering~~		~~$0.50~~
		~~Total:~~	~~$0.50~~

~~16. Proposal for Bridgman TS – Replace T5A4A6HL and T11A5A6HL Wholesale Revenue Metering~~

~~16.1. Job Objectives~~

~~THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Bridgman TS. This proposal is for the work associated with de-registering the existing two wholesale revenue metering points and with making ready two new fully-compliant IESO wholesale metering installations which is further described in detail in the attached Scope of Work.~~

~~16.2. Job Scope of Work~~

~~The switchyard site is a 115/13.8 kV, 60 Hz TS supplying local loads. There are two power transformers (T5 and T11) providing step down transformation from the 115 kV system to 13.8 kV system. Both are within the scope of this revenue metering upgrade.~~

~~16.3. Location~~

~~The assets being replaced are located at Bridgman TS, located in the City of Toronto, at 254 MacPherson Avenue, Toronto, Ontario, M4V 1A7.~~

~~16.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~		~~Estimated Cost ($M)~~
~~TH7011~~	~~Bridgman TS – Replace T5A4A6HL and T11A5A6HL Wholesale Revenue~~		~~$1.00~~
		~~**Total:**~~	~~**$1.00**~~

~~17. Proposal for Leaside TS – Replace M1, M2, M3, M4, M8, T19, T20 and T21 Wholesale Revenue Metering~~

~~17.1. Job Objectives~~

~~THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Leaside TS. This proposal is for the work associated with de-registering the existing two wholesale revenue metering points and with making ready six new fully-compliant IESO wholesale metering installations~~

~~17.2. Job Scope of Work~~

~~The switchyard site is a 230/13.8 kV and 230/27.6 kV, 60 Hz TS supplying local loads. There are three (3) power transformers (T19, T20 and T21) providing step down transformation from the 230 kV system to 13.8 kV and 27.6 kV system. All are within the scope of this revenue metering upgrade.~~

~~17.3. Location~~

~~The assets being replaced are located at Leaside (TS), located in the City of Toronto, at 1080 Millwood Avenue, Toronto, Ontario, M4H 1A2.~~

~~17.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~		~~Estimated Cost ($M)~~
~~TBD~~	~~Leaside TS – Replace M1, M2, M3, M4, M8, T19, T20 and T21 Wholesale Revenue Metering~~		~~$1.80~~
		~~**Total:**~~	~~**$1.80**~~

~~18. Proposal for Esplanade TS – Replace T11, T12 and T13 Wholesale Revenue Metering~~

~~18.1. Job Objectives~~

~~THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Esplanade TS. This proposal is for the work associated with de-registering the existing three wholesale revenue metering points and with making ready three new fully-compliant IESO wholesale metering installations.~~

~~18.2. Job Scope of Work~~

~~The switchyard site is a 115/13.8 kV, 60 Hz TS supplying local loads. There are three power transformers (T11, T12 and T13) providing step down transformation from the 115 kV system to the 13.8 kV system. All are within the scope of this revenue metering upgrade.~~

~~18.3. Location~~

~~The assets being replaced are located at Esplanade (TS), located in the City of Toronto, at 106 Lower Sherbourne Street, Toronto, Ontario, M5A 4S8.~~

~~18.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~		~~Estimated Cost ($M)~~
~~TBD~~	~~Esplanade TS – Replace T11, T12 and T13 Wholesale Revenue Metering~~		~~$0.70~~
		~~Total:~~	~~$0.70~~

~~19. Proposal for Terauley TS – Replace T2 and T3 Wholesale Revenue Metering~~

~~19.1. Job Objectives~~

~~THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Terauley TS. This proposal is for the work associated with de-registering the existing two wholesale revenue metering points and with making ready two new fully-compliant IESO wholesale metering installations.~~

~~19.2. Job Scope of Work~~

~~The switchyard site is a 115/13.8 kV, 60 Hz TS supplying local loads. There are two power transformers (T2 and T3) providing step down transformation from the 115 kV system to the 13.8 kV system. All are within the scope of this revenue metering upgrade.~~

~~19.3. Location~~

~~The assets being replaced by this project are located at Esplanade (TS), located in the City of Toronto, at 532 Bay Street, Toronto, Ontario, M7A 2C7.~~

~~19.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~	~~Estimated Cost ($M)~~
~~TBD~~	~~Terauley TS – Replace T2 and T3 Wholesale Revenue Metering~~	~~$0.50~~
	~~**Total:**~~	~~**$0.50**~~

~~20. Proposal for Strachan TS – Replace T13 and T15 Wholesale Revenue Metering~~

~~20.1. Job Objectives~~

~~THESL is the MSP and expects to be exiting from the above mentioned HONI-owned wholesale revenue metering installations. THESL expects to abandon the above mentioned metering installations and build new low voltage installations inside Strachan TS. This proposal is for the work associated with de-registering the existing two wholesale revenue metering points and with making ready two new fully-compliant IESO wholesale metering installations.~~

~~20.2. Job Scope of Work~~

~~The switchyard site is a 115/13.8 kV, 60 Hz TS supplying local loads. There are two power transformers (T13 and T15) providing step down transformation from the 115 kV system to the 13.8 kV system. All are within the scope of this revenue metering upgrade.~~

~~20.3. Location~~

~~The assets being replaced by this project are located at Strachan TS, located in the City of Toronto, at 6 Strachan Avenue, Toronto, Ontario, M6K 3N8.~~

~~20.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~		~~Estimated Cost ($M)~~
~~TBD~~	~~Strachan TS – Replace T13 and T15 Wholesale Revenue Metering~~		~~$0.50~~
		~~**Total:**~~	~~**$0.50**~~

21. Measurement Canada Compliance and Smart Meter Program – Mandatory Replacement Program in 2012

21.1. Job Objectives

To maintain THESL compliance with the Minister of Energy's directive regarding smart meter installations and to remain compliant with Measurement Canada requirements for seal expired meters in 2012.

21.2. Job Scope of Work

To replace the 6,408 meters that have expired seals.

Type of Work	2012
Seal Expired Meters	6,408

21.3. Job Locations

These assets are located various specific locations dispersed throughout THESL's service area.

21.4. Required Capital Costs

Estimate Number	Job Phase		Estimated Cost ($M)
25315 25316	Meter Re-verifications and reseals - 2012		$5.0
		Total:	**$5.0**

/UF

~~23. Measurement Canada Compliance– Mandatory Replacement Program in 2014~~

~~23.1. Job Objectives~~

~~To maintain THESL compliance with Measurement Canada requirements for seal expired meters in 2014.~~

~~23.2. Job Scope of Work~~

~~To replace the 5,299meters that have expired seals.~~

~~Type of Work~~	~~2014~~
~~Seal Expired Meters~~	~~5,299~~

~~23.3. Job Locations~~

~~These assets are located throughout Toronto Hydro's service area.~~

~~23.4. Required Capital Costs~~

~~Estimate Number~~	~~Job Phase~~		~~Estimated Cost ($M)~~
~~24985~~	~~Re-verification Replacement~~		~~$1.00~~
		~~Total:~~	~~$1.00~~

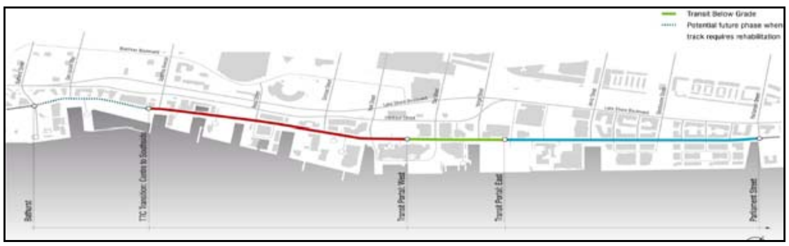
~~23.5. Conclusions~~

~~This work must be completed for THESL to remain in compliance with the Measurement Canada.~~

ICM Project

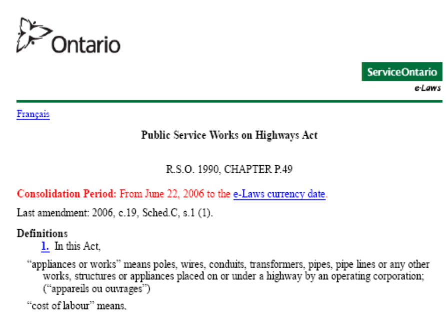
Externally-Initiated Plant Relocations and Expansions

Waterfront Toronto



Go Transit / Metrolinx

Minsitry of Transportiation / City of Toronto


Ontario

ServiceOntario
e-Laws

Français

Public Service Works on Highways Act

R.S.O. 1990, CHAPTER P.49

Consolidation Period: From June 22, 2006 to the e-Laws currency date.

Last amendment: 2006, c.19, Sched.C, s.1 (1).

Definitions

1. In this Act,

"appliances or works" means poles, wires, conduits, transformers, pipes, pipe lines or any other works, structures or appliances placed on or under a highway by an operating corporation; ("appareils ou ouvrages")

"cost of labour" means,

Toronto Hydro-Electric System Limited (THESL)

TORONTO HYDRO

ICM Project | Externally-Initiated Plant Relocations and Expansions

SUMMARY OF CHANGES IN THE UPDATE

- Reduced 2012-2013 budget from $41.9 M to $35.0 M, a reduction of $6.9 M
- Revised number of jobs proposed for 2012/2013 to 24, with jobs and job phases for 2014 to be addressed in Phase Two
- 2014 jobs and spending shown in strike-through
- Restructured 2012 and 2013 jobs to recognize the work accomplished to date in 2012, forecast work for 2013
- Corrected numerical and typographical errors

Table 1: Summary of Externally-Initiated Plant Relocation and Expansion Jobs and Cost Estimates

Job Estimate Number	Job Title	Year	THESL Cost Estimate ($M)	Agency	Estimated Agency Cost ($M)	
22851	Queens Quay Rebuild Phase 1	2012	$3.78	Waterfront Toronto	$0.60	/UF
22853	Queens Quay Rebuild Phase 2	2013	$4.70	Waterfront Toronto	$0.60	/US
22854	Queens Quay Rebuild Phase 3	2013	$2.82	Waterfront Toronto	$0.60	/US
24729	Queens Quay Rebuild Phase 4	2013	$9.73	Waterfront Toronto	$2.70	
~~24731~~	~~Queens Quay Rebuild Phase 5~~	~~2014~~	~~$6.98~~	~~Waterfront Toronto~~	~~$1.00~~	
23196	Metrolinx West of Hwy 27	2012	$0.23	GO Transit	$0	
24079	GTS Bridge –Hwy 27	2012	$0.14	GO Transit	$0	
24895	Weston Tunnel	2012	$0.28	GO Transit	$0	/UF
24784	Martin Grove Bridge	2012	$0	GO Transit	$0	/UF
~~23497~~	~~Black Creek and Weston UG Reinstatement~~	~~2014~~	~~$0.09~~	~~GO Transit~~	~~$0~~	
23018	GO Strachan UG Crossing Civil	2012	$0.26	GO Transit	$0	
24929	GO Strachan UG Crossing Civil	2012	$0.13	GO Transit	$0	

ICM Project | Externally-Initiated Plant Relocations and Expansions

Job Estimate Number	Job Title	Year	THESL Cost Estimate ($M)	Agency	Estimated Agency Cost ($M)	
23759	Strachan Electrical Relocation Part 1	2012	$1.67	GO Transit	$0	
20124	Strachan Electrical Relocation Part 2	2012	$1.12	GO Transit	$0	
20125	Strachan Electrical Relocation Part 3	2012	$1.01	GO Transit	$0	/UF
20129	Strachan Electrical Relocation Part 4	2012	$0.46	GO Transit	$0	
21862	Keele St and Hwy 401- PH2- Tunnelling Under Hwy 401	2012	$0.62	MTO	$0.15	
23329	Eglinton Ramp Onto Hwy 427	2012	$0.19	MTO	$0.05	
22170	Dunn Ave Directional Drilling	2013	$0.75	City of Toronto	$0.19	
25276	Dundas Street Overhead to Underground Phase 1 - Design	2013	$0.63	City of Toronto	$0	/UF, US
25280	Dundas Street Overhead to Underground Phase 2	2013	$3.02	City of Toronto	$0.75	/UF
~~25277~~	~~Dundas Street Overhead to Underground Phase 3~~	~~2014~~	~~$6.27~~	~~City of Toronto~~	~~$1.74~~	

Job Estimate Number	Job Title	Year	THESL Cost Estimate ($M)	Agency	Estimated Agency Cost ($M)	
24615	North West PATH Addition Phase 1	2013	$0.85	City of Toronto	$0.21	/UF, US
24967	North West PATH Addition Phase 2	2013	$1.08	City of Toronto	$0.30	/US
24037	Front Street Streetscape Improvement	2012	$0.41	City of Toronto	$0.11	
23527	Beecroft OH Reconfiguration	2012	$0.74	City of Toronto	$0.18	/UF
24963	Lawrence Avenue Relocation	2012	$0.28	City of Toronto	$0.07	/UF
	JOBS TOTAL		**$34.90**		**$6.51**	
Reconciliation for job cost changes < $100,000 and rounding			**$0.10**			
	Reconciled Total		**$35.00**			/UF, US

2. Why the Project is Needed Now

According to the Act, THESL is obligated to relocate its infrastructure if asked to do so by the requesting Road Authority. While the date by which this relocation must be accomplished is typically negotiated with the requesting Road Authority, the Act provides a nominal allowance of only sixty days notice. Time is generally a critical element of these externally initiated projects, and THESL must strive to align its work with the overall infrastructure project schedule of the third party.

Similarly, if THESL is to complete anticipated expansion work on its facilities because it is prudent to do so concurrently with the relocation requirements to maximize efficiency for ratepayers, this work must be done within the timeline mandated by the requesting agency. There is a time-limited window to accomplish this expansion and if this window is missed, the

If only the required infrastructure for relocation is built at the present time, THESL will be limited by the existing civil infrastructure along Queens Quay Boulevard. This civil infrastructure, as detailed in Figure 6, is undersized and insufficient to accommodate existing circuits plus the additional feeders required to serve the loads anticipated along Queens Quay Boulevard shown in Figure 2.

The restrictions and possible lack of space along the new revitalized Queens Quay Boulevard from Yo Yo Ma Lane to Parliament Street would prevent THESL from utilizing that route unless new ducts and chambers are added as part of the Queens Quay refurbishment. Otherwise, additional capital funds will have to be spent in future years for THESL to install the necessary new civil infrastructure for new feeders to supply customers via Bremner TS.

This new civil infrastructure would, in turn, require new trenching along major routes such as York Street and Lakeshore Boulevard in order to access the high growth areas. This work would be significantly more costly because while the distance to be covered along Lakeshore is similar to that for Queens Quay Boulevard, additional work would be required on York Street. Moreover, Lakeshore is a higher traffic route resulting in more complex construction and maintenance restrictions. Overall, the long term costs associated with this approach are significantly higher than the costs associated with installing the necessary facilities as part of the expansion along Queens Quay Boulevard.

1.2. Business Case Evaluation (BCE) Results

The total cost for THESL to perform the relocations as requested by Waterfront Toronto and increase the duct capacity and civil infrastructure for future requirements is estimated at
$25.53M. This estimate can be divided into two portions. Portion 1, to be funded one hundred **/UF**
percent by Waterfront Toronto, is estimated at $4.50M and includes the civil and electrical plant **/UF**
relocation based on preliminary design during project development and alignments proposed by
Waterfront Toronto. Portion 2, required by THESL estimated at $21.32M and includes the **/UF**
expansion to a 32-duct 3.2 kilometre duct bank along Queens Quay Boulevard from Yo Yo Ma Lane to Parliament Street, approximately 55 cable chambers, all associated structure stabilization and all required road crossings.

Alternatively, the total cost involved for THESL to perform only the relocations required, and then in future years construct new infrastructure to meet demand is an estimated $35.32M. /UF Similar to the scenario described above, this estimate includes a $4.50M portion to be fully paid /UF for by Waterfront Toronto for the proposed civil and electrical relocation. In addition, it also includes an estimated $30.82M THESL portion for a 24-duct 3.2 kilometre duct bank along /UF Lakeshore Boulevard from Yo Yo Ma Lane to Parliament Street, approximately 45 cable chambers, all associated structure stabilization and all required road crossings, plus the rebuild of approximately 150 metres and 300 metres of civil infrastructure on York Street and Parliament Street respectively for distribution customer servicing.

The projected savings of an estimated $10.79M arise because of the cost savings from not /UF executing construction on Lakeshore Boulevard as well as the elimination of new facilities on York Street and Parliament Street. Compared to Queens' Quay, Lakeshore Boulevard is a main roadway with work restrictions that would result in escalated costs and complex construction requirements. In addition, by performing its civil infrastructure activities in alignment with external parties' required work, potential customer disruptions can be minimized.

The requested funds for the THESL expansion in both scenarios are initially driven from third parties as a result of their relocation activities which are performed at their expense. THESL, in turn, must respond to these third-party investments performing immediate expansion of THESL-owned infrastructure located in these same locations to address future growth considerations. If THESL does not take immediate action to address these assets, due to restrictions that are placed by the third parties (such as Waterfront Toronto) following the execution of their projects, THESL risks being unable to address the immediate load growth concerns and future source of supply for customers.

All costs identified above for both scenarios include work required for relocation as requested by Waterfront Toronto and work associated to additional expansion required by THESL. Only the incremental capital required by THESL is being justified in this Business Case and does not include the portion of relocation work to be one hundred percent funded by Waterfront Toronto.

Given that THESL must undertake the relocation and expansion work on Queens Quay Boulevard, installing sufficient duct capacity to meet future needs is the most prudent approach for ratepayers. In addition, it will result in strategically located facilities that are optimally integrated with the planned Bremner TS. It will also minimize construction disruption for the neighbourhood area. In contrast, if future needs are not addressed, THESL will have insufficient ducts and associated facilities to supply new customers along Queens Quay Boulevard and will be forced to construct more expensive facilities in undesirable locations that will not support or strengthen THESL's distribution system.

1.3. Detailed Descriptions of Specific Central Waterfront Revitalization Jobs

Table 2: Waterfront Revitalization Jobs and Cost Estimates (2012-2013~~2014~~) /US

Estimate Number	Job Title	THESL Cost Estimate ($M)	
22851	Queens Quay Rebuild Phase 1 (2012)	$3.78	/UF
22853	Queens Quay Rebuild Phase 2 (2013)	$4.70	/US
22854	Queens Quay Rebuild Phase 3 (2013)	$2.82	/US
24729	Queens Quay Rebuild Phase 4 (2013)	$9.73	
~~24731~~	~~Queens Quay Rebuild Phase 5 (2014)~~	~~$6.98~~	
	TOTAL	**$21.03**	/UF, US

The scope of work for this entire expansion project includes constructing a new 32-duct 3.2 kilometre duct bank along the south side of Queens Quay Boulevard from Yo Yo Ma Lane to Parliament Street. The duct bank to be constructed will be designed as two 4x4 duct banks with associated cable chambers required for splicing and jointing. Approximately 55 cable chambers and structure stabilization material, such as Helix Anchors and piles for cable chamber installation, will be required as a part of this project.

~~For the section of work between York Street and Yonge Street, there will be additional design and construction complexities associated due to the underground streetcar tunnel access to Union Station that exists along Queens Quay Boulevard between York Street and Bay Street. The cost of the preliminary design includes funds required for directional drilling, tunnelling as well as structure stabilization in order to mitigate the impacts to TTC structures and assets.~~

In addition, a number of road crossings at each major intersection (Spadina Street, Rees Street, Lower Simcoe Street and York Street) and several smaller intersections (Cooper Street, Jarvis Street, Lower Sherbourne Street and Bonnycastle Street) as well at customer locations will also be constructed as a part of the scope of work. THESL's 2012-13 costs for this expansion project /UF, US
is projected to be $21.03M. /UF

Figure 7 through 9 show the proposed new 3.2 kilometre trench and duct bank layout outlined in red along with proposed double chamber locations.

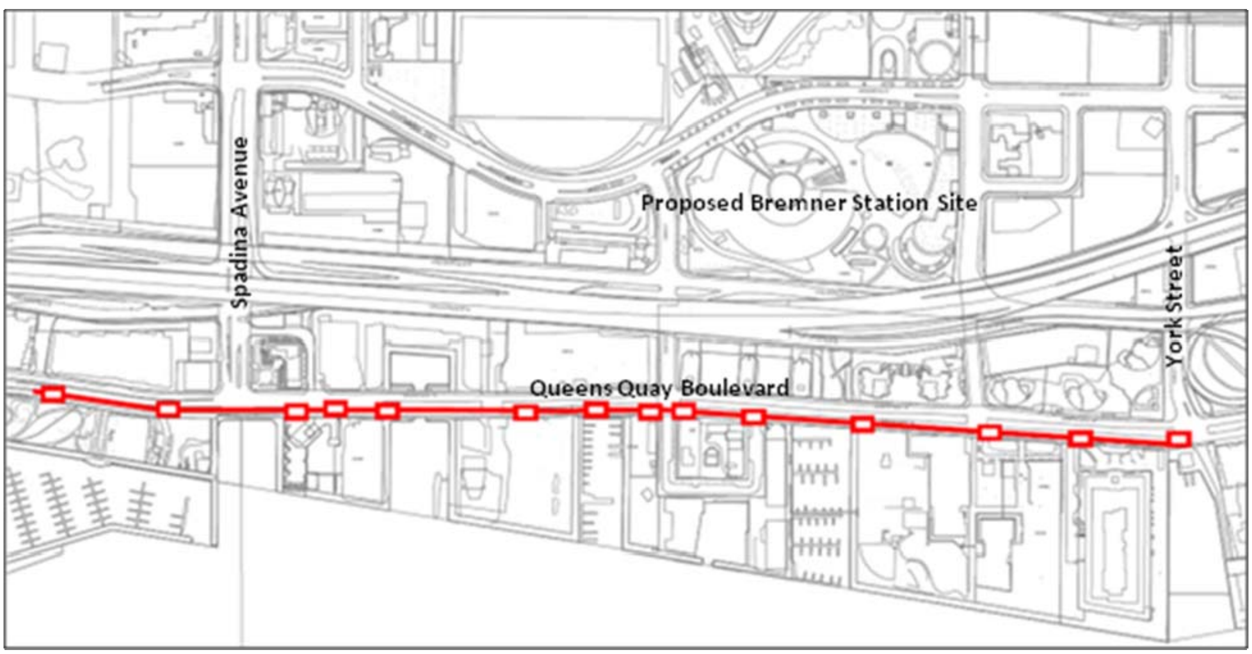


Figure 7 –Proposed Area of Work from Yo Yo Ma Lane to York Street

Construction is anticipated to start in the second quarter of 2012. This has been requested by Waterfront Toronto in order to align with its construction timelines which is slated to begin in spring 2012.

2. Externally Driven Relocation Jobs

2.1. Introduction

This initiative covers relocations requested by The City of Toronto, the MTO and GO Transit, to allow their infrastructure projects to proceed on schedule. The THESL facilities impacted by these projects are replaced on a case by case basis to ensure that current system capability and capacity are maintained. At each project location, the needs and requirements from the requesting agency are reviewed and compared with THESL's needs and requirements to determine what relocation options are available, optimizing constraints such as cost, schedule and system risk to achieve the objective of eliminating the project conflict. These include various relocation routes as well as the possibility of supporting and protecting THESL facilities in place as opposed to a relocation project.

In the sections below, THESL describes the jobs that it proposes be undertaken and associated capital spending to accomplish the relocation work necessitated by GO Transit, Ministry of Transportation and the City of Toronto projects. The amount of THESL's proposed capital spending and the agency's contribution, if any, are shown in the Table below. In sum, THESL's total capital spending on these jobs is projected at $14.10M with an additional $2.01M being /UF
spent by the initiating agencies through cost sharing arrangements.

Table 3: Summary of Externally Initiated Relocation Projects (2012-2013)

Agency	THESL Cost Estimate ($M)	Estimated Agency Cost ($M)
GO Transit	$5.30	$0.00*
Ministry of Transportation	$0.81	$0.20
City of Toronto	$7.99	$1.81
TOTALS	$14.10	$2.01

/UF

* Crossing agreements between utility companies and railway corporations typically indicate that the utility is required to pay 100% of relocation costs when requested to move by the railway corporation.

2.2. GO Transit and Metrolinx Relocation Jobs

GO Transit is expanding their service to Milton and the west of Toronto in a project called the Georgetown South Service Expansion and will include a rail link to Pearson Airport to be completed before the Pan Am Games. Due to this time constraint, THESL relocations need to be complete in 2012 (with one exception for Black Creek and Weston) to allow GO Transit sufficient time to expand the rail lines.

There are six main areas of relocations associated with the Georgetown South Service Expansion where THESL has been requested to do work. These are:

- (i) West of Hwy 27 (2012)
- (ii) GTS Bridge –Hwy 27 (2012)
- (iii) Weston Tunnel (2012)
- (iv) Martin Grove Bridge (2012)
- ~~(v) Black Creek and Weston Rd UG Reinstatement (2014)~~
- (vi) Strachan Avenue Relocation (2012)

The largest of these jobs, the relocation at Strachan Avenue, is divided up into six individual jobs for a total of 11 jobs.

GO Transit Initiated Relocation Jobs

Table 4: Summary of GO Transit and Metrolinx Relocation Jobs and Costs (2012-2013)

Job Estimate Number	Job Title	Job Year	THESL Cost Estimate ($M)	Agency	Estimated Agency Cost*
23196	Metrolinx West of Hwy 27	2012	$0.23	GO Transit	$0
24079	GTS Bridge –Hwy 27	2012	$0.14	GO Transit	$0
24895	Weston Tunnel	2012	$0.28	GO Transit	$0
24784	Martin Grove Bridge	2012	$0.0	GO Transit	$0
~~23497~~	~~Black Creek and Weston UG Reinstatement~~	~~2014~~	~~$0.09~~	~~GO Transit~~	~~$0~~
23018	GO Strachan UG Crossing Civil	2012	$0.26	GO Transit	$0
24929	GO Strachan UG Crossing Civil	2012	$0.13	GO Transit	$0
23759	Strachan Electrical Relocation Part 1	2012	$1.67	GO Transit	$0
20124	Strachan Electrical Relocation Part 2	2012	$1.12	GO Transit	$0
20125	Strachan Electrical Relocation Part 3	2012	$1.01	GO Transit	$0
20129	Strachan Electrical Relocation Part 4	2012	$0.46	GO Transit	$0
	TOTALS		**$5.30**		**$0**

/UF

/UF

~~**2.2.5. Black Creek and Weston Road – UG Reinstatement (2014):**~~

~~GO Transit is upgrading the bridge crossing at Black Creek Drive, and THESL has infrastructure crossing under the existing bridge north of Weston Road and east of Black Creek Drive. GO Transit has requested that THESL remove the duct bank temporarily while they are constructing the foundation of the new rail bridge. Upon completion of the GO Transit bridge work, THESL intends to rebuild the duct bank crossing the rail right of way. This is expected to allow the distribution system to return to a normal state, as various feeder loading routes are being altered to allow the duct bank to be removed.~~

2.2.6. Strachan Avenue Relocation (2012):

Strachan Avenue is a main supply artery for THESL to serve several commercial and residential customers in the Liberty Village and Trinity-Bellwoods areas from Strachan Station, with a total of 60 ducts crossing under the railway at Strachan Avenue. These ducts are separated into three separate duct runs along Strachan Avenue, a 24 duct structure on the east side and two 18 duct structures on the west side. Within these ducts there are five 4kV feeders and sixteen 13.8kV feeders, for a total of 21 feeders crossing under the railway.

These ducts and feeders need to be relocated to accommodate GO Transit lowering the grade of the current tracks by five meters. THESL proposes to relocate the feeders along Western Battery Road and tunnelling under the tracks to Douro Street. Due to the extent of the civil and electrical work involved with this relocation, it was divided into the following six projects; GO Strachan UG Crossing Civil, GO Strachan Crossing Feeder Relocate – Civil, Strachan Electrical Relocations Part 1(Relocate Feeders Serving Dafoe MS), Strachan Electrical Relocations Part 2 (Relocate B11T/B9T/B2T/B3T/B6T), Strachan Electrical Relocations Part 3 (Relocate A22T/A49T/A53T), and Strachan Electrical Relocations Part 4 (Relocate A25T/A27T/A29T/A31T.)

The first two jobs are to install new civil infrastructure in order to relocate the required feeders. This involves the construction of a new one kilometre 24-duct concrete encased duct bank with associated cable chambers. In addition, it also includes the installation of a new tunnel crossing approximately 500 metres west of the existing rail crossing at Strachan Avenue.

MTO Initiated Relocation Jobs

Table 5: Summary of MTO Relocation Jobs and Costs (2012)

Job Estimate Number	Job Title	Job Year	THESL Cost Estimate ($M)	Agency	Estimated Agency Cost ($M)	
21862	Keele St and Hwy 401- PH2- Tunnelling Under Hwy 401	2012	0.62	MTO	$0.15	/UF
23329	Eglinton Ramp Onto Hwy 427	2012	$0.19	MTO	$0.05	
	TOTALS		**$0.81**		**$0.20**	/UF

The map below shows the locations of the MTO infrastructure projects and the associated THESL jobs to relocate facilities.

In order to accommodate a new access ramp to Highway 427 as proposed by the MTO, THESL has been requested to lower existing conduit structures and one cable chamber where the new ramp will be located on Eglinton Avenue in order to maintain the minimum clearance requirement of 800 mm as required by THESL standard 31-0300 (refer to Appendix C).

2.4. City of Toronto Relocation Jobs

The City of Toronto is undertaking a number of infrastructure projects to rehabilitate bridges, streets and public pathways in the City of Toronto. Some of these projects require THESL to relocate its facilities according the jobs listed in the following table and described below.

Table 6: Summary of City of Toronto Relocation Jobs and Costs (2012-2013)

Job Estimate Number	Job Title	Job Year	THESL Cost Estimate ($M)	Agency	Estimated Agency Cost ($M)	
22170	Dunn Ave Directional Drilling	2013	$0.75	City of Toronto	$0.19	/UF, US
25276	Dundas Street Overhead to Underground Phase 1 - Design	2013	$0.63	City of Toronto	$0	/UF, US
25280	Dundas Street Overhead to Underground Phase 2	2013	$3.02	City of Toronto	$0.75	/UF
~~25277~~	~~Dundas Street Overhead to Underground Phase 3~~	~~2014~~	~~$6.27~~	~~City of Toronto~~	~~$1.74~~	

ICM Project | Externally-Initiated Plant Relocations and Expansions

Job Estimate Number	Job Title	Job Year	THESL Cost Estimate ($M)	Agency	Estimated Agency Cost ($M)	
24615	North West PATH Addition Phase 1	2013	$0.85	City of Toronto	$0.21	/UF, US
24967	North West PATH Addition Phase 2	2013	$1.08	City of Toronto	$0.30	/US
24037	Front Street Streetscape Improvement	2012	$0.41	City of Toronto	$0.11	/UF
24963	Lawrence and Allen Pole Relocation	2012	$0.28	City of Toronto	$0.07	/UF
23527	Beecroft OH Reconfiguration	2012	$0.74	City of Toronto	$0.18	/UF
			$7.76		**$1.81**	/UF, US

City of Toronto Initiated Relocation Jobs

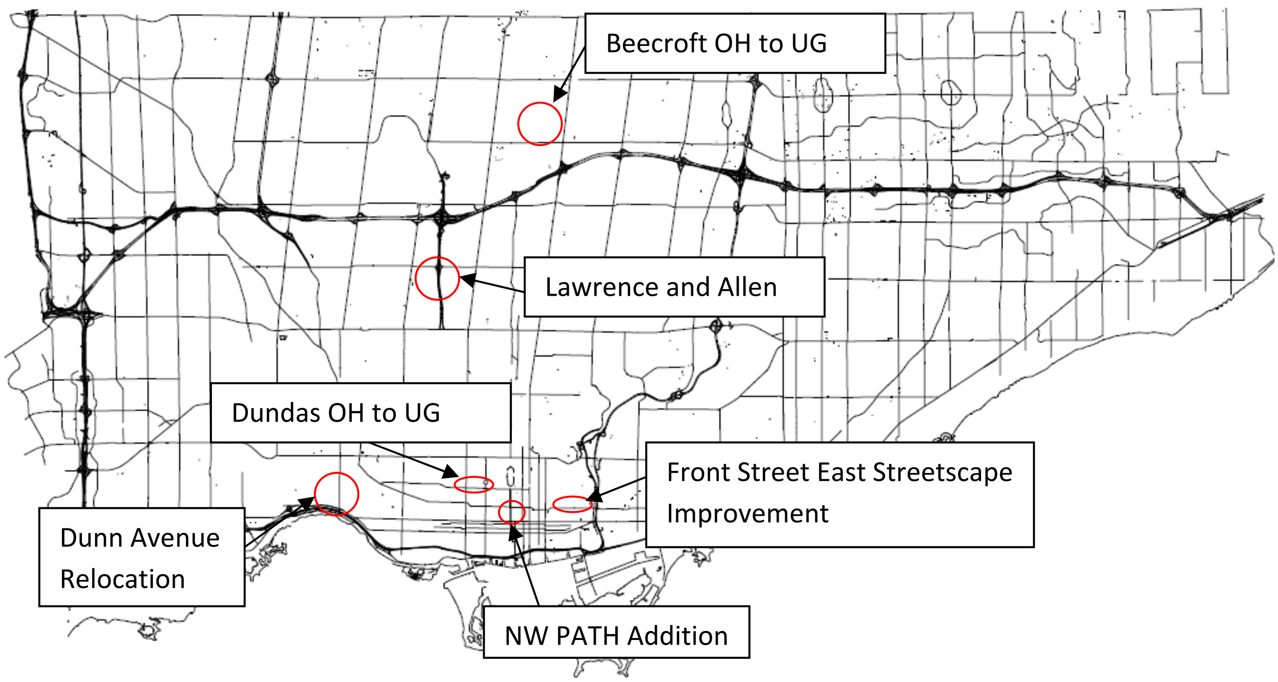


Figure 12 – City Projects

2.4.1. Dunn Avenue Bridge over the Gardiner Expressway (2013):

The City of Toronto was rehabilitating the bridge over Gardiner Expressway and requested that THESL relocate existing ducts that were buried in the sidewalk of the bridge. To accommodate this request THESL and the City of Toronto agreed to relocate the ducts in a new 90-metre long duct structure under the Gardiner Expressway. The circuit has been temporarily relocated overhead to accommodate the bridge rehabilitation. Once the relocation construction is finished, the feeders are expected to be transferred to the new permanent infrastructure located under the Gardiner Expressway. The job is required to be completed in 2013. /US

2.4.2. Dundas West Overhead To Underground Relocation Phases 1 to 2 (2013): /US

This job is on Dundas Street West from Bathurst Street to University Avenue and it is part of City of Toronto revitalization capital program. The City of Toronto will be rebuilding a watermain and completing a sidewalk replacement along this stretch of road and have requested that THESL relocate its overhead infrastructure underground. THESL expects it will be required to install approximately 2,000 metres of civil duct, 40 cable chambers, ten transformer vaults, 2,000 metres of underground circuits and multiple underground service points. The job is required to start design in 2013. /US

2.4.3. North West Path Addition Phases 1 and 2 (2013): /US

The North West PATH is a new underground extension to the City of Toronto underground PATH network from Union Station to Wellington Street via York Street. This expansion will provide additional capacity to accommodate the growing numbers of pedestrians accessing Union Station from the downtown core. The City of Toronto has requested that THESL relocates its infrastructure that is in conflict with proposed work from the intersection of York Street and Front Street to York Street and Wellington Street. Approximately 550m of duct and 13 cable chambers will have to be relocated, rebuilt or supported, for this project. North of the intersection at Front Street and York Street, much of the THESL infrastructure can be supported as opposed to relocated. Phase one of the project is required to be complete in early 2013, /US
while phase two is required to be completed in late 2013. /US

2.4.4. Front Street East Streetscape Improvement (2012):

This project is to convert all THESL poles to decorative type poles on the south side on Front Street East between Sherbourne Street and Parliament Street. On this stretch of Front Street East, the majority of the poles are not the conventional direct buried poles, but rather these poles are mounted in a reinforced sidewalk bay, which add challenges to the relocation. The project also involves rerouting secondary conductors impacted by the project. The project is required to be completed in 2012.

I OPERATIONS PORTFOLIO CAPITAL OVERVIEW

THESL's Operations Portfolio Capital is made up of the following components:

- Engineering Capital
- Worst Performing Feeder Capital
- Customer Connections Capital
- Reactive Capital
- Continuing Projects and Emerging Issues Portfolio Capital

Table 1 below summarizes THESL's planned spending by component. A discussion on each of these components is found in the following section.

Table 1: Operations Capital Budget 2012-2013 ~~2014~~ ($ M)

Project Name	2012	2013	~~2014~~
Engineering Capital	9.50	9.50	~~9.50~~
Worst Performing Feeder	4.90	5.44	~~24.50~~
Customer Connections (net of Customer Contributions)	24.98	37.39	~~30.00~~
Reactive Capital	25.40	29.30	~~32.70~~
Continuing Projects and Emerging Issues Portfolio	55.73	40.00	~~24.90~~
TOTAL	**120.51**	**121.63**	~~**121.60**~~

/UF, US

The proposed Operations Portfolio capital spending is required to meet THESL's distribution responsibilities to its growing customer base and address the factors leading to gradually worsening reliability. THESL continues to address the following issues:

- A large quantity of aging and deteriorating infrastructure;
- Legacy assets that are no longer standard due to inherent safety and/or reliability issues;
- Cresting retirements of staff in supervisory, engineering, trades and technical positions.

THESL's Operations Portfolio Capital contains the capital spending necessary to meet THESL's operations requirements over the 2012-2013 ~~2014~~ period. Failure to complete the work funded by this spending will lead to a continuing decline in reliability and a lower quality of service to customers.

II PROJECT DESCRIPTIONS

1. Engineering Capital

Engineering capital represents labour costs that are capitalized although they are not directly attributable to specific distribution system assets or projects. These consist of the labour costs of engineers, technologists, design technicians and power system controllers ("PSCs") for engineering, design and planning work that they perform on distribution assets that are put in service. Such planning and design work is non-discretionary and is critical to THESL's ability to complete capital work in 2012-2013 ~~2014~~ as it continues its focus on the following key areas: the capital investment program to address aging equipment and legacy infrastructure, development and implementation of new approaches for engineering decision support for creation and optimization of capital programs, and modernization through new technologies and systems.

Table 2 below presents the planned spending for Engineering Capital for 2012-2013 ~~2014~~. The amounts are solely for projects within the Incremental Capital Module (ICM) materiality threshold amount. The proposed ICM projects above the threshold have all their required capital funding included within their proposed budgets.

Table 2: Engineering Capital Summary ($ M)

2012	2013	~~2014~~
9.50	9.50	~~9.50~~

2. Worst Performing Feeder Capital

The Worst Performing Feeder (WPF) program is part of the effort to improve THESL's overall service reliability by improving service for customers supplied from poorly performing feeders. The program involves the identification of feeders that are experiencing sustained unplanned interruptions and planning, prioritizing and executing work to improve reliability on such feeders. This is a high priority program at THESL given the impact feeder performance has had on key service reliability indicators, System Average Interruption Frequency Index ("SAIFI"), System Average Interruption Duration Index ("SAIDI"). The WPF program identifies feeders that contribute significantly to SAIFI and SAIDI and total system interruptions. The analysis of the performance and inspection of the worst performing feeders identify deficiencies so that corrective actions can be implemented.

A component of the WPF program is the Feeders Experiencing Sustained Interruptions ("FESI") program which is intended to identify feeders that are experiencing sustained service interruptions, excluding those interruptions due to scheduled outages and those caused by Loss of Supply ("LoS"), Major Event Days ("MEDs"), and station, bus and network outages. The program uses the number of sustained outages experienced over the last 12 months as the basis for categorizing feeders. For example, feeders that have experienced seven or more sustained interruptions within a rolling 12-month period are assigned a classification of "FESI-7."

For 2011, "forced feeder interruptions" or unplanned interruptions on a feeder, constituted 71% of all outages (excluding MEDs). The high percentage indicates that addressing the reasons for the interruptions caused by the failures of feeders (as opposed to other equipment) will likely impact overall reliability more than addressing other reasons for service interruptions.

In 2011, there were a total of 1,961 outages compared to 2,158 outages in 2010. THESL attributes this improved feeder reliability to the swift and ongoing implementation of its WPF program. THESL must continue its WPF program for the years 2012-2013 ~~2014~~ as this program is necessary to maintain THESL's service reliability by reducing the impact of FESI-7 feeders on outage statistics. Figures 1 and 2 demonstrate the downward trend in the contribution of FESI-7 feeders to system CI and CHI, respectively.

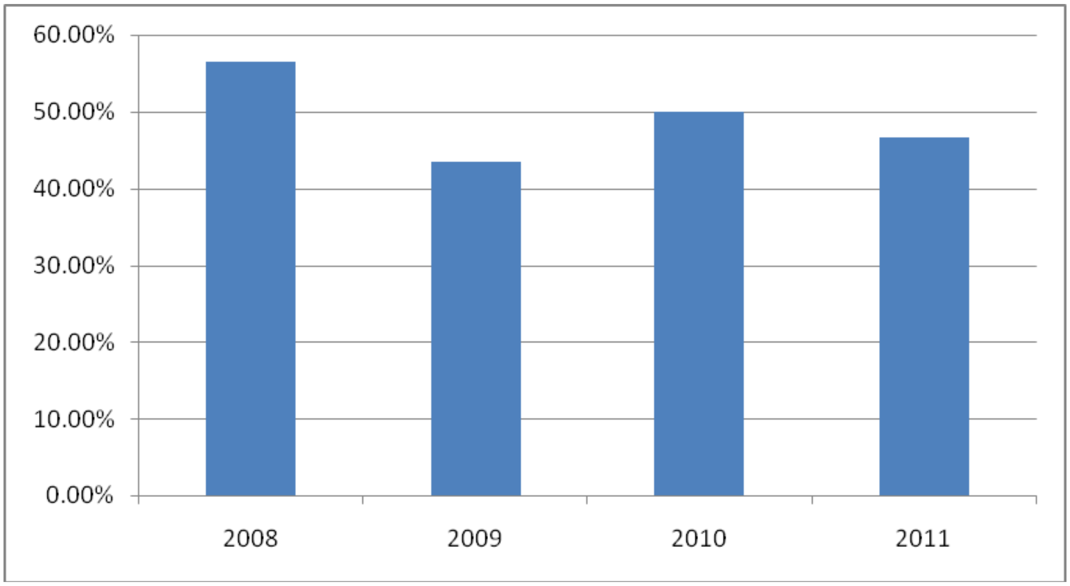


Figure 1: Contribution of FESI-7 Feeders to System CI

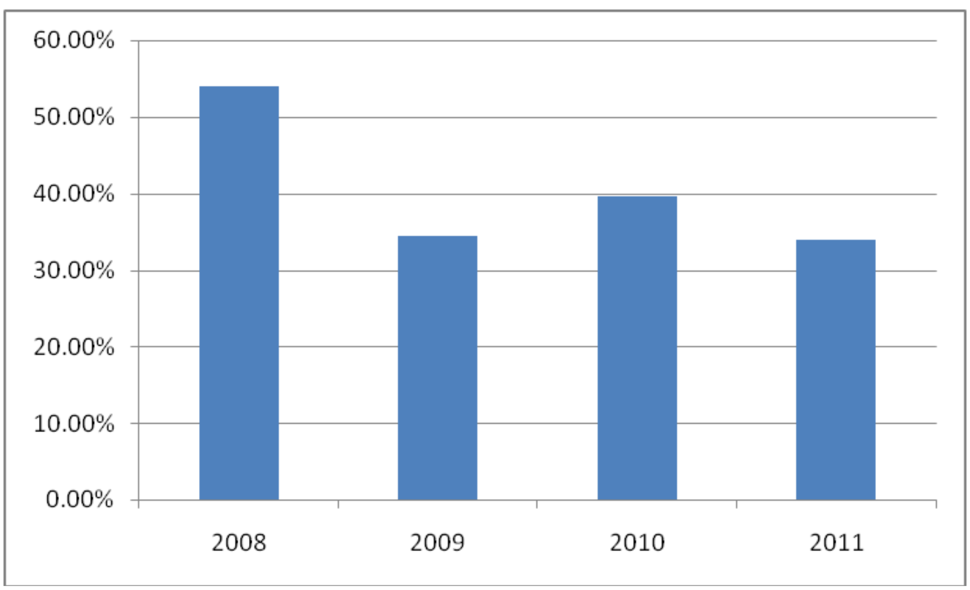


Figure 2: Contribution of FESI-7 Feeders to System CHI

Table 3 below shows the projected spending for the WPF program.

Table 3: WPF Program Capital Summary ($ M)

2012	2013	~~2014~~
4.90	5.44	~~24.50~~

/UF, US

3. Customer Connections (net of Customer Contributions) Capital

THESL must make all reasonable efforts to connect new customers to its distribution system and perform service upgrades requested by customers in accordance with the provisions of Section 3 of its Conditions of Service. Customer connections and upgrades are considered demand work as they are driven by individual customer requests. Individual customers or developers may request new service connections or may request a service upgrade due to an increase in load. Connecting customers therefore constitutes non-discretionary work for the period 2012 to 2013 ~~2014~~.

The program requires significant capital investment. These investments range from the connection of a single residential or small commercial customer to large commercial connections or residential subdivision(s), and also include distributed generation connections.

The costs for customer connections, including new and upgrades to existing services, are based on the capital expenditures for the different types of services and the number of each type of customer connection per year. These costs are THESL's gross capital costs to connect customers to existing THESL infrastructure. These costs are then reduced by the amounts of capital contributions from customers to arrive at THESL's net budget for Customer Connections Capital 2012 to 2013 ~~2014~~. These amounts are shown in Table 4.

Table 4: Customer Connections Capital Summary ($ M)

	2012	2013	~~2014~~
Customer Connections Capital (Gross)	42.08	49.25	~~62.00~~
Customer Contributions	(17.10)	(11.86)	~~(32.00)~~
Customer Connections Capital (Net)	24.98	37.39	~~30.00~~

/UF, US

4. Reactive Capital

Reactive Capital is comprised of capital expenditures necessary to repair defective and failed equipment. This work is non-discretionary in nature and required to restore power to customers in the case of outages, to mitigate potential safety risks to the public, to maintain system integrity, to maintain accurate billing, to perform corrective work to address failed and defective equipment and/or to address other unexpected events that require immediate action. Such work and the related capital expenditures are unplanned, but THESL allocates funds for reactive work based on historical system performance, analyses of failure trends, and the trends of the number of work requests for reactive capital work over the past five years. Table 5 below presents the projected spending for Reactive Capital.

Table 5: Reactive Capital Summary ($ M)

	2012	2013	~~2014~~
Underground Assets	16.10	17.80	~~18.70~~
Overhead Assets	7.80	9.60	~~12.20~~
Stations and	0.70	1.10	~~1.00~~
Metering Assets	0.80	0.80	~~0.80~~
Total	25.40	29.30	~~32.70~~

/UF, US

As a whole, THESL's underground plant has been improving in reliability over the last few years due to increasing capital investment and replacement of assets which are at or beyond end of useful life. Despite this improvement, however, the remaining cables, as they continue to age, will continue to have more faults resulting in the need for more reactive capital funds to address the cable faults. A reduction in the planned spending on reactive capital can only exacerbate the current situation.

The need for expenditures on Overhead assets is projected to remain stable.

With respect to meters, THESL is responsible for maintaining the accuracy of all customers' billing and metering. It must address defective meters to be compliant with the Minister of Energy's directive on smart meter installation and the metering requirements set out by Measurement Canada in the Electricity and Gas Act. As part of this program, defective meters are replaced on a reactive basis. THESL forecasts a steady level of spending for these meter replacements.

5. Continuing Projects and Emerging Issues Portfolio

The Continuing Projects and Emerging Issues Portfolio consists of projects from 2011 which are being completed in 2012, and emerging projects which arise from issues that are difficult or impossible to anticipate and are likely to require attention within a year. The emerging projects are typically in response to reliability and/or safety issues and projects that have emerged on short notice such as externally- initiated relocations. The projects in the portfolio are non-discretionary and are classified into the following groups:

- Continuing projects from 2011 into 2012
- Emerging projects for 2012
- Emerging projects for 2013 ~~and 2014~~

The continuing projects consist of: a) projects that were initiated in 2011 and scheduled to be completed in 2012 and b) projects that were deferred from 2011 to 2012 due to the emergence of higher priority projects. These continuing projects address crucial reliability and/or safety issues, and support the infrastructure-related initiatives of external stakeholders such as the City of Toronto, the TTC, and GO Transit in their infrastructure-related initiatives. The deferral of 2012 continuing projects could result in the further deterioration of THESL's service reliability and THESL breaking its contractual commitment to external stakeholders, which may result in THESL facing cancellation penalties from vendors or external entities.

Emerging projects for 2012 consist of programs which include direct buried cables replacements, overhead rebuilds, and external plant relocations. Emerging projects aim to address pressing issues that require intervention within a year but not immediate attention, in contrast with those that are part of the Reactive Capital portfolio which deals with failed assets and assets that require immediate attention. These projects address many reliability issues (related to both the number of customer outages and the duration of outages) and replace and upgrade old and failing equipment. These projects include those for which THESL has entered into contracts with 3rd parties. The deferral or cancellation of any of these projects may add to the persistence of reliability and safety issues that have emerged in the recent. Work on emerging capital projects has already begun on selected projects to prevent further degradation of reliability of the system, potential safety risks, and uphold THESL's commitment to customer satisfaction.

The emerging projects for 2013~~-2014~~, consist of capital projects that are anticipated to require attention and capital investment within a year of being identified. Based on issues requiring short-term intervention that have surfaced in the past**,** THESL anticipates that the emerging projects for 2013~~-2014~~ will be related to reliability, safety, external plant relocation requests, XLPE (cross-linked polyethylene) cable in duct, underground residential distribution (URD) system, egress cable civil infrastructure, and/or cable chambers. The deferment or cancellation of these projects would likely prevent THESL from addressing the reliability and safety issues that are anticipated to emerge during 2013~~-2014~~ and hinder work done by external stakeholders, such as the City of Toronto, TTC, and Go Transit. Table 6 below summarizes the 2012~~-2014~~ projected spending in the portfolio.

Table 6: Capital Investment Proposed for the Continuing Projects and Emerging Issues ($M)

	2012	**2013**	~~**2014**~~
Continuing Projects from 2011 into 2012	16.85	-	
Emerging Projects for 2012	38.88	-	
Emerging Projects for 2013 ~~and 2014~~	-	40.00	~~24.90~~
Total	**55.73**	**40.00**	~~**24.90**~~

/UF, US

II INFORMATION TECHNOLOGY CAPITAL

The Information Technology (IT) Capital Portfolio for 2012-2013 consists of required hardware asset replacements, application upgrades and 2011 carryover projects that need to be completed. The IT Capital Portfolio provides enabling technology to support critical business processes; Meter-to-Cash, Legal and Regulatory compliance, stakeholder reporting, as well as power delivery and restoration. A hardware asset failure due to end of life or a critical application failure due to lack of vendor support would result in substantial and prolonged disruption to THESL's operations and adversely impact customers. The IT Capital Portfolio is required to mitigate the risk to THESL's ability to reliably deliver power, restore outages, bill customers, and comply with Legal and Regulatory requirements including reporting. /US

Table 1 below summarizes THESL's planned spending by project for 2012-2013. /US

Table 1: Projects for 2012-2014 ($ M)

Project Name	2012	2013	~~2014~~
Corporate Applications Upgrade	1.09	1.12	~~0.45~~
Billing and Regulatory Compliance Systems Upgrade	3.62	2.75	~~2.14~~
Geospatial Information System & Outage Management System Upgrade	0.40	2.63	~~3.57~~
Information Technology Hardware Asset Replacement	5.74	8.51	~~8.85~~
2011 Carryover Projects	11.15	-	~~-~~
TOTAL	**22.00**	**15.00**	~~**15.00**~~

/UF

1. Corporate Applications Upgrade

THESL must upgrade its Financial Forecasting and Records Management systems to the most recent versions. The Financial Forecasting system is critical to THESL's financial processes such as capital/operational budgeting, financial consolidation and regulatory reporting. As part of THESL's legal and governance framework, the Records Management system is the official core repository of capital project artifacts including electrical drawings, standards, and Ontario

Energy Board filings, etc. Both systems are several versions behind the most current version and are no longer covered by vendor support. As a result of the expired support, these two core systems will no longer receive security upgrades or patches to resolve internal errors and will no longer be certified to work with third party applications where integration would be required. The upgrade is expected to ensure that these core systems are vendor supported thereby mitigating the risk to the Capital planning, budgeting, and forecasting processes.

2. Billing and Regulatory Compliance Systems Upgrade

THESL must upgrade technology components of its Meter-to-Cash process to the most recent versions. The Meter-to-Cash process and related technologies are utilized by THESL to collect data from meters as well as validate and compile the data to bill customers. The Meter Automation System (MAS) which enables the Meter-to-Cash process is aging. The system is three versions behind the currently available version and vendor support for some components have either expired or will soon expire. In addition, from time to time, THESL is mandated to comply with regulatory requirements that necessitate changes in its existing policies and systems. These changes are typically mandated through the Independent Electricity System Operator (IESO), Measurement Canada and the Ontario Energy Board (OEB). Some examples of these changes are the OEB's requirements relating to the application of the Ontario Clean Energy Benefit to eligible consumers' bills and the calculation of late payment charges taking into consideration the mode of payment; and Measurement Canada's requirements on the use of register readings for billing. Due to the volume of customer transactions involved, the regulatory changes create a requirement to reconfigure or enhance the technologies as well as related systems that generate bills as part of the Meter-to-Cash process. The upgrade is expected to ensure that the core system is vendor- supported, thereby mitigating the risks to revenue and customer billing.

3. Geospatial Information System and Outage Management System Upgrade

THESL must upgrade the Geospatial Information System (GIS) and Outage Management System (OMS) to the most recent versions. These systems are tightly integrated as the Outage

Management System relies on the Geospatial information system for connectivity of the electric distribution system and land-based information. The Geospatial Information System stores THESL's electrical distribution information which is used for engineering design, asset/feeder identification and/or locates. It is also used by the City of Toronto for work coordination and by other entities requiring geospatial information such as Bell or Rogers. The Outage Management System is primarily used to dispatch crews and record outage information for reporting purposes such as Police/Fire/Ambulance calls as well as Performance Based Regulatory measures. Both systems are several versions behind and are no longer covered by vendor support. The lack of vendor support for the Outage Management and Geospatial Information Systems exposes THESL to an unacceptable level of risk. Failure of these systems would result in either a substantial and prolonged disruption to the business, or in the worst credible scenario, a significant loss of THESL's physical/logical electrical plant data. As such, THESL faces a risk to its ability to reliably deliver power, restore outages and comply with regulatory reporting requirements.

4. Information Technology Hardware Asset Replacement

THESL needs to replace its IT hardware assets which have reached their end of useful life. These assets include Servers, Storage and Backup, Network and Telephony, Printers and Plotters, User Endpoints (e.g., desktops, laptops etc.), and Security Appliances (e.g., Firewall System, Enterprise Data Warehouse etc.). The biggest detriment to the reliability of any hardware asset is usage of the asset beyond its useful life thereby increasing business continuity risk. THESL has developed and implemented a risk based asset model driven by standards aligned with industry best practices. These standards allow THESL to proactively identify and replace high risk assets. These asset replacements are necessary in order to mitigate the risk of interruptions to core business operations as all software systems rely on IT hardware assets to operate. Failure of IT hardware assets leads to disruptions in THESL's ability to reliably deliver and restore power, bill customers and comply with legal and regulatory reporting requirements.

5. 2011 Carryover Projects

THESL must complete the projects which were previously approved as part of the 2011 Cost of Service Electricity Distribution Rates (EDR) filing. THESL evaluated the projects contained in the 2011 EDR application submission from a cost-benefit perspective and proceeded to execute once approval was granted.

These projects consist of the following:

- Customer Care and Service Area Enhancements – projects to meet the growing needs and expectations of tech savvy customers and improve online presence. THESL is enhancing customer experience via self serve features (such as customer profile creation/change/deletion and access to Time of Use Rate Information). The project also implements solutions to address changing regulatory requirements mainly the use of 'register' data instead of 'interval' data for Time-Of-Use billing and suite meter automated reading.
- Planned Work Automation Enhancements and Warehouse Management - includes the development of reports and analytics to support the distribution of work to field crews. The solution automates the customer service order process which enables crews to generate and report on reactive work in the field. The Warehouse Management project enables barcode scanning technology to minimize data entry errors and reduce input time. The project also enables asset inventory tracking as well as analytical reporting via Integration with THESL's enterprise resource planning system.
- Logging, Data Loss Prevention and Governance Risk Console – The project delivers a security and event information management solution consisting of log aggregation, event correlation, analytics and reporting. It also focuses on creating clearly defined technical rules (technology system policies) which are monitored from a security perspective and evaluated via incidents where necessary actions would be identified.
- Time and Attendance - implements a unified time and attendance system providing improved controls, better governance and accurate reporting. The project automates

timekeeping data entry, approval, verification, processing, storage and reporting as well as exceptions, such as vacation or other absences.

The projects identified above are greater than 60% complete and deferral/cancellation of any of these projects may have negative consequences as follows:

- Inability of THESL to realize the value of the investment including defined operational benefits,
- Potential additional costs under existing vendor contracts, licence agreement cancellations, and project wrap-up costs,
- Given the relatively short (three to five years) lifecycle of the technology assets, additional investment may be required to finish the carry over projects at a later date
- Write-off of already incurred capital expenditures to OM&A.

III FLEET CAPITAL

THESL's Fleet is currently composed of 693 motor vehicles, including cars, pickups, bucket trucks and other vehicles (such as sweepers, backhoes and forklifts). The fleet capital spending proposed for 2012 to 2013 ~~2014~~ is to acquire new vehicles and equipment to replace those existing units that have reached the end of their service lives and where further repairs and maintenance would not be appropriate or cost effective. It is also intended to include the purchase of on-vehicle equipment, such as rubber power line covers. /UF

Table 1 below outlines THESL's forecast of units requiring replacement, the type of replacement vehicle to be acquired and the pre-tax cost of replacement in 2012 and 2013 ~~and 2014~~ as well as the forecasted cost of rubber power line covers required in the same years. The projected fleet costs for 2012 are less than 10% of THESL's historic total fleet budget in recent years and those for 2013 are roughly 20% of the said budget. /UF

Table 1: Fleet Costs for 2012-2014

	2012		2013		2014	
Vehicle Description	**Number**	**Cost**	**Number**	**Cost**	**Number**	**Cost**
Car/Light Truck	5	0.14	-	-	-	-
Derrick	2	0.35	-	-	-	-
Forklift	1	0.11	-	-	-	-
Bucket Truck (Various Designs)	-	-	-	-	~~6~~	~~1.69~~
Cube Van	-	-	18	1.90	~~3~~	~~0.31~~
Vehicle Sub-Total	8	0.60	18	1.90	~~9~~	~~2.00~~
On-Vehicle Equipment						
Rubber Power Line Covers		0.20		0.10		~~-~~
Total		**0.80**		**2.00**		**2.00**

/UF

End-of-life vehicle replacement is non-discretionary and must occur during the test year period if THESL is to have the adequate number and quality of vehicles required to accomplish its distribution function. THESL's vehicle fleet must be safe, reliable and operate at reasonable cost. As a result, THESL must replace vehicles that exhibit one or more of the following conditions:

- are not consistently reliable and directly adversely impact THESL's ability to provide an acceptable level of reliable customer service;

- incur maintenance costs that are consistently significantly greater than, or escalating at a faster rate than a comparable peer vehicle within the fleet;
- demonstrate potential safety risks; and
- fail to meet THESL's functional needs or performance requirements (such as with a change in long term Capital Plan work mix increasing the number of transformer installations, and requiring the capacity, reach, and cargo-carrying capability of a material handling bucket truck, as opposed to that of an autocrane-equipped truck that is planned for replacement).

In addition, prior to replacement, THESL generally reviews its vehicle requirements to determine whether there is an ongoing need for a certain vehicle, and if so, whether this need is best met by a vehicle in the same or an alternate class. This practice assists in enabling THESL to prudently adjust its fleet and equipment complement to adapt to emerging or changing work requirements. For example, in some projects, a cube van can be replaced by a sprinter van. Sprinter vans have lower cargo carrying capacity than cube vans but have a lower capital cost, are more manoeuvrable and more fuel efficient. If a sprinter van's specifications meet THESL's needs, then it may be chosen to replace a cube van.

The need for rubber power line covers is non-discretionary. The use of rubber power line covers is a legislative requirement for electrical field work where there is a risk of unintentional contact with exposed conductors. Rubber power line covers are required to be visually inspected on each use, and at minimum, electrically tested annually by a certified laboratory. Over time and through continued use, these can develop visual and/or insulative defects requiring that they be immediately removed from service and replaced.

IV BUILDINGS AND FACILITIES CAPITAL

THESL's buildings and facilities include operating centers (500 Commissioners, 60 Eglinton, 6 Monogram, 601 Milner); administrative buildings (14 Carlton, 5800 Yonge); and various electrical sub-stations located throughout the City of Toronto.

The Facilities and Asset Management capital plan for 2012-2013 consists of specific non-discretionary projects required to prudently maintain THESL's facilities at an adequate level of repair and maintain compliance with the Canadian Standards Association, Ontario Building Code, Fire Protection and Prevention Act, and various Ontario Regulations of the Ontario Health and Safety Act (OHSA)[1]. Many of the planned initiatives focus on replacing components that are either failing or have reached their end-of-life wherein repairs or additional maintenance is not cost effective or appropriate, where THESL workers are exposed to potential safety risks that must be remedied, or where upgrades are mandatory in order for THESL to be able to carry out its distribution service in a reliable, safe, and cost effective way. In 2009, Pinchin Environmental Ltd. carried out a comprehensive building condition assessment ("the Pinchin Report") for THESL and released its report on the assessment in 2010. This Report identified several elements of the building envelope, structural, electrical and mechanical systems past their life cycle with recommendations for replacement. It has been filed with the Board as part of an interrogatory response in EB-2010-0142 as Exhibit R2, Tab 3, Schedule 3 dated February 23, 2011[2]. **/US**

Similarly, in 2011, Genivar Consultants carried out a Designated Substances and Hazardous Materials Survey of the sixth floor of the THESL building on 14 Carlton Street which identified a number of elements having Asbestos Containing Material which must be removed prior to any

[1] Ontario Regulations 851, 213 and 278/05

[2] The report is over a thousand pages long. It is available at the Board's website at http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/rec/251690/view/THESL_IRR_AcctgUpdate_20110223.PDF and in THESL's external website at http://www.torontohydro.com/sites/electricsystem/Documents/2011EDR/Tab3BOMA_AccountingUpdateIRs_20110223.pdf.

work being performed on these assets. The consultant's report is provided in Tab 4, Schedule D6. In planning its Facilities capital plan, THESL relies on the recommendations and findings of these reports. THESL's planned spending on Facilities capital projects for 2012-2014 is less than half of actual historical spending in recent years, given that proposed expenditures are limited to the highest-priority, non-discretionary items only.

Table 1 below summarizes THESL planned spending by project. The details of each project are further summarized below.

Table 1: Buildings and Facilities Budget 2012-2014 ($ M)

Project Name	2012	2013	~~2014~~
14 Carlton Street	2.20	2.01	~~1.62~~
500 Commissioners Street	0.70	1.60	~~0.97~~
6 Monogram Place	0.13	0.13	~~0.11~~
60 Eglinton Ave W	0.13	0.02	~~-~~
601 Milner Avenue	0.13	0.12	~~0.40~~
Card Access Security System	1.70	1.02	~~1.90~~
Installation of Backflow Preventer	0.01	0.08	~~-~~
TOTAL	**5.00**	**5.00**	~~**5.00**~~

/UF, US

1. 14 Carlton Street

Work at THESL's Head Office at 14 Carlton involves a number of priority maintenance initiatives, as well as several larger initiatives where THESL believes that further postponement and delay is not a viable option. Notably, THESL plans to refurbish the existing sixth floor to retrofit the cooling/heating fan coil units which are well past their life cycle and have started to fail. THESL cannot risk allowing multiple failures of these coils since accessing them would involve disturbing asbestos wrapping. The sixth floor also has a number of Asbestos Containing Materials which were an integral part of the building construction. In accordance with the OHSA and regulations, the Asbestos Containing Materials must be removed prior to any work being performed on these assets. THESL also plans to install a new drainage pipe in the building, to replace the current pipe which was installed in 1932 and is showing obvious signs of structural deterioration and corrosion. Similarly, THESL proposes to replace the outer layers of brick wall on the north side of the building and also replace and secure loose stone slabs where necessary. The cladding of the building was last refurbished in 1992 and (as stated in the 2009 Pinchin Report) there are visible signs of erosion in the panels with the danger that some slabs (measuring 6ft x 6ft) could come loose and fall off, posing a potential safety risk. Also, as a designated historical heritage building, its external façade must be preserved.

THESL also plans to continue with the installation of two backup power generators, which are required to ensure that emergency power is available to the building during emergency situations or system power failures. This initiative was started in 2008 with the purchase of two generators and associated switchgear. The multi-phase process has been ongoing since then, with expected completion in 2012.

2. 500 Commissioners Street

THESL's efforts at its main work centre at 500 Commissioners Street primarily involve the reconstruction and replacement of assets that have been failing and are already beyond their life expectancy. This work is mostly focussed on the replacement of life safety systems (such as corroded sprinkler system lines and malfunctioning associated pumps, control panels and valves) and various elements of the ventilations system (such as cracked heat exchangers, malfunctioning control systems and failed compressors in HVAC units). The consequences of not correcting these problems is a potential safety risk. THESL also plans to continue with the program of reconstruction of deteriorated internal concrete floors and external paved surfaces which began in 2010. In addition, THESL plans to complete the installation of a 1500kW Back Up Generator (which had begun in 2009 and is scheduled to be completed in 2012) to ensure that the work centre can continue to fully operate during emergency and power outage situations.

3. 6 Monogram Place

The 6 Monogram location is THESL's main work centre for the western part of Toronto. Within this building, THESL must build a well-equipped Local Incident Command Centre (LICC) with sufficient work space, efficient I.T. equipment, reliable communication networks, grid status displays and workforce accommodations to effectively manage emergency events for west Toronto. The LICC is an integral part of the THESL's emergency management unit (EMU) and must be at a state of readiness to centralize and coordinate planning and communications during an emergency event which could impact THESL's operations, employees, and customers. Currently, 6 Monogram does not have a command centre that meets THESL's EMU requirements. The issue has been a concern since THESL occupied the building in 2007 and was highlighted in February 2009 when as part of the company's emergency response to contact voltage incidents in the city, a level III emergency[3] was declared at THESL and a makeshift incident command centre was set up for the 23-day duration of the emergency management operations. During that period, while the emergency was safely dealt with, the inadequacies of the location as a emergency command centre were highlighted such as unreliable cellular phone coverage, insufficient number of telephone landlines, insufficient space to accommodate all of the personnel required to be in the command centre and lack of monitors to display the status of outages. Since then, upgrades to the LICC have been undertaken and THESL needs to continue enhancements to the physical space and the I.T. infrastructure.

4. 60 Eglinton Avenue West

At 60 Eglinton Avenue West, THESL must replace 3 failing HVAC units and a failing central chiller plant which are all well past their 15-year lifespan, the current units are 25 years old. The building currently houses THESL's backup Control Room and is unmanned. The upgrades to the heating and cooling system need to be made so that in in an emergency situation, such as the occurrence of a catastrophic event that would disable THESL's main control room, the backup Control Room will be in a state of readiness.

[3] A severe emergency management situation which requires the deployment of all resources of the company to appropriately respond to it.

5. 601 Milner Avenue

Planned work at this location involves a number of required upgrades, particularly to security and building automation. In addition, THESL plans to construct a vehicle wash-bay to allow for the proper cleaning and maintenance of fleet vehicles at this location. The wash bay is required to clean overhead line bucket trucks which have a bucket on hydraulic booms. Maintaining a clean fleet also has important worker safety implications, because all bucket trucks must undergo dielectric testing prior to daily use to ensure they can be used in close proximity to high voltage wires without forming a path to ground. If trucks are covered with dust and salt residue and remain uncleaned, they will not pass the THESL's safety tests (as the residue creates a path for electricity to travel to the ground) and cannot be used as they could result in an electrical flash which may pose a potential safety risk to THESL workers, equipment, and the public. The wash bay must be constructed in a separate space from the garage to avoid damage to the environmental management control systems in the fleet parking garage. Steam and spray from washing trucks within the garage can damage oxygen sensors that activate exhaust fan systems when air quality reaches unacceptable OHSA limits while trucks are running or entering/exiting the garage. The 58 oxygen sensor units cost $1,000 each to replace should they fail.

6. Card Access Security System at Substations

Over the last several years THESL began the installation of an electronic security system involving card access and CCTV cameras in its substations throughout the GTA. THESL plans to complete the card access security installations in the remaining 72 stations that currently do not have card access control as well as installing new CCTV cameras in the same 72 stations. Security remains a serious concern for THESL. In 2011 alone there were four incidences of theft, two incidences of trespassing, and one break and enter that had occurred at THESL's substations. In each case there was material theft, potential safety risk to the unauthorized entrants, and potential compromise of the electrical distribution grid. Given the number and nature of incidences that occurred in 2011, THESL must undertake this work over the next three years.

7. Installation of Backflow Preventer

The City of Toronto's Water Supply Bylaw (Municipal Code, Chapter 851) enacted on October 22, 2007 states that every commercial building in the City of Toronto is required to have a backflow preventer installed on the City's water main coming in, to protect the City's potable water system. Phase I – the installation of the backflow preventers at the main operating centers was completed in 2011. Phase II is intended to complete the installation at the 45 remaining affected stations by 2013. The installation of the backflow preventers is a mandatory by-law requirement.

M E M O R A N D U M

TO: Toronto Hydro-Electric System Limited (THESL)

FROM: Steve Fenrick and Erik Sonju, Power System Engineering, Inc. (PSE)

DATE: October 31, 2012

SUBJECT: Addendum to the Manager's Summary—Revised ICM Business Cases

A report by Power System Engineering, Inc. dated May 8, 2012, "ICM Business Cases – Summary Report" (PSE Summary Report) focused on the overall methodologies and strategies used by THESL in determining the economic merits of ten reliability-driven business cases found in its original 2012 ICM filing. THESL has now updated these business cases for the reasons identified in its "Addendum to the Manager's Summary," dated October 31, 2012.

THESL has asked PSE to provide comments regarding how the business case update influences PSE's findings and conclusions in the PSE Summary Report. Our three primary findings, as found in Section 1.2 of the PSE Summary Report, are:

1. The ten ICM business cases presented by THESL provide significant justification that the projects are required, and in particular that the proposed projects are based on one or more of the following factors: safety, reliability, operational concerns, and regulatory requirements.
2. THESL's evaluation of the proposed ICM projects applies industry-leading techniques that aim to economically justify projects from the standpoint of all stakeholders, including customers.
3. Deferral or abandonment of the proposed THESL ICM projects will likely increase the probability of lower reliability to customers served by the corresponding facilities, and may in some cases present potential safety hazard exposures to the public and utility workers.

Given that much of the work effort within the business cases is being pushed back to later dates, it is likely these projects are more pressing than originally estimated. As old assets continue to age, the probabilities of failure continue to increase. As the probability of asset failures increase, the risk costs increase as well. This likely intensifies the urgency of undertaking these projects based on their economic merits. Thus, PSE's primary findings and conclusions still stand.

To the extent that THESL's Feeder Investment Model (FIM) analyses materially change, PSE reserves the ability to revisit its opinions regarding the affected project segments that were considered in PSE's Summary Report.

Todd Williams, Managing Director
October 31, 2012
Navigant Consulting Ltd.
333 Bay Street, Suite 1250
Toronto ON M5H 2R2
TWilliams@NavigantConsulting.com

RIDER to Navigant Consulting Inc. Report Titled:

INDEPENDENT ASSESSMENT OF TORONTO HYDRO BUSINESS CASES

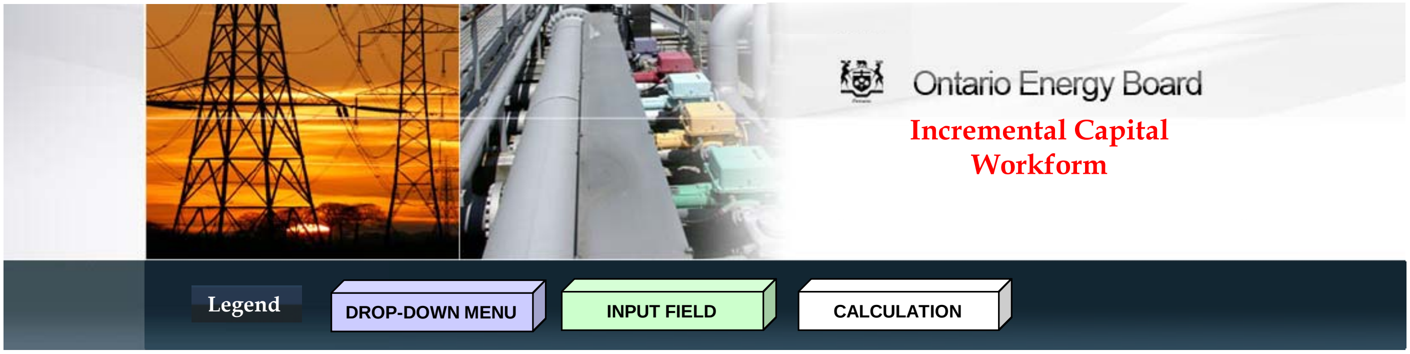
Ontario Energy Board Case No. EB-2012-0064.

The following summarizes Navigant's review and assessment of updates and revisions recently made to projects included in Toronto Hydro-Electric System Limited's (THESL) Incremental Capital Module ICM) application for rate adjustments submitted to the Ontario Energy Board (OEB) under EB-2012-0064. The findings and conclusions presented in our assessment reflect THESL's October 31. 2012 *Addendum to the Manager's Summary* and updated business cases for each of the 11 projects that Navigant originally evaluated in its May 8, 2012 report titled "*Independent Assessment of Toronto Hydro Business Cases*" (Tab 4, Schedule D5, 15 pages submitted in EB-2012-0064). Accordingly, the findings and conclusions Navigant presents below are intended to amend and supplement those contained in our May 8, 2012 report.

Navigant's independent review of the ICM project revisions resulted in a determination that the rationale and justification used to support the 11 business cases reviewed in our May 8, 2012 assessment has not materially changed as a result of the changes outlined in THESL's October 31, 2012 Addendum to Manager's Summary and business case updates.

Most important, the justification for each project, including costs versus expected benefits, has not materially changed. This is expected, as electric utilities commonly adjust project schedules and spending patterns due to factors outside of their direct control, or when circumstances suggest that such adjustments are justified and are expected to benefit customers. Notably, our May 8, 2012 report findings were not premised on specific dates or times when specific projects and jobs should be completed. Rather, our report highlights on page 13 that "*the proposed investment schedule will assure that renewal programs are implemented in a scheduled and orderly manner*." The adjustments that THESL proposes are entirely consistent with this statement.

Given these facts, Navigant has no reason to change any of the six key conclusions presented in our May 8, 2012 report, or any of the findings in other sections of our report given THESL's recent ICM business case updates and revisions; nor does this rider alter in any text or tables included in our May 8, 2012 report.



Applicant Name	**Toronto Hydro-Electric System Limited**
Application Type	**IRM3**
LDC Licence Number	**ED-2002-0497**
Applied for Effective Date	**May 1, 2012**
Stretch Factor Group	**III**
Stretch Factor Value	**0.6%**
Last COS Re-based Year	**2011**
Last COS OEB Application Number	**EB-2010-0142**
ICM Billing Determinants for Growth - Numerator	**2011 Re-Based Forecast**
ICM Billing Determinants for Growth - Denominator	**2010 Audited RRR**

Ontario Energy Board

Incremental Capital Workform

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Sheet Name	Purpose of Sheet
A1.1 LDC Information	Enter LDC Data
A2.1 Table of Contents	Table of Contents
B1.1 Re-Based Bill Det & Rates	Set Up Rate Classes and enter Re-Based Billing Determinants and Tariff Rates
B1.2 Removal of Rate Adders	Removal of Rate Adders
B1.3 Re-Based Rev From Rates	Calculated Re-Based Revenue From Rates
B1.4 Re-Based Rev Req	Detailed Re-Based Revenue From Rates
C1.1 Ld Act-Mst Rcent Yr	Enter Billing Determinants for most recent actual year
D1.1 Current Revenue from Rates	Enter Current Rates to calculate current rate allocation
E1.1 Threshold Parameters	Shows calculation of Price Cap and Growth used for incremental capital threshold calculation
E2.1 Threshold Test	Input sheet to calculate Threshold and Incremental Capital
E3.1 Summary of I C Projects	Summary of Incremental Capital Projects
E4.1 IncrementalCapitalAdjust	Shows Calculation of Incremental Capital Revenue Requirement
F1.1 Incr Cap RRider Opt A FV	Option A - Calculation of Incremental Capital Rate Rider - Fixed & Variable Split
F1.2 Incr Cap RRider Opt B Var	Option B - Calculation of Incremental Capital Rate Rider - Variable Allocation
Z1.0 OEB Control Sheet	Not Shown

Rate Class and Re-Based Billing Determinants & Rates

Select the appropriate Rate Groups and Rate Classes from the drop-down menus in Columns C and D respectively. Following your selection, all appropriate input cells will be shaded green.

Last COS Re-based Year	**2011**
Last COS OEB Application Number	**EB-2010-0142**

Rate Group	Rate Class	Fixed Metric	Vol Metric	Re-based Billed Customers or Connections A	Re-based Billed kWh B	Re-based Billed kW C	Re-based Tariff Service Charge D	Re-based Tariff Distribution Volumetric Rate kWh E	Re-based Tariff Distribution Volumetric Rate kW F
RES	Residential	Customer	kWh	598,508	4,886,977,489		18.25	0.0151	
RES	Residential Urban	Customer	kWh	24,898	99,791,184		17.00	0.0257	
GSLT50	General Service Less Than 50 kW	Customer	kWh	65,792	2,139,318,076	0	24.30	0.0225	
GSGT50	General Service 50 to 999 kW	Customer	kW	13,067	############	26,935,191	35.56		5.5956
GSGT50	General Service 1,000 to 4,999 kW	Customer	kW	514	4,626,928,262	10,587,119	686.46		4.4497
LU	Large Use	Customer	kW	47	2,376,778,323	4,993,733	3,009.11		4.7406
SL	Street Lighting	Connection	kW	162,777	110,165,016	322,023	1.30		28.7248
USL	Unmetered Scattered Load	Connection	kWh	1,130	56,231,585		4.84	0.0607	
USL	Unmetered Scattered Load	Connection	kWh	21,729	0		0.49		
NA	Rate Class 10	NA	NA						
NA	Rate Class 11	NA	NA						
NA	Rate Class 12	NA	NA						
NA	Rate Class 13	NA	NA						
NA	Rate Class 14	NA	NA						
NA	Rate Class 15	NA	NA						
NA	Rate Class 16	NA	NA						
NA	Rate Class 17	NA	NA						
NA	Rate Class 18	NA	NA						
NA	Rate Class 19	NA	NA						
NA	Rate Class 20	NA	NA						
NA	Rate Class 21	NA	NA						
NA	Rate Class 22	NA	NA						
NA	Rate Class 23	NA	NA						
NA	Rate Class 24	NA	NA						
NA	Rate Class 25	NA	NA						

Removal of Rate Adders

Last COS Re-based Year 2011

Last COS OEB Application Number EB-2010-0142

Rate Class	Re-based Tariff Service Charge A	Re-based Tariff Distribution Volumetric Rate kWh B	Re-based Tariff Distribution Volumetric Rate kW C	Service Charge Rate Adders D	Distribution Volumetric kWh Rate Adders E	Distribution Volumetric kW Rate Adders F	Re-based Base Service Charge H = A - D	Re-based Base Distribution Volumetric Rate kWh I = B - E	Re-based Base Distribution Volumetric Rate kW J = C - F
Residential	18.25	0.0151	0.0000	0.00	0.0000	0.0000	18.25	0.0151	0.0000
Residential Urban	17.00	0.0257	0.0000	0.00	0.0000	0.0000	17.00	0.0257	0.0000
General Service Less Than 50 kW	24.30	0.0225	0.0000	0.00	0.0000	0.0000	24.30	0.0225	0.0000
General Service 50 to 999 kW	35.56	0.0000	5.5956	0.00	0.0000	0.0000	35.56	0.0000	5.5956
General Service 1,000 to 4,999 kW	686.46	0.0000	4.4497	0.00	0.0000	0.0000	686.46	0.0000	4.4497
Large Use	3,009.11	0.0000	4.7406	0.00	0.0000	0.0000	3,009.11	0.0000	4.7406
Street Lighting	1.30	0.0000	28.7248	0.00	0.0000	0.0000	1.30	0.0000	28.7248
Unmetered Scattered Load	4.84	0.0607	0.0000	0.00	0.0000	0.0000	4.84	0.0607	0.0000
Unmetered Scattered Load	0.49	0.0000	0.0000	0.00	0.0000	0.0000	0.49	0.0000	0.0000

Calculated Re-Based Revenue From Rates

Last COS Re-based Year	**2011**
Last COS OEB Application Number	**EB-2010-0142**

Rate Class	Re-based Billed Customers or Connections A	Re-based Billed kWh B	Re-based Billed kW C	Re-based Base Service Charge D	Re-based Base Distribution Volumetric Rate kWh E	Re-based Base Distribution Volumetric Rate kW F	Service Charge Revenue G = A * D *12	Distribution Volumetric Rate Revenue kWh H = B * E	Distribution Volumetric Rate Revenue kW I = C * F	Revenue Requirement from Rates J = G + H + I	Service Charge % Revenue K = G / J	Distribution Volumetric Rate % Revenue kWh L = H / J	Distribution Volumetric Rate % Revenue kW M = I / J	Total % Revenue N = J / R
Residential	598,508	4,886,977,489	0	18.25	0.0151	0.0000	131,073,252	73,646,751	0	204,720,003	64.0%	36.0%	0.0%	38.8%
Residential Urban	24,898	99,791,184	0	17.00	0.0257	0.0000	5,079,192	2,559,644	0	7,638,836	66.5%	33.5%	0.0%	1.4%
General Service Less Than 50 kW	65,792	2,139,318,076	0	24.30	0.0225	0.0000	19,184,993	48,070,477	0	67,255,470	28.5%	71.5%	0.0%	12.7%
General Service 50 to 999 kW	13,067	10,116,374,153	26,935,191	35.56	0.0000	5.5956	5,575,758	0	150,718,556	156,294,314	3.6%	0.0%	96.4%	29.6%
General Service 1,000 to 4,999 kW	514	4,626,928,262	10,587,119	686.46	0.0000	4.4497	4,234,085	0	47,109,505	51,343,590	8.2%	0.0%	91.8%	9.7%
Large Use	47	2,376,778,323	4,993,733	3,009.11	0.0000	4.7406	1,697,138	0	23,673,292	25,370,430	6.7%	0.0%	93.3%	4.8%
Street Lighting	162,777	110,165,016	322,023	1.30	0.0000	28.7248	2,539,322	0	9,250,042	11,789,364	21.5%	0.0%	78.5%	2.2%
Unmetered Scattered Load	1,130	56,231,585	0	4.84	0.0607	0.0000	65,611	3,413,257	0	3,478,868	1.9%	98.1%	0.0%	0.7%
Unmetered Scattered Load	21,729	0	0	0.49	0.0000	0.0000	127,767	0	0	127,767	100.0%	0.0%	0.0%	0.0%
							169,577,117	127,690,129	230,751,395	528,018,642				100.0%

Detailed Re-Based Revenue From Rates

Last COS Re-based Year	**2011**
Last COS OEB Application Number	**EB-2010-0142**

				Last Rate Re-based Amount		
Applicants Rate Base						
Average Net Fixed Assets						
Gross Fixed Assets - Re-based Opening	$	4,183,572,075	A			
Add: CWIP Re-based Opening	$	204,719,106	B			
Re-based Capital Additions	$	376,263,596	C			
Re-based Capital Disposals			D			
Re-based Capital Retirements			E			
Deduct: CWIP Re-based Closing	-$	232,060,508	F			
Gross Fixed Assets - Re-based Closing	$	4,532,494,269	G			
Average Gross Fixed Assets				$	4,358,033,172	H = (A + G) / 2
Accumulated Depreciation - Re-based Opening	$	2,285,733,698	I			
Re-based Depreciation Expense	$	138,815,781	J			
Re-based Disposals	$	2,807,234	K			
Re-based Retirements			L			
Accumulated Depreciation - Re-based Closing	$	2,427,356,713	M			
Average Accumulated Depreciation				$	2,356,545,206	N = (I + M) / 2
Average Net Fixed Assets				**$**	**2,001,487,967**	O = H - N
Working Capital Allowance						
Working Capital Allowance Base	$	2,479,952,766	P			
Working Capital Allowance Rate		12.0%	Q			
Working Capital Allowance				**$**	**296,739,314**	R = P * Q
Rate Base				**$**	**2,298,227,281**	S = O + R
Return on Rate Base						
Deemed ShortTerm Debt %		4.00%	T	$	91,929,091	W = S * T
Deemed Long Term Debt %		56.00%	U	$	1,287,007,277	X = S * U
Deemed Equity %		40.00%	V	$	919,290,912	Y = S * V
Short Term Interest		2.46%	Z	$	2,261,456	AC = W * Z
Long Term Interest		5.37%	AA	$	69,112,291	AD = X * AA
Return on Equity		9.58%	AB	$	88,068,069	AE = Y * AB
Return on Rate Base				**$**	**159,441,816**	AF = AC + AD + AE
Distribution Expenses						
OM&A Expenses	$	231,214,224	AG			
Amortization	$	138,815,781	AH			
Ontario Capital Tax (F1.1 Z-Factor Tax Changes)	$	6,802,382	AI			
Grossed Up PILs (F1.1 Z-Factor Tax Changes)	$	11,791,223	AJ			
Low Voltage			AK			
Transformer Allowance	$	11,479,842	AL			
	$	-	AM			
			AN			
			AO			
				$	**400,103,452**	AP = SUM (AG : AO)
Revenue Offsets						
Specific Service Charges	-$	7,580,526	AQ			
Late Payment Charges	-$	4,900,000	AR			
Other Distribution Income	-$	7,240,556	AS			
Other Income and Deductions	-$	6,300,000	AT	**-$**	**26,021,082**	AU = SUM (AQ : AT)
Revenue Requirement from Distribution Rates				**$**	**533,524,186**	AV = AF + AP + AU
Rate Classes Revenue						
Rate Classes Revenue - Total (B1.1 Re-based Revenue - Gen)				$	528,018,642	AW
Difference				$	5,505,544	AZ = AV - AW
Difference (Percentage - should be less than 1%)					1.04%	BA = AZ / AW

Load Actual - Most Recent Year

Rate Class	Fixed Metric	Vol Metric	Billed Customers or Connections A	Billed kWh B	Billed kW C	Base Service Charge D	Base Distribution Volumetric Rate kWh E	Base Distribution Volumetric Rate kW F	Service Charge Revenue G = A * D * 12	Distribution Volumetric Rate Revenue kWh H = B * E	Distribution Volumetric Rate Revenue kW I = C * F	Total Revenue by Rate Class J = G + H + I
Residential	Customer	kWh	591,496	5,105,974,275	0	$18.25	$0.0151	$0.0000	$129,537,624	$76,947,032	$0	$206,484,656
Residential Urban	Customer	kWh	24,898	99,791,184	0	$17.00	$0.0257	$0.0000	$5,079,192	$2,559,644	$0	$7,638,836
General Service Less Than 50 kW	Customer	kWh	65,799	2,095,343,918	0	$24.30	$0.0225	$0.0000	$19,186,988	$47,082,378	$0	$66,269,366
General Service 50 to 999 kW	Customer	kW	12,873	10,189,051,346	26,712,248	$35.56	$0.0000	$5.5956	$5,493,167	$0	$149,471,055	$154,964,221
General Service 1,000 to 4,999 kW	Customer	kW	509	4,828,382,733	10,972,419	$686.46	$0.0000	$4.4497	$4,192,898	$0	$48,823,974	$53,016,871
Large Use	Customer	kW	47	2,263,227,585	5,267,224	$3,009.11	$0.0000	$4.7406	$1,697,138	$0	$24,969,801	$26,666,940
Street Lighting	Connection	kW	162,964	112,727,603	321,995	$1.30	$0.0000	$28.7248	$2,542,238	$0	$9,249,232	$11,791,471
Unmetered Scattered Load	Connection	kWh	1,107	52,097,299	0	$4.84	$0.0607	$0.0000	$64,295	$3,162,306	$0	$3,226,601
Unmetered Scattered Load	Connection	kWh	12,159	0	0	$0.49	$0.0000	$0.0000	$71,495	$0	$0	$71,495
									$167,865,035	**$129,751,360**	**$232,514,062**	**$530,130,457**

This sheet is used to determine the applicants most current allocation of revenues (after the most recent revenue cost ratio adjustment, if applicable) to be used to calculate the incremental capital rate riders.

Current Revenue from Rates

Rate Class	Fixed Metric	Vol Metric	Current Base Service Charge A	Current Base Distribution Volumetric Rate kWh B	Current Base Distribution Volumetric Rate kW C	Re-based Billed Customers or Connections D	Re-based Billed kWh E	Re-based Billed kW F	Current Base Service Charge Revenue G = A * D *12	Current Base Distribution Volumetric Rate kWh Revenue H = B * E	Current Base Distribution Volumetric Rate kW Revenue I = C * F	Total Current Base Revenue J = G + H + I	Service Charge % Total Revenue L = G / $K	Distribution Volumetric Rate % Total Revenue M = H / $K	Distribution Volumetric Rate % Total Revenue N = I / $K	Total % Revenue O = J / $K
Residential	Customer	kWh	18.25	0.0151		598,508	4,886,977,489	0	131,073,252	73,646,751	0	204,720,003	24.8%	13.9%	0.0%	38.8%
Residential Urban	Customer	kWh	17.00	0.0257		24,898	99,791,184	0	5,079,192	2,559,644	0	7,638,836	1.0%	0.5%	0.0%	1.4%
General Service Less Than 50 kW	Customer	kWh	24.30	0.0225		65,792	2,139,318,076	0	19,184,993	48,070,477	0	67,255,470	3.6%	9.1%	0.0%	12.7%
General Service 50 to 999 kW	Customer	kW	35.56		5.5956	13,067	10,116,374,153	26,935,191	5,575,758	0	150,718,556	156,294,314	1.1%	0.0%	28.5%	29.6%
General Service 1,000 to 4,999 kW	Customer	kW	686.46		4.4497	514	4,626,928,262	10,587,119	4,234,085	0	47,109,505	51,343,590	0.8%	0.0%	8.9%	9.7%
Large Use	Customer	kW	3,009.11		4.7406	47	2,376,778,323	4,993,733	1,697,138	0	23,673,292	25,370,430	0.3%	0.0%	4.5%	4.8%
Street Lighting	Connection	kW	1.30		28.7248	162,777	110,165,016	322,023	2,539,322	0	9,250,042	11,789,364	0.5%	0.0%	1.8%	2.2%
Unmetered Scattered Load	Connection	kWh	4.84	0.0607		1,130	56,231,585	0	65,611	3,413,257	0	3,478,868	0.0%	0.6%	0.0%	0.7%
Unmetered Scattered Load	Connection	kWh	0.49			21,729	0	0	127,767	0	0	127,767	0.0%	0.0%	0.0%	0.0%
									169,577,117	127,690,129	230,751,395	528,018,642	32.1%	24.2%	43.7%	100.0%
												K				

Threshold Parameters

Price Cap Index

Price Escalator (GDP-IPI)	2.00%	
Less Productivity Factor	-0.72%	
Less Stretch Factor	-0.60%	
Price Cap Index		**0.68%**

Growth

ICM Billing Determinants for Growth - Numerator : 2011 Re-Based Forecast	$528,018,642	A
ICM Billing Determinants for Growth - Denominator : 2010 Audited RRR	$530,130,457	B
Growth	**-0.40%**	C = A / B

Threshold Test

Year		**2011**	
Price Cap Index		**0.68%**	**A**
Growth		**-0.40%**	**B**
Dead Band		**20%**	**C**
Average Net Fixed Assets			
Gross Fixed Assets Opening	$	4,183,572,075	
Add: CWIP Opening	$	204,719,106	
Capital Additions	$	376,263,596	
Capital Disposals	$	-	
Capital Retirements	$	-	
Deduct: CWIP Closing	-$	232,060,508	
Gross Fixed Assets - Closing	$	4,532,494,269	
Average Gross Fixed Assets	$	4,358,033,172	
Accumulated Depreciation - Opening	$	2,285,733,698	
Depreciation Expense	$	138,815,781	**D**
Disposals	$	2,807,234	
Retirements			
Accumulated Depreciation - Closing	$	2,427,356,713	
Average Accumulated Depreciation	$	2,356,545,206	
Average Net Fixed Assets	$	2,001,487,967	**E**
Working Capital Allowance			
Working Capital Allowance Base	$	2,479,952,766	
Working Capital Allowance Rate		12%	
Working Capital Allowance	$	296,739,314	**F**
Rate Base	**$**	**2,298,227,281**	**G = E + F**
Depreciation	**D $**	**138,815,781**	**H**
Threshold Test		**124.62%**	**I = 1 + (G / H) * (B + A * (1 + B)) + C**
Threshold CAPEX	$	172,989,465	**J = H *I**

Summary of Incremental Capital Projects (ICPs)

Number of ICPs
1

Project ID #	Incremental Capital Non-Discretionary Project Description	Incremental Capital CAPEX	Amortization Expense	CCA
ICP 1	Summary of Projects (please see Schedule E1.2)	101,693,161	3,144,522	6,655,784
		101,693,161	3,144,522	6,655,784

Incremental Capital Adjustment

Current Revenue Requirement				
Current Revenue Requirement - Total			$533,524,186	**A**
Return on Rate Base				
Incremental Capital CAPEX			$101,693,161	**B**
Depreciation Expense			$ 3,144,522	**C**
Incremental Capital CAPEX to be included in Rate Base			$ 98,548,639	**D = B - C**
Deemed ShortTerm Debt %	4.0%	**E**	$ 3,941,946	**G = D * E**
Deemed Long Term Debt %	56.0%	**F**	$ 55,187,238	**H = D * F**
Short Term Interest	2.46%	**I**	$ 96,972	**K = G * I**
Long Term Interest	5.37%	**J**	$ 2,963,555	**L = H * J**
Return on Rate Base - Interest			$ 3,060,527	**M = K + L**
Deemed Equity %	40.0%	**N**	$ 39,419,456	**P = D * N**
Return on Rate Base -Equity	9.58%	**O**	$ 3,776,384	**Q = P * O**
Return on Rate Base - Total			$ 6,836,910	**R = M + Q**
Amortization Expense				
Amortization Expense - Incremental		**C**	$ 3,144,522	**S**
Grossed up PIL's				
Regulatory Taxable Income		**O**	$ 3,776,384	**T**
Add Back Amortization Expense		**S**	$ 3,144,522	**U**
Deduct CCA			$ 6,655,784	**V**
Incremental Taxable Income			$ 265,122	**W = T + U - V**
Current Tax Rate (F1.1 Z-Factor Tax Changes)	26.4%	**X**		
PIL's Before Gross Up			$ 69,992	**Y = W * X**
Incremental Grossed Up PIL's			$ 95,098	**Z = Y / (1 - X)**
Ontario Capital Tax				
Incremental Capital CAPEX			$101,693,161	**AA**
Less : Available Capital Exemption (if any)			$ -	**AB**
Incremental Capital CAPEX subject to OCT			$101,693,161	**AC = AA - AB**
Ontario Capital Tax Rate (F1.1 Z-Factor Tax Changes)	0.000%	**AD**		
Incremental Ontario Capital Tax			$ -	**AE = AC * AD**
Incremental Revenue Requirement				
Return on Rate Base - Total		**Q**	$ 6,836,910	**AF**
Amortization Expense - Total		**S**	$ 3,144,522	**AG**
Incremental Grossed Up PIL's		**Z**	$ 95,098	**AH**
Incremental Ontario Capital Tax		**AE**	$ -	**AI**
Incremental Revenue Requirement			$ 10,076,530	**AJ = AF + AG + AH + AI**

Calculation of Incremental Capital Rate Rider - Option A Fixed and Variable

Rate Class	Service Charge % Revenue A	Distribution Volumetric Rate % Revenue kWh B	Distribution Volumetric Rate % Revenue kW C	Service Charge Revenue D = $N * A	Distribution Volumetric Rate Revenue kWh E = $N * B	Distribution Volumetric Rate Revenue kW F = $N * C	Total Revenue by Rate Class G = D + E + F	Billed Customers or Connections H	Billed kWh I	Billed kW J	Service Charge Rate Rider K = D / H / 12	Distribution Volumetric Rate kWh Rate Rider L = E / I	Distribution Volumetric Rate kW Rate Rider M = F / J
Residential	24.8%	13.9%	0.0%	$ 2,501,357.83	$ 1,405,449.81	$ -	$ 3,906,807.64	598,508	4,886,977,489	0	$0.348277	$0.000288	
Residential Urban	1.0%	0.5%	0.0%	$ 96,929.59	$ 48,847.38	$ -	$ 145,776.97	24,898	99,791,184	0	$0.324422	$0.000489	
General Service Less Than 50 kW	3.6%	9.1%	0.0%	$ 366,119.94	$ 917,360.81	$ -	$ 1,283,480.75	65,792	2,139,318,076	0	$0.463733	$0.000429	
General Service 50 to 999 kW	1.1%	0.0%	28.5%	$ 106,405.89	$ -	$ 2,876,262.21	$ 2,982,668.09	13,067	10,116,374,153	26,935,191	$0.678615	$0.000000	$0.106785
General Service 1,000 to 4,999 kW	0.8%	0.0%	8.9%	$ 80,801.86	$ -	$ 899,021.93	$ 979,823.79	514	4,626,928,262	10,587,119	$13.100172	$0.000000	$0.084917
Large Use	0.3%	0.0%	4.5%	$ 32,387.61	$ -	$ 451,773.14	$ 484,160.75	47	2,376,778,323	4,993,733	$57.424843	$0.000000	$0.090468
Street Lighting	0.5%	0.0%	1.8%	$ 48,459.56	$ -	$ 176,524.69	$ 224,984.25	162,777	110,165,016	322,023	$0.024809	$0.000000	$0.548174
Unmetered Scattered Load	0.0%	0.6%	0.0%	$ 1,252.10	$ 65,137.45	$ -	$ 66,389.55	1,130	56,231,585	0	$0.092365	$0.001158	
Unmetered Scattered Load	0.0%	0.0%	0.0%	$ 2,438.26	$ -	$ -	$ 2,438.26	21,729	0	0	$0.009351		
				$ 3,236,152.64	$ 2,436,795.45	$ 4,403,581.97	$ 10,076,530.06						
							-						

Enter the above rate riders onto "Sheet 14. Proposed Rate_Riders" in the 2012 OEB IRM3 Rate Generator as an "Rate Rider for Incremental Capital"

Calculation of Incremental Capital Rate Rider - Option B Variable

Rate Class	Total Revenue $ by Rate Class A	Total Revenue % by Rate Class B = A / $H	Total Incremental Capital $ by Rate Class C = $I * B	Billed kWh D	Billed kW E	Distribution Volumetric Rate kWh Rate Rider F = C / D	Distribution Volumetric Rate kW Rate Rider G = C / E
Residential	$204,720,003	38.77%	$3,906,808	4,886,977,489	0	$0.0008	
Residential Urban	$7,638,836	1.45%	$145,777	99,791,184	0	$0.0015	
General Service Less Than 50 kW	$67,255,470	12.74%	$1,283,481	2,139,318,076	0	$0.0006	
General Service 50 to 999 kW	$156,294,314	29.60%	$2,982,668	10,116,374,153	26,935,191		$0.1107
General Service 1,000 to 4,999 kW	$51,343,590	9.72%	$979,824	4,626,928,262	10,587,119		$0.0925
Large Use	$25,370,430	4.80%	$484,161	2,376,778,323	4,993,733		$0.0970
Street Lighting	$11,789,364	2.23%	$224,984	110,165,016	322,023		$0.6987
Unmetered Scattered Load	$3,478,868	0.66%	$66,390	56,231,585	0	$0.0012	
Unmetered Scattered Load	$127,767	0.02%	$2,438	0	0		
	$528,018,642	100.00%	$10,076,530				
	H		I				

Enter the above rate riders onto "Sheet 14. Proposed Rate_Riders" in the 2012 OEB IRM3 Rate Generator as an "Rate Rider for Incremental Capital"

ICM Values Calculation - 2012

	Capital Cost	Amort. Exp	CCA
01 Underground Infrastructure	28,753,593	942,057	2,300,287
02 Paper Insulated Lead Covered Cable - Piece Outs and Leakers	80,959	2,024	6,477
03 Handwell Replacement	13,651,577	341,289	1,092,126
04 Overhead Infrastructure	9,069,739	238,757	725,579
05 Box Construction	582,984	14,770	46,639
06 Rear Lot Construction	16,357,431	466,706	1,308,594
07 Polymer SMD - 20 Fuses	0	0	0
08 Scadamate R1 Switches	0	0	0
09 Network Vault & Roofs	2,838,162	95,522	227,053
10 Fibertop Network Units	1,476,735	70,686	118,139
11 Automatic Transfer Switches (ATS) % Reverse Power Breakers (RPE	0	0	0
12 Stations Power Transformers	375,540	11,736	30,043
13 Stations Switchgear	1,727,687	44,078	139,771
14 Stations Circuit Breakers	759,658	25,322	60,448
15 Stations Control & Communication Systems	135,429	9,029	27,086
16 Downtown Station Load Transfers	679,135	16,978	54,331
17 Bremner Transformer Station	8,500,000	197,387	519,210
18 Hydro One Capital Contributions (Prorated)	16,704,532	668,181	0
18 Hydro One Capital Contributions	22,977,664	919,107	0
18 Hydro One Capital Contributions (Prorated)	6,273,132	250,925	0
19 Feeder Automation	2,303,905	75,664	184,312
20 Wholesale and Smart Metering	4,739,114	289,723	379,129
21 Externally-Initiated Plant Relocations and Expansions	10,163,652	300,769	813,092
PCI Total	149,509,662	0	0
Total	274,682,626	4,061,603	8,032,317

Threshold CAPEX	**$ 172,989,465**

	Capital Cost	Amort. Exp	CCA
Values Above Threshold for ICM Model	**101,693,161**	**3,144,522**	**6,655,784**
Threshold Values	**172,989,465**	**917,081**	**1,376,534**

Calculation of Incremental Capital Rate Rider - Option A Fixed and Variable

Rate Class	Fixed Metric	Vol Metric	Service Charge Rate Rider K = D / H / 12	Distribution Volumetric Rate kWh Rate Rider L = E / I	Distribution Volumetric Rate kVA Rate Rider M = F / J	Service Charge Rate Rider (DOS)	Distribution Volumetric Rate kWh Rate Rider	Distribution Volumetric Rate kVA Rate Rider (DOS)
Residential	Customer	kWh	$0.3483	$0.000288		**$0.343506**	**$0.000288**	
Residential Urban	Customer	kWh	$0.3244	$0.000489		**$0.319978**	**$0.000489**	
General Service Less Than 50 kW	Customer	kWh	$0.4637	$0.000429		**$0.457380**	**$0.000429**	
General Service 50 to 999 kW	Customer	kW	$0.6786	$0.000000	$0.1068	**$0.669319**		**$0.105322**
General Service 1,000 to 4,999 kW	Customer	kW	$13.1002	$0.000000	$0.0849	**$12.920718**		**$0.083754**
Large Use	Customer	kW	$57.4248	$0.000000	$0.0905	**$56.638201**		**$0.089229**
Street Lighting	Connection	kW	$0.0248	$0.000000	$0.5482	**$0.024469**		**$0.540665**
Unmetered Scattered Load	Connection	kWh	$0.0924	$0.001158		**$0.091100**	**$0.001158**	
Unmetered Scattered Load	Connection	kWh	$0.0094			**$0.009223**		

2012 ICM - Rate Adder

Rate Class	Service Charge % Revenue A	Distribution Volumetric Rate % Revenue kWh B	Distribution Volumetric Rate % Revenue kW C	Service Charge Revenue D = $N * A	Distribution Volumetric Rate Revenue kWh E = $N * B	Distribution Volumetric Rate Revenue kVA F = $N * C	Total Revenue by Rate Class G = D + E + F
Residential	24.8%	13.9%	0.0%	$ 3,752,036.74	$ 2,108,174.71	$ -	$ 5,860,211.45
Residential Urban	1.0%	0.5%	0.0%	$ 145,394.39	$ 73,271.07	$ -	$ 218,665.46
General Service Less Than 50 kW	3.6%	9.1%	0.0%	$ 549,179.91	$ 1,376,041.21	$ -	$ 1,925,221.13
General Service 50 to 999 kW	1.1%	0.0%	28.5%	$ 159,608.83	$ -	$ 4,314,393.31	$ 4,474,002.14
General Service 1,000 to 4,999 kW	0.8%	0.0%	8.9%	$ 121,202.79	$ -	$ 1,348,532.90	$ 1,469,735.69
Large Use	0.3%	0.0%	4.5%	$ 48,581.42	$ -	$ 677,659.71	$ 726,241.13
Street Lighting	0.5%	0.0%	1.8%	$ 72,689.34	$ -	$ 264,787.04	$ 337,476.38
Unmetered Scattered Load	0.0%	0.6%	0.0%	$ 1,878.15	$ 97,706.18	$ -	$ 99,584.32
Unmetered Scattered Load	0.0%	0.0%	0.0%	$ 3,657.39	$ -	$ -	$ 3,657.39
				$ 4,854,228.96	$ 3,655,193.17	$ 6,605,372.96	$ 15,114,795.09
							-

Rate Class	Billed Customers or Connections H	Billed kWh I	Billed kVA J	Service Charge Rate Adder K = D / H / 12	Distribution Volumetric Rate kWh Rate Adder L = E / I	Distribution Volumetric Rate kVA Rate Adder M = F / J	Service Charge Rate Adder (DOS)	Distribution Volumetric Rate kWh Adder Rider	Distribution Volumetric Rate kVA Rate Adder (DOS)
Residential	598,508	4,886,977,489	0	$0.52	$0.00043		**$0.52**	**$0.00043**	
Residential Urban	24,898	99,791,184	0	$0.49	$0.00073		**$0.48**	**$0.00073**	
General Service Less Than 50 kW	65,792	2,139,318,076	0	$0.70	$0.00064		**$0.69**	**$0.00064**	
General Service 50 to 999 kW	13,067	10,116,374,153	26,935,191	$1.02		$0.1602	**$1.00**		**$0.1580**
General Service 1,000 to 4,999 kW	514	4,626,928,262	10,587,119	$19.65		$0.1274	**$19.38**		**$0.1256**
Large Use	47	2,376,778,323	4,993,733	$86.14		$0.1357	**$84.96**		**$0.1338**
Street Lighting	162,777	110,165,016	322,023	$0.04		$0.8223	**$0.04**		**$0.8110**
Unmetered Scattered Load	1,130	56,231,585	0	$0.14	$0.00174		**$0.14**	**$0.00174**	
Unmetered Scattered Load	21,729	0	0	$0.01			**$0.01**		

Incremental Revenue Requirement for 2012 (from ICM model)	A	$ 10,076,530.06
Total Revenue Requirement over 3 Years 2012-2014	B = A * 3	$ 30,229,590.18
Annual Revenue requirement over 2 Years 2013-2014	C = B / 2	$ 15,114,795.09

Ontario Energy Board

Incremental Capital Workform

Legend: DROP-DOWN MENU | INPUT FIELD | CALCULATION

Applicant Name	**Toronto Hydro-Electric System Limited**
Application Type	**IRM3**
LDC Licence Number	**ED-2002-0497**
Applied for Effective Date	**May 1, 2012**
Stretch Factor Group	**III**
Stretch Factor Value	**0.6%**
Last COS Re-based Year	**2011**
Last COS OEB Application Number	**EB-2010-0142**
ICM Billing Determinants for Growth - Numerator	**2011 Re-Based Forecast**
ICM Billing Determinants for Growth - Denominator	**2010 Audited RRR**

Ontario Energy Board

Incremental Capital Workform

Table of Contents

Sheet Name	Purpose of Sheet
A1.1 LDC Information	Enter LDC Data
A2.1 Table of Contents	Table of Contents
B1.1 Re-Based Bill Det & Rates	Set Up Rate Classes and enter Re-Based Billing Determinants and Tariff Rates
B1.2 Removal of Rate Adders	Removal of Rate Adders
B1.3 Re-Based Rev From Rates	Calculated Re-Based Revenue From Rates
B1.4 Re-Based Rev Req	Detailed Re-Based Revenue From Rates
C1.1 Ld Act-Mst Rcent Yr	Enter Billing Determinants for most recent actual year
D1.1 Current Revenue from Rates	Enter Current Rates to calculate current rate allocation
E1.1 Threshold Parameters	Shows calculation of Price Cap and Growth used for incremental capital threshold calculation
E2.1 Threshold Test	Input sheet to calculate Threshold and Incremental Capital
E3.1 Summary of I C Projects	Summary of Incremental Capital Projects
E4.1 IncrementalCapitalAdjust	Shows Calculation of Incremental Capital Revenue Requirement
F1.1 Incr Cap RRider Opt A FV	Option A - Calculation of Incremental Capital Rate Rider - Fixed & Variable Split
F1.2 Incr Cap RRider Opt B Var	Option B - Calculation of Incremental Capital Rate Rider - Variable Allocation
Z1.0 OEB Control Sheet	Not Shown

Rate Class and Re-Based Billing Determinants & Rates

Select the appropriate Rate Groups and Rate Classes from the drop-down menus in Columns C and D respectively. Following your selection, all appropriate input cells will be shaded green.

Last COS Re-based Year	**2011**
Last COS OEB Application Number	**EB-2010-0142**

Rate Group	Rate Class	Fixed Metric	Vol Metric	Re-based Billed Customers or Connections A	Re-based Billed kWh B	Re-based Billed kW C	Re-based Tariff Service Charge D	Re-based Tariff Distribution Volumetric Rate kWh E	Re-based Tariff Distribution Volumetric Rate kW F
RES	Residential	Customer	kWh	598,508	4,886,977,489		18.25	0.0151	
RES	Residential Urban	Customer	kWh	24,898	99,791,184		17.00	0.0257	
GSLT50	General Service Less Than 50 kW	Customer	kWh	65,792	2,139,318,076	0	24.30	0.0225	
GSGT50	General Service 50 to 999 kW	Customer	kW	13,067	10,116,374,153	26,935,191	35.56		5.5956
GSGT50	General Service 1,000 to 4,999 kW	Customer	kW	514	4,626,928,262	10,587,119	686.46		4.4497
LU	Large Use	Customer	kW	47	2,376,778,323	4,993,733	3,009.11		4.7406
SL	Street Lighting	Connection	kW	162,777	110,165,016	322,023	1.30		28.7248
USL	Unmetered Scattered Load	Connection	kWh	1,130	56,231,585		4.84	0.0607	
USL	Unmetered Scattered Load	Connection	kWh	21,729	0		0.49		
NA	Rate Class 10	NA	NA						
NA	Rate Class 11	NA	NA						
NA	Rate Class 12	NA	NA						
NA	Rate Class 13	NA	NA						
NA	Rate Class 14	NA	NA						
NA	Rate Class 15	NA	NA						
NA	Rate Class 16	NA	NA						
NA	Rate Class 17	NA	NA						
NA	Rate Class 18	NA	NA						
NA	Rate Class 19	NA	NA						
NA	Rate Class 20	NA	NA						
NA	Rate Class 21	NA	NA						
NA	Rate Class 22	NA	NA						
NA	Rate Class 23	NA	NA						
NA	Rate Class 24	NA	NA						
NA	Rate Class 25	NA	NA						

Removal of Rate Adders

Last COS Re-based Year | **2011**

Last COS OEB Application Number | **EB-2010-0142**

Rate Class	Re-based Tariff Service Charge A	Re-based Tariff Distribution Volumetric Rate kWh B	Re-based Tariff Distribution Volumetric Rate kW C	Service Charge Rate Adders D	Distribution Volumetric kWh Rate Adders E	Distribution Volumetric kW Rate Adders F	Re-based Base Service Charge H = A - D	Re-based Base Distribution Volumetric Rate kWh I = B - E	Re-based Base Distribution Volumetric Rate kW J = C - F
Residential	18.25	0.0151	0.0000	0.00	0.0000	0.0000	18.25	0.0151	0.0000
Residential Urban	17.00	0.0257	0.0000	0.00	0.0000	0.0000	17.00	0.0257	0.0000
General Service Less Than 50 kW	24.30	0.0225	0.0000	0.00	0.0000	0.0000	24.30	0.0225	0.0000
General Service 50 to 999 kW	35.56	0.0000	5.5956	0.00	0.0000	0.0000	35.56	0.0000	5.5956
General Service 1,000 to 4,999 kW	686.46	0.0000	4.4497	0.00	0.0000	0.0000	686.46	0.0000	4.4497
Large Use	3,009.11	0.0000	4.7406	0.00	0.0000	0.0000	3,009.11	0.0000	4.7406
Street Lighting	1.30	0.0000	28.7248	0.00	0.0000	0.0000	1.30	0.0000	28.7248
Unmetered Scattered Load	4.84	0.0607	0.0000	0.00	0.0000	0.0000	4.84	0.0607	0.0000
Unmetered Scattered Load	0.49	0.0000	0.0000	0.00	0.0000	0.0000	0.49	0.0000	0.0000

Calculated Re-Based Revenue From Rates

Last COS Re-based Year | **2011**

Last COS OEB Application Number | **EB-2010-0142**

Rate Class	Re-based Billed Customers or Connections A	Re-based Billed kWh B	Re-based Billed kW C	Re-based Base Service Charge D	Re-based Base Distribution Volumetric Rate kWh E	Re-based Base Distribution Volumetric Rate kW F	Service Charge Revenue G = A * D *12	Distribution Volumetric Rate Revenue kWh H = B * E	Distribution Volumetric Rate Revenue kW I = C * F	Revenue Requirement from Rates J = G + H + I	Service Charge % Revenue K = G / J	Distribution Volumetric Rate % Revenue kWh L = H / J	Distribution Volumetric Rate % Revenue kW M = I / J	Total % Revenue N = J / R
Residential	598,508	4,886,977,489	0	18.25	0.0151	0.0000	131,073,252	73,646,751	0	204,720,003	64.0%	36.0%	0.0%	38.8%
Residential Urban	24,898	99,791,184	0	17.00	0.0257	0.0000	5,079,192	2,559,644	0	7,638,836	66.5%	33.5%	0.0%	1.4%
General Service Less Than 50 kW	65,792	2,139,318,076	0	24.30	0.0225	0.0000	19,184,993	48,070,477	0	67,255,470	28.5%	71.5%	0.0%	12.7%
General Service 50 to 999 kW	13,067	10,116,374,153	26,935,191	35.56	0.0000	5.5956	5,575,758	0	150,718,556	156,294,314	3.6%	0.0%	96.4%	29.6%
General Service 1,000 to 4,999 kW	514	4,626,928,262	10,587,119	686.46	0.0000	4.4497	4,234,085	0	47,109,505	51,343,590	8.2%	0.0%	91.8%	9.7%
Large Use	47	2,376,778,323	4,993,733	3,009.11	0.0000	4.7406	1,697,138	0	23,673,292	25,370,430	6.7%	0.0%	93.3%	4.8%
Street Lighting	162,777	110,165,016	322,023	1.30	0.0000	28.7248	2,539,322	0	9,250,042	11,789,364	21.5%	0.0%	78.5%	2.2%
Unmetered Scattered Load	1,130	56,231,585	0	4.84	0.0607	0.0000	65,611	3,413,257	0	3,478,868	1.9%	98.1%	0.0%	0.7%
Unmetered Scattered Load	21,729	0	0	0.49	0.0000	0.0000	127,767	0	0	127,767	100.0%	0.0%	0.0%	0.0%
							169,577,117	127,690,129	230,751,395	528,018,642				100.0%

Detailed Re-Based Revenue From Rates

Last COS Re-based Year	**2011**
Last COS OEB Application Number	**EB-2010-0142**

Applicants Rate Base			Last Rate Re-based Amount			
Average Net Fixed Assets						
Gross Fixed Assets - Re-based Opening	$	4,183,572,075	A			
Add: CWIP Re-based Opening	$	204,719,106	B			
Re-based Capital Additions	$	376,263,596	C			
Re-based Capital Disposals			D			
Re-based Capital Retirements			E			
Deduct: CWIP Re-based Closing	-$	232,060,508	F			
Gross Fixed Assets - Re-based Closing	$	4,532,494,269	G			
Average Gross Fixed Assets				$	4,358,033,172	H = (A + G) / 2
Accumulated Depreciation - Re-based Opening	$	2,285,733,698	I			
Re-based Depreciation Expense	$	138,815,781	J			
Re-based Disposals	$	2,807,234	K			
Re-based Retirements			L			
Accumulated Depreciation - Re-based Closing	$	2,427,356,713	M			
Average Accumulated Depreciation				$	2,356,545,206	N = (I + M) / 2
Average Net Fixed Assets				**$**	**2,001,487,967**	O = H - N
Working Capital Allowance						
Working Capital Allowance Base	$	2,479,952,766	P			
Working Capital Allowance Rate		12.0%	Q			
Working Capital Allowance				**$**	**296,739,314**	R = P * Q
Rate Base				**$**	**2,298,227,281**	S = O + R
Return on Rate Base						
Deemed ShortTerm Debt %		4.00%	T	$	91,929,091	W = S * T
Deemed Long Term Debt %		56.00%	U	$	1,287,007,277	X = S * U
Deemed Equity %		40.00%	V	$	919,290,912	Y = S * V
Short Term Interest		2.46%	Z	$	2,261,456	AC = W * Z
Long Term Interest		5.37%	AA	$	69,112,291	AD = X * AA
Return on Equity		9.58%	AB	$	88,068,069	AE = Y * AB
Return on Rate Base				**$**	**159,441,816**	AF = AC + AD + AE
Distribution Expenses						
OM&A Expenses	$	231,214,224	AG			
Amortization	$	138,815,781	AH			
Ontario Capital Tax (F1.1 Z-Factor Tax Changes)	$	6,802,382	AI			
Grossed Up PILs (F1.1 Z-Factor Tax Changes)	$	11,791,223	AJ			
Low Voltage			AK			
Transformer Allowance	$	11,479,842	AL			
	$	-	AM			
			AN			
			AO			
				$	**400,103,452**	AP = SUM (AG : AO)
Revenue Offsets						
Specific Service Charges	-$	7,580,526	AQ			
Late Payment Charges	-$	4,900,000	AR			
Other Distribution Income	-$	7,240,556	AS			
Other Income and Deductions	-$	6,300,000	AT	**-$**	**26,021,082**	AU = SUM (AQ : AT)
Revenue Requirement from Distribution Rates				**$**	**533,524,186**	AV = AF + AP + AU
Rate Classes Revenue						
Rate Classes Revenue - Total (B1.1 Re-based Revenue - Gen)				$	528,018,642	AW
Difference				$	5,505,544	AZ = AV - AW
Difference (Percentage - should be less than 1%)					1.04%	BA = AZ / AW

Load Actual - Most Recent Year

Rate Class	Fixed Metric	Vol Metric	Billed Customers or Connections A	Billed kWh B	Billed kW C	Base Service Charge D	Base Distribution Volumetric Rate kWh E	Base Distribution Volumetric Rate kW F	Service Charge Revenue G = A * D * 12	Distribution Volumetric Rate Revenue kWh H = B * E	Distribution Volumetric Rate Revenue kW I = C * F	Total Revenue by Rate Class J = G + H + I
Residential	Customer	kWh	591,496	5,105,974,275	0	$18.25	$0.0151	$0.0000	$129,537,624	$76,947,032	$0	$206,484,656
Residential Urban	Customer	kWh	24,898	99,791,184	0	$17.00	$0.0257	$0.0000	$5,079,192	$2,559,644	$0	$7,638,836
General Service Less Than 50 kW	Customer	kWh	65,799	2,095,343,918	0	$24.30	$0.0225	$0.0000	$19,186,988	$47,082,378	$0	$66,269,366
General Service 50 to 999 kW	Customer	kW	12,873	10,189,051,346	26,712,248	$35.56	$0.0000	$5.5956	$5,493,167	$0	$149,471,055	$154,964,221
General Service 1,000 to 4,999 kW	Customer	kW	509	4,828,382,733	10,972,419	$686.46	$0.0000	$4.4497	$4,192,898	$0	$48,823,974	$53,016,871
Large Use	Customer	kW	47	2,263,227,585	5,267,224	$3,009.11	$0.0000	$4.7406	$1,697,138	$0	$24,969,801	$26,666,940
Street Lighting	Connection	kW	162,964	112,727,603	321,995	$1.30	$0.0000	$28.7248	$2,542,238	$0	$9,249,232	$11,791,471
Unmetered Scattered Load	Connection	kWh	1,107	52,097,299	0	$4.84	$0.0607	$0.0000	$64,295	$3,162,306	$0	$3,226,601
Unmetered Scattered Load	Connection	kWh	12,159	0	0	$0.49	$0.0000	$0.0000	$71,495	$0	$0	$71,495
									$167,865,035	**$129,751,360**	**$232,514,062**	**$530,130,457**

This sheet is used to determine the applicants most current allocation of revenues (after the most recent revenue cost ratio adjustment, if applicable) to be used to calculate the incremental capital rate riders.

Current Revenue from Rates

Rate Class	Fixed Metric	Vol Metric	Current Base Service Charge A	Current Base Distribution Volumetric Rate kWh B	Current Base Distribution Volumetric Rate kW C	Re-based Billed Customers or Connections D	Re-based Billed kWh E	Re-based Billed kW F	Current Base Service Charge Revenue G = A * D *12	Current Base Distribution Volumetric Rate kWh Revenue H = B * E	Current Base Distribution Volumetric Rate kW Revenue I = C * F	Total Current Base Revenue J = G + H + I	Service Charge % Total Revenue L = G / $K	Distribution Volumetric Rate % Total Revenue M = H / $K	Distribution Volumetric Rate % Total Revenue N = I / $K	Total % Revenue O = J / $K
Residential	Customer	kWh	18.25	0.0151		598,508	4,886,977,489	0	131,073,252	73,646,751	0	204,720,003	24.8%	13.9%	0.0%	38.8%
Residential Urban	Customer	kWh	17.00	0.0257		24,898	99,791,184	0	5,079,192	2,559,644	0	7,638,836	1.0%	0.5%	0.0%	1.4%
General Service Less Than 50 kW	Customer	kWh	24.30	0.0225		65,792	2,139,318,076	0	19,184,993	48,070,477	0	67,255,470	3.6%	9.1%	0.0%	12.7%
General Service 50 to 999 kW	Customer	kW	35.56		5.5956	13,067	10,116,374,153	26,935,191	5,575,758	0	150,718,556	156,294,314	1.1%	0.0%	28.5%	29.6%
General Service 1,000 to 4,999 kW	Customer	kW	686.46		4.4497	514	4,626,928,262	10,587,119	4,234,085	0	47,109,505	51,343,590	0.8%	0.0%	8.9%	9.7%
Large Use	Customer	kW	3,009.11		4.7406	47	2,376,778,323	4,993,733	1,697,138	0	23,673,292	25,370,430	0.3%	0.0%	4.5%	4.8%
Street Lighting	Connection	kW	1.30		28.7248	162,777	110,165,016	322,023	2,539,322	0	9,250,042	11,789,364	0.5%	0.0%	1.8%	2.2%
Unmetered Scattered Load	Connection	kWh	4.84	0.0607		1,130	56,231,585	0	65,611	3,413,257	0	3,478,868	0.0%	0.6%	0.0%	0.7%
Unmetered Scattered Load	Connection	kWh	0.49			21,729	0	0	127,767	0	0	127,767	0.0%	0.0%	0.0%	0.0%
									169,577,117	127,690,129	230,751,395	528,018,642 K	32.1%	24.2%	43.7%	100.0%

Threshold Parameters

Price Cap Index

Price Escalator (GDP-IPI)	2.00%	
Less Productivity Factor	-0.72%	
Less Stretch Factor	-0.60%	
Price Cap Index		**0.68%**

Growth

ICM Billing Determinants for Growth - Numerator : 2011 Re-Based Forecast	$ 528,018,642	A
ICM Billing Determinants for Growth - Denominator : 2010 Audited RRR	$ 530,130,457	B
Growth	**-0.40%**	C = A / B

Threshold Test

Year		**2011**	
Price Cap Index		**0.68%**	**A**
Growth		**-0.40%**	**B**
Dead Band		**20%**	**C**
Average Net Fixed Assets			
Gross Fixed Assets Opening	$	4,183,572,075	
Add: CWIP Opening	$	204,719,106	
Capital Additions	$	376,263,596	
Capital Disposals	$	-	
Capital Retirements	$	-	
Deduct: CWIP Closing	-$	232,060,508	
Gross Fixed Assets - Closing	$	4,532,494,269	
Average Gross Fixed Assets	$	4,358,033,172	
Accumulated Depreciation - Opening	$	2,285,733,698	
Depreciation Expense	$	138,815,781	**D**
Disposals	$	2,807,234	
Retirements			
Accumulated Depreciation - Closing	$	2,427,356,713	
Average Accumulated Depreciation	$	2,356,545,206	
Average Net Fixed Assets	$	2,001,487,967	**E**
Working Capital Allowance			
Working Capital Allowance Base	$	2,479,952,766	
Working Capital Allowance Rate		12%	
Working Capital Allowance	$	296,739,314	**F**
Rate Base	**$**	**2,298,227,281**	**G = E + F**
Depreciation	**D $**	**138,815,781**	**H**
Threshold Test		**124.62%**	**I = 1 + (G / H) * (B + A * (1 + B)) + (**
Threshold CAPEX	$	172,989,465	**J = H *I**

Summary of Incremental Capital Projects (ICPs)

Number of ICPs
1

Project ID #	Incremental Capital Non-Discretionary Project Description	Incremental Capital CAPEX	Amortization Expense	CCA
ICP 1	Summary of Projects (please see Schedule E2.2)	406,102,932	12,415,194	27,093,771
		406,102,932	12,415,194	27,093,771

Incremental Capital Adjustment

Current Revenue Requirement				
Current Revenue Requirement - Total			$533,524,186	**A**
Return on Rate Base				
Incremental Capital CAPEX			$406,102,932	**B**
Depreciation Expense			$ 12,415,194	**C**
Incremental Capital CAPEX to be included in Rate Base			$393,687,738	**D = B - C**
Deemed ShortTerm Debt %	4.0%	**E**	$ 15,747,510	**G = D * E**
Deemed Long Term Debt %	56.0%	**F**	$220,465,133	**H = D * F**
Short Term Interest	2.46%	**I**	$ 387,389	**K = G * I**
Long Term Interest	5.37%	**J**	$ 11,838,978	**L = H * J**
Return on Rate Base - Interest			$ 12,226,366	**M = K + L**
Deemed Equity %	40.0%	**N**	$157,475,095	**P = D * N**
Return on Rate Base -Equity	9.58%	**O**	$ 15,086,114	**Q = P * O**
Return on Rate Base - Total			$ 27,312,481	**R = M + Q**
Amortization Expense				
Amortization Expense - Incremental		**C**	$ 12,415,194	**S**
Grossed up PIL's				
Regulatory Taxable Income		**O**	$ 15,086,114	**T**
Add Back Amortization Expense		**S**	$ 12,415,194	**U**
Deduct CCA			$ 27,093,771	**V**
Incremental Taxable Income			$ 407,537	**W = T + U - V**
Current Tax Rate (F1.1 Z-Factor Tax Changes)	26.4%	**X**		
PIL's Before Gross Up			$ 107,590	**Y = W * X**
Incremental Grossed Up PIL's			$ 146,182	**Z = Y / (1 - X)**
Ontario Capital Tax				
Incremental Capital CAPEX			$406,102,932	**AA**
Less : Available Capital Exemption (if any)			$ -	**AB**
Incremental Capital CAPEX subject to OCT			$406,102,932	**AC = AA - AB**
Ontario Capital Tax Rate (F1.1 Z-Factor Tax Changes)	0.000%	**AD**		
Incremental Ontario Capital Tax			$ -	**AE = AC * AD**
Incremental Revenue Requirement				
Return on Rate Base - Total		**Q**	$ 27,312,481	**AF**
Amortization Expense - Total		**S**	$ 12,415,194	**AG**
Incremental Grossed Up PIL's		**Z**	$ 146,182	**AH**
Incremental Ontario Capital Tax		**AE**	$ -	**AI**
Incremental Revenue Requirement			$ 39,873,856	**AJ = AF + AG + AH + AI**

Calculation of Incremental Capital Rate Rider - Option A Fixed and Variable

Rate Class	Service Charge % Revenue A	Distribution Volumetric Rate % Revenue kWh B	Distribution Volumetric Rate % Revenue kW C	Service Charge Revenue D = $N * A	Distribution Volumetric Rate Revenue kWh E = $N * B	Distribution Volumetric Rate Revenue kW F = $N * C	Total Revenue by Rate Class G = D + E + F	Billed Customers or Connections H	Billed kWh I	Billed kW J	Service Charge Rate Rider K = D / H / 12	Distribution Volumetric Rate kWh Rate Rider L = E / I	Distribution Volumetric Rate kW Rate Rider M = F / J
Residential	24.8%	13.9%	0.0%	$ 9,898,127.81	$ 5,561,508.09	$ -	$ 15,459,635.90	598,508	4,886,977,489	0	$1.378167	$0.001138	
Residential Urban	1.0%	0.5%	0.0%	$ 383,560.27	$ 193,294.07	$ -	$ 576,854.34	24,898	99,791,184	0	$1.283772	$0.001937	
General Service Less Than 50 kW	3.6%	9.1%	0.0%	$ 1,448,773.92	$ 3,630,090.19	$ -	$ 5,078,864.12	65,792	2,139,318,076	0	$1.835039	$0.001697	
General Service 50 to 999 kW	1.1%	0.0%	28.5%	$ 421,058.93	$ -	$ 11,381,662.63	$ 11,802,721.56	13,067	10,116,374,153	26,935,191	$2.685349	$0.000000	$0.422557
General Service 1,000 to 4,999 kW	0.8%	0.0%	8.9%	$ 319,741.19	$ -	$ 3,557,521.39	$ 3,877,262.58	514	4,626,928,262	10,587,119	$51.838714	$0.000000	$0.336024
Large Use	0.3%	0.0%	4.5%	$ 128,161.08	$ -	$ 1,787,712.35	$ 1,915,873.42	47	2,376,778,323	4,993,733	$227.235953	$0.000000	$0.357991
Street Lighting	0.5%	0.0%	1.8%	$ 191,759.42	$ -	$ 698,526.20	$ 890,285.62	162,777	110,165,016	322,023	$0.098171	$0.000000	$2.169182
Unmetered Scattered Load	0.0%	0.6%	0.0%	$ 4,954.68	$ 257,755.53	$ -	$ 262,710.21	1,130	56,231,585	0	$0.365497	$0.004584	
Unmetered Scattered Load	0.0%	0.0%	0.0%	$ 9,648.45	$ -	$ -	$ 9,648.45	21,729	0	0	$0.037003		
				$ 12,805,785.74	$ 9,642,647.89	$ 17,425,422.56	$ 39,873,856.20						
							-						

Enter the above rate riders onto "Sheet 14. Proposed Rate_Riders" in the 2012 OEB IRM3 Rate Generator as an "Rate Rider for Incremental Capital"

Calculation of Incremental Capital Rate Rider - Option B Variable

Rate Class	Total Revenue $ by Rate Class A	Total Revenue % by Rate Class B = A / $H	Total Incremental Capital $ by Rate Class C = $I * B	Billed kWh D	Billed kW E	Distribution Volumetric Rate kWh Rate Rider F = C / D	Distribution Volumetric Rate kW Rate Rider G = C / E
Residential	$204,720,003	38.77%	$15,459,636	4,886,977,489	0	$0.0032	
Residential Urban	$7,638,836	1.45%	$576,854	99,791,184	0	$0.0058	
General Service Less Than 50 kW	$67,255,470	12.74%	$5,078,864	2,139,318,076	0	$0.0024	
General Service 50 to 999 kW	$156,294,314	29.60%	$11,802,722	############	26,935,191		$0.4382
General Service 1,000 to 4,999 kW	$51,343,590	9.72%	$3,877,263	4,626,928,262	10,587,119		$0.3662
Large Use	$25,370,430	4.80%	$1,915,873	2,376,778,323	4,993,733		$0.3837
Street Lighting	$11,789,364	2.23%	$890,286	110,165,016	322,023		$2.7647
Unmetered Scattered Load	$3,478,868	0.66%	$262,710	56,231,585	0	$0.0047	
Unmetered Scattered Load	$127,767	0.02%	$9,648	0	0		
	$528,018,642	100.00%	$39,873,856				
	H		I				

Enter the above rate riders onto "Sheet 14. Proposed Rate_Riders" in the 2012 OEB IRM3 Rate Generator as an "Rate Rider for Incremental Capital"

ICM Values Calculation - 2013

	Capital Cost	Amort. Exp	CCA
01 Underground Infrastructure	58,942,371	1,914,501	4,715,390
02 Paper Insulated Lead Covered Cable - Piece Outs and Leakers	5,419,014	147,898	433,521
03 Handwell Replacement	16,650,488	416,262	1,332,039
04 Overhead Infrastructure	55,876,554	1,504,732	4,470,124
05 Box Construction	23,041,699	593,247	1,843,336
06 Rear Lot Construction	29,425,563	883,026	2,354,045
07 Polymer SMD - 20 Fuses	1,529,098	45,674	122,328
08 Scadamate R1 Switches	1,429,364	47,125	114,349
09 Network Vault & Roofs	18,760,753	622,764	1,500,860
10 Fibertop Network Units	7,711,050	370,465	616,884
11 Automatic Transfer Switches (ATS) % Reverse Power Breaker	3,263,232	146,567	261,059
12 Stations Power Transformers	3,482,290	108,923	278,289
13 Stations Switchgear	21,813,194	566,309	1,760,260
14 Stations Circuit Breakers	551,875	18,396	43,858
15 Stations Control & Communication Systems	1,000,375	66,692	200,075
16 Downtown Station Load Transfers	2,137,063	56,819	170,965
17 Bremner Transformer Station	81,000,000	2,054,162	4,800,313
18 Hydro One Capital Contributions	48,118,000	1,924,720	0
19 Feeder Automation	20,662,553	680,003	1,653,004
20 Wholesale and Smart Metering (Prorated)	5,288,397	246,909	423,072
20 Wholesale and Smart Metering	8,404,098	392,377	672,328
20 Wholesale and Smart Metering (Prorated)	3,115,701	145,468	249,256
21 Externally-Initiated Plant Relocations and Expansions	24,840,090	769,879	1,987,207
PCI Total	145,033,674	0	0
Total	579,092,397	13,330,541	29,330,234

Threshold CAPEX	$ **172,989,465**

	Capital Cost	Amort. Exp	CCA
Values Above Threshold for ICM Model	**406,102,932**	**12,415,194**	**27,093,771**
Threshold Values	**172,989,465**	**915,347**	**2,236,463**

Calculation of Incremental Capital Rate Adder - Option A Fixed and Variable

Rate Class	Service Charge Rate Adder K = D / H / 12	Distribution Volumetric Rate kWh Rate Adder L = E / I	Distribution Volumetric Rate kVA Rate Adder M = F / J	Service Charge Rate Adder (DOS)	Distribution Volumetric Rate kWh Rate Adder	Distribution Volumetric Rate kVA Rate Adder (DOS)
Residential	$1.378167	$0.001138		**$1.36**	**$0.00114**	
Residential Urban	$1.283772	$0.001937		**$1.27**	**$0.00194**	
General Service Less Than 50 kW	$1.835039	$0.001697		**$1.81**	**$0.00170**	
General Service 50 to 999 kW	$2.685349	$0.000000	$0.422557	**$2.65**		**$0.4168**
General Service 1,000 to 4,999 kW	$51.838714	$0.000000	$0.336024	**$51.13**		**$0.3314**
Large Use	$227.235953	$0.000000	$0.357991	**$224.12**		**$0.3531**
Street Lighting	$0.098171	$0.000000	$2.169182	**$0.10**		**$2.1395**
Unmetered Scattered Load	$0.365497	$0.004584		**$0.36**	**$0.00458**	
Unmetered Scattered Load	$0.037003			**$0.04**		

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

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TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	**Year**
C1 Underground Infrastructure	**2012**

Details of Project	**Number of Asset Components**
C1 Underground Infrastructure	14

	Asset Component (Click on the Number to View the Component Details)	**Capital Cost**	**Depreciation Rate**	**CCA Class**	**CCA Rate**
1	1830_Poles Towers and Fixtures	122,585	3%	47	8%
2	1835_Overhead Conductors and Devices	325,987	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	152,105	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	411,603	2%	47	8%
5	1840_Underground Conduit - Duct Bank	21,423,967	3%	47	8%
6	1840_Underground Conduit - Vault	395,387	3%	47	8%
7	1840_Underground Conduit - Vault Roof	9,568	5%	47	8%
8	1845_Underground Conductors and Devices	2,810,906	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	1,417,854	5%	47	8%
10	1850_Line Transformers - OH	11,957	3%	47	8%
11	1850_Line Transformers - UG	1,353,547	3%	47	8%
12	1860_Meters - Smart Meters	1,558	7%	47	8%
13	1855_Services - UG	311,529	3%	47	8%
14	1855_Services - OH	5,039	2%	47	8%

	2012	**2013**
Closing Net Fixed Asset	27,811,537	26,869,480
Amortization Expense	942,057	942,057
CCA	2,300,287	2,116,264

TORONTO HYDRO

Incremental Capital Project Summary

Fixed Asset Amortization and UCC 1

Return to Main Summary

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 122,585
Capital Investment		$ 122,585	$ -
Closing Capital Investment		$ 122,585	$ 122,585
Opening Accumulated Amortization		$ -	$ 3,065
Amortization	3%	$ 3,065	$ 3,065
Closing Accumulated Amortization		$ 3,065	$ 6,129
Opening Net Fixed Assets		$ -	$ 119,521
Closing Net Fixed Assets		$ 119,521	$ 116,456
Average Net Fixed Assets		$ 59,760	$ 117,988

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 112,778
Capital Additions		$ 122,585	$ -
UCC Before Half Year Rule		$ 122,585	$ 112,778
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 122,585	$ 112,778
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 9,807	$ 9,022
Closing UCC		$ 112,778	$ 103,756

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 325,987
Capital Investment		$ 325,987	$ -
Closing Capital Investment		$ 325,987	$ 325,987
Opening Accumulated Amortization		$ -	$ 6,520
Amortization	*2%*	$ 6,520	$ 6,520
Closing Accumulated Amortization		$ 6,520	$ 13,039
Opening Net Fixed Assets		$ -	$ 319,468
Closing Net Fixed Assets		$ 319,468	$ 312,948
Average Net Fixed Assets		$ 159,734	$ 316,208

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 299,908
Capital Additions		$ 325,987	$ -
UCC Before Half Year Rule		$ 325,987	$ 299,908
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 325,987	$ 299,908
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 26,079	$ 23,993
Closing UCC		$ 299,908	$ 275,916

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 152,105
Capital Investment		$ 152,105	$ -
Closing Capital Investment		$ 152,105	$ 152,105
Opening Accumulated Amortization		$ -	$ 5,070
Amortization	*3%*	$ 5,070	$ 5,070
Closing Accumulated Amortization		$ 5,070	$ 10,140
Opening Net Fixed Assets		$ -	$ 147,035
Closing Net Fixed Assets		$ 147,035	$ 141,965
Average Net Fixed Assets		$ 73,518	$ 144,500

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 139,937
Capital Additions		$ 152,105	$ -
UCC Before Half Year Rule		$ 152,105	$ 139,937
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 152,105	$ 139,937
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 12,168	$ 11,195
Closing UCC		$ 139,937	$ 128,742

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 411,603
Capital Investment		$ 411,603	$ -
Closing Capital Investment		$ 411,603	$ 411,603
Opening Accumulated Amortization		$ -	$ 8,232
Amortization	*2%*	$ 8,232	$ 8,232
Closing Accumulated Amortization		$ 8,232	$ 16,464
Opening Net Fixed Assets		$ -	$ 403,371
Closing Net Fixed Assets		$ 403,371	$ 395,139
Average Net Fixed Assets		$ 201,685	$ 399,255

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 378,675
Capital Additions		$ 411,603	$ -
UCC Before Half Year Rule		$ 411,603	$ 378,675
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 411,603	$ 378,675
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 32,928	$ 30,294
Closing UCC		$ 378,675	$ 348,381

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project
C1 Underground Infrastructure

Asset Component
1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 21,423,967
Capital Investment		$ 21,423,967	$ -
Closing Capital Investment		$ 21,423,967	$ 21,423,967
Opening Accumulated Amortization		$ -	$ 714,132
Amortization	*3%*	$ 714,132	$ 714,132
Closing Accumulated Amortization		$ 714,132	$ 1,428,264
Opening Net Fixed Assets		$ -	$ 20,709,835
Closing Net Fixed Assets		$ 20,709,835	$ 19,995,703
Average Net Fixed Assets		$ 10,354,918	$ 20,352,769

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 19,710,050
Capital Additions		$ 21,423,967	$ -
UCC Before Half Year Rule		$ 21,423,967	$ 19,710,050
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 21,423,967	$ 19,710,050
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 1,713,917	$ 1,576,804
Closing UCC		$ 19,710,050	$ 18,133,246

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 395,387
Capital Investment		$ 395,387	$ -
Closing Capital Investment		$ 395,387	$ 395,387
Opening Accumulated Amortization		$ -	$ 9,885
Amortization	*3%*	$ 9,885	$ 9,885
Closing Accumulated Amortization		$ 9,885	$ 19,769
Opening Net Fixed Assets		$ -	$ 385,503
Closing Net Fixed Assets		$ 385,503	$ 375,618
Average Net Fixed Assets		$ 192,751	$ 380,560

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 363,756
Capital Additions		$ 395,387	$ -
UCC Before Half Year Rule		$ 395,387	$ 363,756
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 395,387	$ 363,756
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 31,631	$ 29,100
Closing UCC		$ 363,756	$ 334,656

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 9,568
Capital Investment		$ 9,568	$ -
Closing Capital Investment		$ 9,568	$ 9,568
Opening Accumulated Amortization		$ -	$ 478
Amortization	5%	$ 478	$ 478
Closing Accumulated Amortization		$ 478	$ 957
Opening Net Fixed Assets		$ -	$ 9,089
Closing Net Fixed Assets		$ 9,089	$ 8,611
Average Net Fixed Assets		$ 4,545	$ 8,850

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 8,802
Capital Additions		$ 9,568	$ -
UCC Before Half Year Rule		$ 9,568	$ 8,802
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 9,568	$ 8,802
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 765	$ 704
Closing UCC		$ 8,802	$ 8,098

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project
C1 Underground Infrastructure

Asset Component
1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,810,906
Capital Investment		$ 2,810,906	$ -
Closing Capital Investment		$ 2,810,906	$ 2,810,906
Opening Accumulated Amortization		$ -	$ 70,273
Amortization	3%	$ 70,273	$ 70,273
Closing Accumulated Amortization		$ 70,273	$ 140,545
Opening Net Fixed Assets		$ -	$ 2,740,633
Closing Net Fixed Assets		$ 2,740,633	$ 2,670,360
Average Net Fixed Assets		$ 1,370,316	$ 2,705,497

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 2,586,033
Capital Additions		$ 2,810,906	$ -
UCC Before Half Year Rule		$ 2,810,906	$ 2,586,033
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,810,906	$ 2,586,033
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 224,872	$ 206,883
Closing UCC		$ 2,586,033	$ 2,379,150

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,417,854
Capital Investment		$ 1,417,854	$ -
Closing Capital Investment		$ 1,417,854	$ 1,417,854
Opening Accumulated Amortization		$ -	$ 70,893
Amortization	5%	$ 70,893	$ 70,893
Closing Accumulated Amortization		$ 70,893	$ 141,785
Opening Net Fixed Assets		$ -	$ 1,346,961
Closing Net Fixed Assets		$ 1,346,961	$ 1,276,068
Average Net Fixed Assets		$ 673,480	$ 1,311,515

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,304,425
Capital Additions		$ 1,417,854	$ -
UCC Before Half Year Rule		$ 1,417,854	$ 1,304,425
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,417,854	$ 1,304,425
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 113,428	$ 104,354
Closing UCC		$ 1,304,425	$ 1,200,071

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 11,957
Capital Investment		$ 11,957	$ -
Closing Capital Investment		$ 11,957	$ 11,957
Opening Accumulated Amortization		$ -	$ 399
Amortization	3%	$ 399	$ 399
Closing Accumulated Amortization		$ 399	$ 797
Opening Net Fixed Assets		$ -	$ 11,559
Closing Net Fixed Assets		$ 11,559	$ 11,160
Average Net Fixed Assets		$ 5,779	$ 11,359

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 11,001
Capital Additions		$ 11,957	$ -
UCC Before Half Year Rule		$ 11,957	$ 11,001
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 11,957	$ 11,001
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 957	$ 880
Closing UCC		$ 11,001	$ 10,121

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,353,547
Capital Investment		$ 1,353,547	$ -
Closing Capital Investment		$ 1,353,547	$ 1,353,547
Opening Accumulated Amortization		$ -	$ 45,118
Amortization	*3%*	$ 45,118	$ 45,118
Closing Accumulated Amortization		$ 45,118	$ 90,236
Opening Net Fixed Assets		$ -	$ 1,308,429
Closing Net Fixed Assets		$ 1,308,429	$ 1,263,310
Average Net Fixed Assets		$ 654,214	$ 1,285,870

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,245,263
Capital Additions		$ 1,353,547	$ -
UCC Before Half Year Rule		$ 1,353,547	$ 1,245,263
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,353,547	$ 1,245,263
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 108,284	$ 99,621
Closing UCC		$ 1,245,263	$ 1,145,642

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,558
Capital Investment		$ 1,558	$ -
Closing Capital Investment		$ 1,558	$ 1,558
Opening Accumulated Amortization		$ -	$ 104
Amortization	7%	$ 104	$ 104
Closing Accumulated Amortization		$ 104	$ 208
Opening Net Fixed Assets		$ -	$ 1,454
Closing Net Fixed Assets		$ 1,454	$ 1,350
Average Net Fixed Assets		$ 727	$ 1,402

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,433
Capital Additions		$ 1,558	$ -
UCC Before Half Year Rule		$ 1,558	$ 1,433
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,558	$ 1,433
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 125	$ 115
Closing UCC		$ 1,433	$ 1,319

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project
C1 Underground Infrastructure

Asset Component
1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 311,529
Capital Investment		$ 311,529	$ -
Closing Capital Investment		$ 311,529	$ 311,529
Opening Accumulated Amortization		$ -	$ 7,788
Amortization	3%	$ 7,788	$ 7,788
Closing Accumulated Amortization		$ 7,788	$ 15,576
Opening Net Fixed Assets		$ -	$ 303,741
Closing Net Fixed Assets		$ 303,741	$ 295,953
Average Net Fixed Assets		$ 151,871	$ 299,847

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 286,607
Capital Additions		$ 311,529	$ -
UCC Before Half Year Rule		$ 311,529	$ 286,607
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 311,529	$ 286,607
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 24,922	$ 22,929
Closing UCC		$ 286,607	$ 263,678

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 14

Name or General Description of Project
C1 Underground Infrastructure

Asset Component
1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 5,039
Capital Investment		$ 5,039	$ -
Closing Capital Investment		$ 5,039	$ 5,039
Opening Accumulated Amortization		$ -	$ 101
Amortization	*2%*	$ 101	$ 101
Closing Accumulated Amortization		$ 101	$ 202
Opening Net Fixed Assets		$ -	$ 4,939
Closing Net Fixed Assets		$ 4,939	$ 4,838
Average Net Fixed Assets		$ 2,469	$ 4,888

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 4,636
Capital Additions		$ 5,039	$ -
UCC Before Half Year Rule		$ 5,039	$ 4,636
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 5,039	$ 4,636
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 403	$ 371
Closing UCC		$ 4,636	$ 4,265

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C1 Underground Infrastructure	2013

Details of Project	Number of Asset Components
C1 Underground Infrastructure	14

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	402,061	3%	47	8%
2	1835_Overhead Conductors and Devices	388,921	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	762,053	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	813,301	2%	47	8%
5	1840_Underground Conduit - Duct Bank	38,382,445	3%	47	8%
6	1840_Underground Conduit - Vault	1,497,237	3%	47	8%
7	1840_Underground Conduit - Vault Roof	75,959	5%	47	8%
8	1845_Underground Conductors and Devices	9,597,074	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	3,796,569	5%	47	8%
10	1850_Line Transformers - OH	34,377	3%	47	8%
11	1850_Line Transformers - UG	2,826,536	3%	47	8%
12	1860_Meters - Smart Meters	7,197	7%	47	8%
13	1855_Services - UG	317,627	3%	47	8%
14	1855_Services - OH	41,013	2%	47	8%

	2013
Closing Net Fixed Asset	57,027,869
Amortization Expense	1,914,501
CCA	4,715,390

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 402,061
Closing Capital Investment		$ 402,061
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 10,052
Closing Accumulated Amortization		$ 10,052
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 392,010
Average Net Fixed Assets		$ 196,005

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 402,061
UCC Before Half Year Rule		$ 402,061
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 402,061
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 32,165
Closing UCC		$ 369,896

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 388,921
Closing Capital Investment		$ 388,921
Opening Accumulated Amortization		$ -
Amortization	*2%*	$ 7,778
Closing Accumulated Amortization		$ 7,778
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 381,143
Average Net Fixed Assets		$ 190,571

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 388,921
UCC Before Half Year Rule		$ 388,921
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 388,921
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 31,114
Closing UCC		$ 357,808

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 762,053
Closing Capital Investment		$ 762,053
Opening Accumulated Amortization		$ -
Amortization	3%	$ 25,402
Closing Accumulated Amortization		$ 25,402
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 736,652
Average Net Fixed Assets		$ 368,326

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 762,053
UCC Before Half Year Rule		$ 762,053
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 762,053
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 60,964
Closing UCC		$ 701,089

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 813,301
Closing Capital Investment		$ 813,301
Opening Accumulated Amortization		$ -
Amortization	2%	$ 16,266
Closing Accumulated Amortization		$ 16,266
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 797,035
Average Net Fixed Assets		$ 398,518

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 813,301
UCC Before Half Year Rule		$ 813,301
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 813,301
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 65,064
Closing UCC		$ 748,237

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 38,382,445
Closing Capital Investment		$ 38,382,445
Opening Accumulated Amortization		$ -
Amortization	3%	$ 1,279,415
Closing Accumulated Amortization		$ 1,279,415
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 37,103,030
Average Net Fixed Assets		$ 18,551,515

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 38,382,445
UCC Before Half Year Rule		$ 38,382,445
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 38,382,445
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 3,070,596
Closing UCC		$ 35,311,849

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,497,237
Closing Capital Investment		$ 1,497,237
Opening Accumulated Amortization		$ -
Amortization	3%	$ 37,431
Closing Accumulated Amortization		$ 37,431
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,459,806
Average Net Fixed Assets		$ 729,903

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,497,237
UCC Before Half Year Rule		$ 1,497,237
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,497,237
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 119,779
Closing UCC		$ 1,377,458

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 75,959
Closing Capital Investment		$ 75,959
Opening Accumulated Amortization		$ -
Amortization	5%	$ 3,798
Closing Accumulated Amortization		$ 3,798
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 72,161
Average Net Fixed Assets		$ 36,081

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 75,959
UCC Before Half Year Rule		$ 75,959
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 75,959
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 6,077
Closing UCC		$ 69,883

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 9,597,074
Closing Capital Investment		$ 9,597,074
Opening Accumulated Amortization		$ -
Amortization	3%	$ 239,927
Closing Accumulated Amortization		$ 239,927
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 9,357,148
Average Net Fixed Assets		$ 4,678,574

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 9,597,074
UCC Before Half Year Rule		$ 9,597,074
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 9,597,074
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 767,766
Closing UCC		$ 8,829,308

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,796,569
Closing Capital Investment		$ 3,796,569
Opening Accumulated Amortization		$ -
Amortization	5%	$ 189,828
Closing Accumulated Amortization		$ 189,828
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,606,741
Average Net Fixed Assets		$ 1,803,370

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,796,569
UCC Before Half Year Rule		$ 3,796,569
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,796,569
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 303,726
Closing UCC		$ 3,492,844

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 34,377
Closing Capital Investment		$ 34,377
Opening Accumulated Amortization		$ -
Amortization	3%	$ 1,146
Closing Accumulated Amortization		$ 1,146
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 33,231
Average Net Fixed Assets		$ 16,615

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 34,377
UCC Before Half Year Rule		$ 34,377
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 34,377
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 2,750
Closing UCC		$ 31,627

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,826,536
Closing Capital Investment		$ 2,826,536
Opening Accumulated Amortization		$ -
Amortization	3%	$ 94,218
Closing Accumulated Amortization		$ 94,218
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 2,732,318
Average Net Fixed Assets		$ 1,366,159

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,826,536
UCC Before Half Year Rule		$ 2,826,536
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,826,536
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 226,123
Closing UCC		$ 2,600,413

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project

C1 Underground Infrastructure

Asset Component

1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 7,197
Closing Capital Investment		$ 7,197
Opening Accumulated Amortization		$ -
Amortization	7%	$ 480
Closing Accumulated Amortization		$ 480
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 6,717
Average Net Fixed Assets		$ 3,358

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 7,197
UCC Before Half Year Rule		$ 7,197
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 7,197
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 576
Closing UCC		$ 6,621

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project
C1 Underground Infrastructure

Asset Component
1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 317,627
Closing Capital Investment		$ 317,627
Opening Accumulated Amortization		$ -
Amortization	3%	$ 7,941
Closing Accumulated Amortization		$ 7,941
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 309,687
Average Net Fixed Assets		$ 154,843

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 317,627
UCC Before Half Year Rule		$ 317,627
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 317,627
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 25,410
Closing UCC		$ 292,217

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 14

Name or General Description of Project
C1 Underground Infrastructure

Asset Component
1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 41,013
Closing Capital Investment		$ 41,013
Opening Accumulated Amortization		$ -
Amortization	2%	$ 820
Closing Accumulated Amortization		$ 820
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 40,192
Average Net Fixed Assets		$ 20,096

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 41,013
UCC Before Half Year Rule		$ 41,013
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 41,013
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 3,281
Closing UCC		$ 37,732

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers	2012

Details of Project	Number of Asset Components
C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers	1

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1845_Underground Conductors and Devices	80,959	3%	47	8%

	2012	2013
Closing Net Fixed Asset	78,935	76,911
Amortization Expense	2,024	2,024
CCA	6,477	5,959

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 80,959
Capital Investment		$ 80,959	$ -
Closing Capital Investment		$ 80,959	$ 80,959
Opening Accumulated Amortization		$ -	$ 2,024
Amortization	3%	$ 2,024	$ 2,024
Closing Accumulated Amortization		$ 2,024	$ 4,048
Opening Net Fixed Assets		$ -	$ 78,935
Closing Net Fixed Assets		$ 78,935	$ 76,911
Average Net Fixed Assets		$ 39,468	$ 77,923

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 74,483
Capital Additions		$ 80,959	$ -
UCC Before Half Year Rule		$ 80,959	$ 74,483
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 80,959	$ 74,483
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 6,477	$ 5,959
Closing UCC		$ 74,483	$ 68,524

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers	**2013**

Details of Project	Number of Asset Components
C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers	7

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1840_Underground Conduit - Cable Chamber	209,069	2%	47	8%
2	1840_Underground Conduit - Duct Bank	1,599,888	3%	47	8%
3	1840_Underground Conduit - Vault	7,945	3%	47	8%
4	1840_Underground Conduit - Vault Roof	3,539	5%	47	8%
5	1845_Underground Conductors and Devices	3,595,225	3%	47	8%
6	1845_Underground Conductors and Devices - Switch	1,889	5%	47	8%
7	1855_Services - UG	1,460	3%	47	8%

	2013
Closing Net Fixed Asset	5,271,116
Amortization Expense	147,898
CCA	433,521

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 209,069
Closing Capital Investment		$ 209,069
Opening Accumulated Amortization		$ -
Amortization	2%	$ 4,181
Closing Accumulated Amortization		$ 4,181
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 204,887
Average Net Fixed Assets		$ 102,444

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 209,069
UCC Before Half Year Rule		$ 209,069
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 209,069
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 16,726
Closing UCC		$ 192,343

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,599,888
Closing Capital Investment		$ 1,599,888
Opening Accumulated Amortization		$ -
Amortization	3%	$ 53,330
Closing Accumulated Amortization		$ 53,330
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,546,558
Average Net Fixed Assets		$ 773,279

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,599,888
UCC Before Half Year Rule		$ 1,599,888
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,599,888
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 127,991
Closing UCC		$ 1,471,897

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 7,945
Closing Capital Investment		$ 7,945
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 199
Closing Accumulated Amortization		$ 199
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 7,746
Average Net Fixed Assets		$ 3,873

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 7,945
UCC Before Half Year Rule		$ 7,945
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 7,945
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 636
Closing UCC		$ 7,309

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers

Asset Component

1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,539
Closing Capital Investment		$ 3,539
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 177
Closing Accumulated Amortization		$ 177
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,362
Average Net Fixed Assets		$ 1,681

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,539
UCC Before Half Year Rule		$ 3,539
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,539
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 283
Closing UCC		$ 3,256

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,595,225
Closing Capital Investment		$ 3,595,225
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 89,881
Closing Accumulated Amortization		$ 89,881
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,505,344
Average Net Fixed Assets		$ 1,752,672

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,595,225
UCC Before Half Year Rule		$ 3,595,225
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,595,225
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 287,618
Closing UCC		$ 3,307,607

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project
C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers

Asset Component
1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,889
Closing Capital Investment		$ 1,889
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 94
Closing Accumulated Amortization		$ 94
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,795
Average Net Fixed Assets		$ 897

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,889
UCC Before Half Year Rule		$ 1,889
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,889
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 151
Closing UCC		$ 1,738

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,460
Closing Capital Investment		$ 1,460
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 36
Closing Accumulated Amortization		$ 36
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,423
Average Net Fixed Assets		$ 712

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,460
UCC Before Half Year Rule		$ 1,460
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,460
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 117
Closing UCC		$ 1,343

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C3 Handwell Replacement	2012

Details of Project	Number of Asset Components
C3 Handwell Replacement	1

Asset Component (Click on the Number to View the Component Details)		Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	13,651,577	3%	47	8%

	2012	2013
Closing Net Fixed Asset	13,310,288	12,968,998
Amortization Expense	341,289	341,289
CCA	1,092,126	1,004,756

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C3 Handwell Replacement

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 13,651,577
Capital Investment		$ 13,651,577	$ -
Closing Capital Investment		$ 13,651,577	$ 13,651,577
Opening Accumulated Amortization		$ -	$ 341,289
Amortization	*3%*	$ 341,289	$ 341,289
Closing Accumulated Amortization		$ 341,289	$ 682,579
Opening Net Fixed Assets		$ -	$ 13,310,288
Closing Net Fixed Assets		$ 13,310,288	$ 12,968,998
Average Net Fixed Assets		$ 6,655,144	$ 13,139,643

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 12,559,451
Capital Additions		$ 13,651,577	$ -
UCC Before Half Year Rule		$ 13,651,577	$ 12,559,451
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 13,651,577	$ 12,559,451
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 1,092,126	$ 1,004,756
Closing UCC		$ 12,559,451	$ 11,554,695

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project

C3 Handwell Replacement

Year

2013

Details of Project

C3 Handwell Replacement

Number of Asset Components

1

Asset Component (Click on the Number to View the Component Details)		Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	16,650,488	3%	47	8%

	2013
Closing Net Fixed Asset	16,234,226
Amortization Expense	416,262
CCA	1,332,039

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C3 Handwell Replacement

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 16,650,488
Closing Capital Investment		$ 16,650,488
Opening Accumulated Amortization		$ -
Amortization	3%	$ 416,262
Closing Accumulated Amortization		$ 416,262
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 16,234,226
Average Net Fixed Assets		$ 8,117,113

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 16,650,488
UCC Before Half Year Rule		$ 16,650,488
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 16,650,488
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 1,332,039
Closing UCC		$ 15,318,449

CONCERNING 2014 INFORMATION

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TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project

C4 Overhead Infrastructure

Year

2012

Details of Project

C4 Overhead Infrastructure

Number of Asset Components

14

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	2,437,691	3%	47	8%
2	1835_Overhead Conductors and Devices	2,086,837	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	1,033,849	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	173	2%	47	8%
5	1840_Underground Conduit - Duct Bank	51,860	3%	47	8%
6	1840_Underground Conduit - Vault	1,537	3%	47	8%
7	1840_Underground Conduit - Vault Roof	173	5%	47	8%
8	1845_Underground Conductors and Devices	973,508	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	64,133	5%	47	8%
10	1850_Line Transformers - OH	1,760,540	3%	47	8%
11	1850_Line Transformers - UG	24,057	3%	47	8%
12	1860_Meters - Smart Meters	2,165	7%	47	8%
13	1855_Services - UG	623	3%	47	8%
14	1855_Services - OH	633,741	2%	47	8%

	2012	2013
Closing Net Fixed Asset	8,832,102	8,593,317
Amortization Expense	238,786	238,786
CCA	725,671	667,617

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,437,691
Capital Investment		$ 2,437,691	$ -
Closing Capital Investment		$ 2,437,691	$ 2,437,691
Opening Accumulated Amortization		$ -	$ 60,942
Amortization	*3%*	$ 60,942	$ 60,942
Closing Accumulated Amortization		$ 60,942	$ 121,885
Opening Net Fixed Assets		$ -	$ 2,376,749
Closing Net Fixed Assets		$ 2,376,749	$ 2,315,806
Average Net Fixed Assets		$ 1,188,374	$ 2,346,278

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 2,242,676
Capital Additions		$ 2,437,691	$ -
UCC Before Half Year Rule		$ 2,437,691	$ 2,242,676
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,437,691	$ 2,242,676
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 195,015	$ 179,414
Closing UCC		$ 2,242,676	$ 2,063,262

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,086,837
Capital Investment		$ 2,086,837	$ -
Closing Capital Investment		$ 2,086,837	$ 2,086,837
Opening Accumulated Amortization		$ -	$ 41,737
Amortization	*2%*	$ 41,737	$ 41,737
Closing Accumulated Amortization		$ 41,737	$ 83,473
Opening Net Fixed Assets		$ -	$ 2,045,101
Closing Net Fixed Assets		$ 2,045,101	$ 2,003,364
Average Net Fixed Assets		$ 1,022,550	$ 2,024,232

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,919,890
Capital Additions		$ 2,086,837	$ -
UCC Before Half Year Rule		$ 2,086,837	$ 1,919,890
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,086,837	$ 1,919,890
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 166,947	$ 153,591
Closing UCC		$ 1,919,890	$ 1,766,299

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,033,849
Capital Investment		$ 1,033,849	$ -
Closing Capital Investment		$ 1,033,849	$ 1,033,849
Opening Accumulated Amortization		$ -	$ 34,462
Amortization	3%	$ 34,462	$ 34,462
Closing Accumulated Amortization		$ 34,462	$ 68,923
Opening Net Fixed Assets		$ -	$ 999,388
Closing Net Fixed Assets		$ 999,388	$ 964,926
Average Net Fixed Assets		$ 499,694	$ 982,157

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 951,141
Capital Additions		$ 1,033,849	$ -
UCC Before Half Year Rule		$ 1,033,849	$ 951,141
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,033,849	$ 951,141
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 82,708	$ 76,091
Closing UCC		$ 951,141	$ 875,050

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 173
Capital Investment		$ 173	$ -
Closing Capital Investment		$ 173	$ 173
Opening Accumulated Amortization		$ -	$ 3
Amortization	*2%*	$ 3	$ 3
Closing Accumulated Amortization		$ 3	$ 7
Opening Net Fixed Assets		$ -	$ 170
Closing Net Fixed Assets		$ 170	$ 166
Average Net Fixed Assets		$ 85	$ 168

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 159
Capital Additions		$ 173	$ -
UCC Before Half Year Rule		$ 173	$ 159
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 173	$ 159
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 14	$ 13
Closing UCC		$ 159	$ 147

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 51,860
Capital Investment		$ 51,860	$ -
Closing Capital Investment		$ 51,860	$ 51,860
Opening Accumulated Amortization		$ -	$ 1,729
Amortization	*3%*	$ 1,729	$ 1,729
Closing Accumulated Amortization		$ 1,729	$ 3,457
Opening Net Fixed Assets		$ -	$ 50,131
Closing Net Fixed Assets		$ 50,131	$ 48,402
Average Net Fixed Assets		$ 25,066	$ 49,267

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 47,711
Capital Additions		$ 51,860	$ -
UCC Before Half Year Rule		$ 51,860	$ 47,711
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 51,860	$ 47,711
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 4,149	$ 3,817
Closing UCC		$ 47,711	$ 43,894

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,537
Capital Investment		$ 1,537	$ -
Closing Capital Investment		$ 1,537	$ 1,537
Opening Accumulated Amortization		$ -	$ 38
Amortization	*3%*	$ 38	$ 38
Closing Accumulated Amortization		$ 38	$ 77
Opening Net Fixed Assets		$ -	$ 1,499
Closing Net Fixed Assets		$ 1,499	$ 1,460
Average Net Fixed Assets		$ 749	$ 1,480

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,414
Capital Additions		$ 1,537	$ -
UCC Before Half Year Rule		$ 1,537	$ 1,414
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,537	$ 1,414
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 123	$ 113
Closing UCC		$ 1,414	$ 1,301

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 173
Capital Investment		$ 173	$ -
Closing Capital Investment		$ 173	$ 173
Opening Accumulated Amortization		$ -	$ 9
Amortization	*5%*	$ 9	$ 9
Closing Accumulated Amortization		$ 9	$ 17
Opening Net Fixed Assets		$ -	$ 164
Closing Net Fixed Assets		$ 164	$ 156
Average Net Fixed Assets		$ 82	$ 160

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 159
Capital Additions		$ 173	$ -
UCC Before Half Year Rule		$ 173	$ 159
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 173	$ 159
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 14	$ 13
Closing UCC		$ 159	$ 147

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 973,508
Capital Investment		$ 973,508	$ -
Closing Capital Investment		$ 973,508	$ 973,508
Opening Accumulated Amortization		$ -	$ 24,338
Amortization	3%	$ 24,338	$ 24,338
Closing Accumulated Amortization		$ 24,338	$ 48,675
Opening Net Fixed Assets		$ -	$ 949,171
Closing Net Fixed Assets		$ 949,171	$ 924,833
Average Net Fixed Assets		$ 474,585	$ 937,002

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 895,628
Capital Additions		$ 973,508	$ -
UCC Before Half Year Rule		$ 973,508	$ 895,628
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 973,508	$ 895,628
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 77,881	$ 71,650
Closing UCC		$ 895,628	$ 823,977

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 64,133
Capital Investment		$ 64,133	$ -
Closing Capital Investment		$ 64,133	$ 64,133
Opening Accumulated Amortization		$ -	$ 3,207
Amortization	*5%*	$ 3,207	$ 3,207
Closing Accumulated Amortization		$ 3,207	$ 6,413
Opening Net Fixed Assets		$ -	$ 60,926
Closing Net Fixed Assets		$ 60,926	$ 57,719
Average Net Fixed Assets		$ 30,463	$ 59,323

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 59,002
Capital Additions		$ 64,133	$ -
UCC Before Half Year Rule		$ 64,133	$ 59,002
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 64,133	$ 59,002
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 5,131	$ 4,720
Closing UCC		$ 59,002	$ 54,282

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,760,540
Capital Investment		$ 1,760,540	$ -
Closing Capital Investment		$ 1,760,540	$ 1,760,540
Opening Accumulated Amortization		$ -	$ 58,685
Amortization	3%	$ 58,685	$ 58,685
Closing Accumulated Amortization		$ 58,685	$ 117,369
Opening Net Fixed Assets		$ -	$ 1,701,856
Closing Net Fixed Assets		$ 1,701,856	$ 1,643,171
Average Net Fixed Assets		$ 850,928	$ 1,672,513

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,619,697
Capital Additions		$ 1,760,540	$ -
UCC Before Half Year Rule		$ 1,760,540	$ 1,619,697
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,760,540	$ 1,619,697
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 140,843	$ 129,576
Closing UCC		$ 1,619,697	$ 1,490,121

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 24,057
Capital Investment		$ 24,057	$ -
Closing Capital Investment		$ 24,057	$ 24,057
Opening Accumulated Amortization		$ -	$ 802
Amortization	3%	$ 802	$ 802
Closing Accumulated Amortization		$ 802	$ 1,604
Opening Net Fixed Assets		$ -	$ 23,255
Closing Net Fixed Assets		$ 23,255	$ 22,453
Average Net Fixed Assets		$ 11,627	$ 22,854

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 22,132
Capital Additions		$ 24,057	$ -
UCC Before Half Year Rule		$ 24,057	$ 22,132
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 24,057	$ 22,132
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 1,925	$ 1,771
Closing UCC		$ 22,132	$ 20,361

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,165
Capital Investment		$ 2,165	$ -
Closing Capital Investment		$ 2,165	$ 2,165
Opening Accumulated Amortization		$ -	$ 144
Amortization	7%	$ 144	$ 144
Closing Accumulated Amortization		$ 144	$ 289
Opening Net Fixed Assets		$ -	$ 2,021
Closing Net Fixed Assets		$ 2,021	$ 1,877
Average Net Fixed Assets		$ 1,010	$ 1,949

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,992
Capital Additions		$ 2,165	$ -
UCC Before Half Year Rule		$ 2,165	$ 1,992
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,165	$ 1,992
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 173	$ 159
Closing UCC		$ 1,992	$ 1,833

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 623
Capital Investment		$ 623	$ -
Closing Capital Investment		$ 623	$ 623
Opening Accumulated Amortization		$ -	$ 16
Amortization	*3%*	$ 16	$ 16
Closing Accumulated Amortization		$ 16	$ 31
Opening Net Fixed Assets		$ -	$ 608
Closing Net Fixed Assets		$ 608	$ 592
Average Net Fixed Assets		$ 304	$ 600

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 573
Capital Additions		$ 623	$ -
UCC Before Half Year Rule		$ 623	$ 573
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 623	$ 573
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 50	$ 46
Closing UCC		$ 573	$ 528

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 14

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 633,741
Capital Investment		$ 633,741	$ -
Closing Capital Investment		$ 633,741	$ 633,741
Opening Accumulated Amortization		$ -	$ 12,675
Amortization	*2%*	$ 12,675	$ 12,675
Closing Accumulated Amortization		$ 12,675	$ 25,350
Opening Net Fixed Assets		$ -	$ 621,066
Closing Net Fixed Assets		$ 621,066	$ 608,391
Average Net Fixed Assets		$ 310,533	$ 614,728

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 583,041
Capital Additions		$ 633,741	$ -
UCC Before Half Year Rule		$ 633,741	$ 583,041
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 633,741	$ 583,041
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 50,699	$ 46,643
Closing UCC		$ 583,041	$ 536,398

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project

C4 Overhead Infrastructure

Year

2013

Details of Project

C4 Overhead Infrastructure

Number of Asset Components

14

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	17,785,992	3%	47	8%
2	1835_Overhead Conductors and Devices	14,700,767	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	5,644,928	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	4,721	2%	47	8%
5	1840_Underground Conduit - Duct Bank	1,446,082	3%	47	8%
6	1840_Underground Conduit - Vault	31,869	3%	47	8%
7	1840_Underground Conduit - Vault Roof	1,862	5%	47	8%
8	1845_Underground Conductors and Devices	677,259	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	238,069	5%	47	8%
10	1850_Line Transformers - OH	12,795,144	3%	47	8%
11	1850_Line Transformers - UG	1,037,522	3%	47	8%
12	1860_Meters - Smart Meters	171,508	7%	47	8%
13	1855_Services - UG	108,362	3%	47	8%
14	1855_Services - OH	1,232,470	2%	47	8%

	2013
Closing Net Fixed Asset	54,371,822
Amortization Expense	1,504,732
CCA	4,470,124

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 17,785,992
Closing Capital Investment		$ 17,785,992
Opening Accumulated Amortization		$ -
Amortization	3%	$ 444,650
Closing Accumulated Amortization		$ 444,650
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 17,341,342
Average Net Fixed Assets		$ 8,670,671

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 17,785,992
UCC Before Half Year Rule		$ 17,785,992
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 17,785,992
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 1,422,879
Closing UCC		$ 16,363,112

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 14,700,767
Closing Capital Investment		$ 14,700,767
Opening Accumulated Amortization		$ -
Amortization	*2%*	$ 294,015
Closing Accumulated Amortization		$ 294,015
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 14,406,752
Average Net Fixed Assets		$ 7,203,376

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 14,700,767
UCC Before Half Year Rule		$ 14,700,767
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 14,700,767
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 1,176,061
Closing UCC		$ 13,524,706

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 5,644,928
Closing Capital Investment		$ 5,644,928
Opening Accumulated Amortization		$ -
Amortization	3%	$ 188,164
Closing Accumulated Amortization		$ 188,164
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 5,456,764
Average Net Fixed Assets		$ 2,728,382

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 5,644,928
UCC Before Half Year Rule		$ 5,644,928
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 5,644,928
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 451,594
Closing UCC		$ 5,193,334

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 4,721
Closing Capital Investment		$ 4,721
Opening Accumulated Amortization		$ -
Amortization	2%	$ 94
Closing Accumulated Amortization		$ 94
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 4,626
Average Net Fixed Assets		$ 2,313

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 4,721
UCC Before Half Year Rule		$ 4,721
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 4,721
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 378
Closing UCC		$ 4,343

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,446,082
Closing Capital Investment		$ 1,446,082
Opening Accumulated Amortization		$ -
Amortization	3%	$ 48,203
Closing Accumulated Amortization		$ 48,203
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,397,879
Average Net Fixed Assets		$ 698,940

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,446,082
UCC Before Half Year Rule		$ 1,446,082
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,446,082
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 115,687
Closing UCC		$ 1,330,395

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project
C4 Overhead Infrastructure

Asset Component
1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 31,869
Closing Capital Investment		$ 31,869
Opening Accumulated Amortization		$ -
Amortization	3%	$ 797
Closing Accumulated Amortization		$ 797
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 31,072
Average Net Fixed Assets		$ 15,536

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 31,869
UCC Before Half Year Rule		$ 31,869
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 31,869
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 2,550
Closing UCC		$ 29,319

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,862
Closing Capital Investment		$ 1,862
Opening Accumulated Amortization		$ -
Amortization	5%	$ 93
Closing Accumulated Amortization		$ 93
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,769
Average Net Fixed Assets		$ 884

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,862
UCC Before Half Year Rule		$ 1,862
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,862
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 149
Closing UCC		$ 1,713

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 677,259
Closing Capital Investment		$ 677,259
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 16,931
Closing Accumulated Amortization		$ 16,931
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 660,328
Average Net Fixed Assets		$ 330,164

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 677,259
UCC Before Half Year Rule		$ 677,259
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 677,259
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 54,181
Closing UCC		$ 623,078

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 238,069
Closing Capital Investment		$ 238,069
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 11,903
Closing Accumulated Amortization		$ 11,903
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 226,165
Average Net Fixed Assets		$ 113,083

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 238,069
UCC Before Half Year Rule		$ 238,069
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 238,069
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 19,045
Closing UCC		$ 219,023

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 12,795,144
Closing Capital Investment		$ 12,795,144
Opening Accumulated Amortization		$ -
Amortization	3%	$ 426,505
Closing Accumulated Amortization		$ 426,505
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 12,368,639
Average Net Fixed Assets		$ 6,184,320

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 12,795,144
UCC Before Half Year Rule		$ 12,795,144
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 12,795,144
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 1,023,612
Closing UCC		$ 11,771,533

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C4 Overhead Infrastructure

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,037,522
Closing Capital Investment		$ 1,037,522
Opening Accumulated Amortization		$ -
Amortization	3%	$ 34,584
Closing Accumulated Amortization		$ 34,584
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,002,938
Average Net Fixed Assets		$ 501,469

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,037,522
UCC Before Half Year Rule		$ 1,037,522
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,037,522
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 83,002
Closing UCC		$ 954,520

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project
C4 Overhead Infrastructure

Asset Component
1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 171,508
Closing Capital Investment		$ 171,508
Opening Accumulated Amortization		$ -
Amortization	7%	$ 11,434
Closing Accumulated Amortization		$ 11,434
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 160,075
Average Net Fixed Assets		$ 80,037

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 171,508
UCC Before Half Year Rule		$ 171,508
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 171,508
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 13,721
Closing UCC		$ 157,788

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project
C4 Overhead Infrastructure

Asset Component
1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 108,362
Closing Capital Investment		$ 108,362
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 2,709
Closing Accumulated Amortization		$ 2,709
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 105,653
Average Net Fixed Assets		$ 52,826

For PILs Calculation

UCC		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 108,362
UCC Before Half Year Rule		$ 108,362
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 108,362
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 8,669
Closing UCC		$ 99,693

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 14

Name or General Description of Project
C4 Overhead Infrastructure

Asset Component
1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,232,470
Closing Capital Investment		$ 1,232,470
Opening Accumulated Amortization		$ -
Amortization	2%	$ 24,649
Closing Accumulated Amortization		$ 24,649
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,207,820
Average Net Fixed Assets		$ 603,910

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,232,470
UCC Before Half Year Rule		$ 1,232,470
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,232,470
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 98,598
Closing UCC		$ 1,133,872

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C5 Box Construction	2012

Details of Project	Number of Asset Components
C5 Box Construction	11

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	125,548	3%	47	8%
2	1835_Overhead Conductors and Devices	149,423	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	23,980	3%	47	8%
4	1840_Underground Conduit - Duct Bank	2,762	3%	47	8%
5	1845_Underground Conductors and Devices	30,198	3%	47	8%
6	1845_Underground Conductors and Devices - Switch	7,200	5%	47	8%
7	1850_Line Transformers - OH	124,926	3%	47	8%
8	1850_Line Transformers - UG	5,669	3%	47	8%
9	1860_Meters - Smart Meters	374	7%	47	8%
10	1855_Services - UG	107	3%	47	8%
11	1855_Services - OH	112,796	2%	47	8%

	2012	2013
Closing Net Fixed Asset	568,213	553,443
Amortization Expense	14,770	14,770
CCA	46,639	42,908

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C5 Box Construction

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 125,548
Capital Investment		$ 125,548	$ -
Closing Capital Investment		$ 125,548	$ 125,548
Opening Accumulated Amortization		$ -	$ 3,139
Amortization	3%	$ 3,139	$ 3,139
Closing Accumulated Amortization		$ 3,139	$ 6,277
Opening Net Fixed Assets		$ -	$ 122,409
Closing Net Fixed Assets		$ 122,409	$ 119,270
Average Net Fixed Assets		$ 61,204	$ 120,840

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 115,504
Capital Additions		$ 125,548	$ -
UCC Before Half Year Rule		$ 125,548	$ 115,504
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 125,548	$ 115,504
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 10,044	$ 9,240
Closing UCC		$ 115,504	$ 106,264

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C5 Box Construction

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 149,423
Capital Investment		$ 149,423	$ -
Closing Capital Investment		$ 149,423	$ 149,423
Opening Accumulated Amortization		$ -	$ 2,988
Amortization	*2%*	$ 2,988	$ 2,988
Closing Accumulated Amortization		$ 2,988	$ 5,977
Opening Net Fixed Assets		$ -	$ 146,434
Closing Net Fixed Assets		$ 146,434	$ 143,446
Average Net Fixed Assets		$ 73,217	$ 144,940

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 137,469
Capital Additions		$ 149,423	$ -
UCC Before Half Year Rule		$ 149,423	$ 137,469
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 149,423	$ 137,469
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 11,954	$ 10,998
Closing UCC		$ 137,469	$ 126,471

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C5 Box Construction

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 23,980
Capital Investment		$ 23,980	$ -
Closing Capital Investment		$ 23,980	$ 23,980
Opening Accumulated Amortization		$ -	$ 799
Amortization	*3%*	$ 799	$ 799
Closing Accumulated Amortization		$ 799	$ 1,599
Opening Net Fixed Assets		$ -	$ 23,181
Closing Net Fixed Assets		$ 23,181	$ 22,381
Average Net Fixed Assets		$ 11,590	$ 22,781

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 22,062
Capital Additions		$ 23,980	$ -
UCC Before Half Year Rule		$ 23,980	$ 22,062
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 23,980	$ 22,062
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 1,918	$ 1,765
Closing UCC		$ 22,062	$ 20,297

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C5 Box Construction

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,762
Capital Investment		$ 2,762	$ -
Closing Capital Investment		$ 2,762	$ 2,762
Opening Accumulated Amortization		$ -	$ 92
Amortization	*3%*	$ 92	$ 92
Closing Accumulated Amortization		$ 92	$ 184
Opening Net Fixed Assets		$ -	$ 2,670
Closing Net Fixed Assets		$ 2,670	$ 2,578
Average Net Fixed Assets		$ 1,335	$ 2,624

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 2,541
Capital Additions		$ 2,762	$ -
UCC Before Half Year Rule		$ 2,762	$ 2,541
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,762	$ 2,541
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 221	$ 203
Closing UCC		$ 2,541	$ 2,338

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project
C5 Box Construction

Asset Component
1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 30,198
Capital Investment		$ 30,198	$ -
Closing Capital Investment		$ 30,198	$ 30,198
Opening Accumulated Amortization		$ -	$ 755
Amortization	*3%*	$ 755	$ 755
Closing Accumulated Amortization		$ 755	$ 1,510
Opening Net Fixed Assets		$ -	$ 29,444
Closing Net Fixed Assets		$ 29,444	$ 28,689
Average Net Fixed Assets		$ 14,722	$ 29,066

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 27,783
Capital Additions		$ 30,198	$ -
UCC Before Half Year Rule		$ 30,198	$ 27,783
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 30,198	$ 27,783
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 2,416	$ 2,223
Closing UCC		$ 27,783	$ 25,560

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C5 Box Construction

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 7,200
Capital Investment		$ 7,200	$ -
Closing Capital Investment		$ 7,200	$ 7,200
Opening Accumulated Amortization		$ -	$ 360
Amortization	*5%*	$ 360	$ 360
Closing Accumulated Amortization		$ 360	$ 720
Opening Net Fixed Assets		$ -	$ 6,840
Closing Net Fixed Assets		$ 6,840	$ 6,480
Average Net Fixed Assets		$ 3,420	$ 6,660

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 6,624
Capital Additions		$ 7,200	$ -
UCC Before Half Year Rule		$ 7,200	$ 6,624
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 7,200	$ 6,624
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 576	$ 530
Closing UCC		$ 6,624	$ 6,094

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C5 Box Construction

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 124,926
Capital Investment		$ 124,926	$ -
Closing Capital Investment		$ 124,926	$ 124,926
Opening Accumulated Amortization		$ -	$ 4,164
Amortization	*3%*	$ 4,164	$ 4,164
Closing Accumulated Amortization		$ 4,164	$ 8,328
Opening Net Fixed Assets		$ -	$ 120,762
Closing Net Fixed Assets		$ 120,762	$ 116,598
Average Net Fixed Assets		$ 60,381	$ 118,680

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 114,932
Capital Additions		$ 124,926	$ -
UCC Before Half Year Rule		$ 124,926	$ 114,932
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 124,926	$ 114,932
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 9,994	$ 9,195
Closing UCC		$ 114,932	$ 105,737

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C5 Box Construction

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 5,669
Capital Investment		$ 5,669	$ -
Closing Capital Investment		$ 5,669	$ 5,669
Opening Accumulated Amortization		$ -	$ 189
Amortization	3%	$ 189	$ 189
Closing Accumulated Amortization		$ 189	$ 378
Opening Net Fixed Assets		$ -	$ 5,480
Closing Net Fixed Assets		$ 5,480	$ 5,291
Average Net Fixed Assets		$ 2,740	$ 5,386

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 5,216
Capital Additions		$ 5,669	$ -
UCC Before Half Year Rule		$ 5,669	$ 5,216
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 5,669	$ 5,216
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 454	$ 417
Closing UCC		$ 5,216	$ 4,799

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C5 Box Construction

Asset Component

1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 374
Capital Investment		$ 374	$ -
Closing Capital Investment		$ 374	$ 374
Opening Accumulated Amortization		$ -	$ 25
Amortization	7%	$ 25	$ 25
Closing Accumulated Amortization		$ 25	$ 50
Opening Net Fixed Assets		$ -	$ 349
Closing Net Fixed Assets		$ 349	$ 324
Average Net Fixed Assets		$ 175	$ 337

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 344
Capital Additions		$ 374	$ -
UCC Before Half Year Rule		$ 374	$ 344
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 374	$ 344
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 30	$ 28
Closing UCC		$ 344	$ 317

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project
C5 Box Construction

Asset Component
1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 107
Capital Investment		$ 107	$ -
Closing Capital Investment		$ 107	$ 107
Opening Accumulated Amortization		$ -	$ 3
Amortization	3%	$ 3	$ 3
Closing Accumulated Amortization		$ 3	$ 5
Opening Net Fixed Assets		$ -	$ 105
Closing Net Fixed Assets		$ 105	$ 102
Average Net Fixed Assets		$ 52	$ 103

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 99
Capital Additions		$ 107	$ -
UCC Before Half Year Rule		$ 107	$ 99
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 107	$ 99
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 9	$ 8
Closing UCC		$ 99	$ 91

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project
C5 Box Construction

Asset Component
1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 112,796
Capital Investment		$ 112,796	$ -
Closing Capital Investment		$ 112,796	$ 112,796
Opening Accumulated Amortization		$ -	$ 2,256
Amortization	*2%*	$ 2,256	$ 2,256
Closing Accumulated Amortization		$ 2,256	$ 4,512
Opening Net Fixed Assets		$ -	$ 110,540
Closing Net Fixed Assets		$ 110,540	$ 108,284
Average Net Fixed Assets		$ 55,270	$ 109,412

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 103,772
Capital Additions		$ 112,796	$ -
UCC Before Half Year Rule		$ 112,796	$ 103,772
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 112,796	$ 103,772
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 9,024	$ 8,302
Closing UCC		$ 103,772	$ 95,470

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C5 Box Construction	**2013**

Details of Project	Number of Asset Components
C5 Box Construction	15

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	4,921,766	3%	47	8%
2	1835_Overhead Conductors and Devices	4,973,736	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	1,242,095	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	1,094,417	2%	47	8%
5	1840_Underground Conduit - Duct Bank	307,118	3%	47	8%
6	1840_Underground Conduit - Vault	38,531	3%	47	8%
7	1840_Underground Conduit - Vault Roof	23,872	5%	47	8%
8	1845_Underground Conductors and Devices	3,199,658	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	249,649	5%	47	8%
10	1850_Line Transformers - OH	3,796,782	3%	47	8%
11	1850_Line Transformers - UG	498,616	3%	47	8%
12	1850_Line Transformers - UG Network w/protector	115,671	5%	47	8%
13	1860_Meters - Smart Meters	28,696	7%	47	8%
14	1855_Services - UG	133,954	3%	47	8%
15	1855_Services - OH	2,417,137	2%	47	8%

	2013
Closing Net Fixed Asset	22,448,452
Amortization Expense	593,247
CCA	1,843,336

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C5 Box Construction

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 4,921,766
Closing Capital Investment		$ 4,921,766
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 123,044
Closing Accumulated Amortization		$ 123,044
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 4,798,722
Average Net Fixed Assets		$ 2,399,361

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 4,921,766
UCC Before Half Year Rule		$ 4,921,766
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 4,921,766
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 393,741
Closing UCC		$ 4,528,025

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C5 Box Construction

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 4,973,736
Closing Capital Investment		$ 4,973,736
Opening Accumulated Amortization		$ -
Amortization	*2%*	$ 99,475
Closing Accumulated Amortization		$ 99,475
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 4,874,261
Average Net Fixed Assets		$ 2,437,131

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 4,973,736
UCC Before Half Year Rule		$ 4,973,736
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 4,973,736
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 397,899
Closing UCC		$ 4,575,837

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project
C5 Box Construction

Asset Component
1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,242,095
Closing Capital Investment		$ 1,242,095
Opening Accumulated Amortization		$ -
Amortization	3%	$ 41,403
Closing Accumulated Amortization		$ 41,403
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,200,691
Average Net Fixed Assets		$ 600,346

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,242,095
UCC Before Half Year Rule		$ 1,242,095
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,242,095
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 99,368
Closing UCC		$ 1,142,727

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C5 Box Construction

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,094,417
Closing Capital Investment		$ 1,094,417
Opening Accumulated Amortization		$ -
Amortization	2%	$ 21,888
Closing Accumulated Amortization		$ 21,888
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,072,529
Average Net Fixed Assets		$ 536,264

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,094,417
UCC Before Half Year Rule		$ 1,094,417
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,094,417
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 87,553
Closing UCC		$ 1,006,864

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project
C5 Box Construction

Asset Component
1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 307,118
Closing Capital Investment		$ 307,118
Opening Accumulated Amortization		$ -
Amortization	3%	$ 10,237
Closing Accumulated Amortization		$ 10,237
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 296,881
Average Net Fixed Assets		$ 148,440

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 307,118
UCC Before Half Year Rule		$ 307,118
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 307,118
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 24,569
Closing UCC		$ 282,549

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C5 Box Construction

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 38,531
Closing Capital Investment		$ 38,531
Opening Accumulated Amortization		$ -
Amortization	3%	$ 963
Closing Accumulated Amortization		$ 963
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 37,568
Average Net Fixed Assets		$ 18,784

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 38,531
UCC Before Half Year Rule		$ 38,531
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 38,531
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 3,083
Closing UCC		$ 35,449

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project
C5 Box Construction

Asset Component
1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 23,872
Closing Capital Investment		$ 23,872
Opening Accumulated Amortization		$ -
Amortization	5%	$ 1,194
Closing Accumulated Amortization		$ 1,194
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 22,678
Average Net Fixed Assets		$ 11,339

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 23,872
UCC Before Half Year Rule		$ 23,872
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 23,872
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 1,910
Closing UCC		$ 21,962

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C5 Box Construction

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,199,658
Closing Capital Investment		$ 3,199,658
Opening Accumulated Amortization		$ -
Amortization	3%	$ 79,991
Closing Accumulated Amortization		$ 79,991
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,119,666
Average Net Fixed Assets		$ 1,559,833

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,199,658
UCC Before Half Year Rule		$ 3,199,658
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,199,658
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 255,973
Closing UCC		$ 2,943,685

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project
C5 Box Construction

Asset Component
1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 249,649
Closing Capital Investment		$ 249,649
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 12,482
Closing Accumulated Amortization		$ 12,482
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 237,167
Average Net Fixed Assets		$ 118,583

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 249,649
UCC Before Half Year Rule		$ 249,649
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 249,649
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 19,972
Closing UCC		$ 229,677

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C5 Box Construction

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,796,782
Closing Capital Investment		$ 3,796,782
Opening Accumulated Amortization		$ -
Amortization	3%	$ 126,559
Closing Accumulated Amortization		$ 126,559
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,670,222
Average Net Fixed Assets		$ 1,835,111

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,796,782
UCC Before Half Year Rule		$ 3,796,782
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,796,782
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 303,743
Closing UCC		$ 3,493,039

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project
C5 Box Construction

Asset Component
1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 498,616
Closing Capital Investment		$ 498,616
Opening Accumulated Amortization		$ -
Amortization	3%	$ 16,621
Closing Accumulated Amortization		$ 16,621
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 481,996
Average Net Fixed Assets		$ 240,998

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 498,616
UCC Before Half Year Rule		$ 498,616
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 498,616
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 39,889
Closing UCC		$ 458,727

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project

C5 Box Construction

Asset Component

1850_Line Transformers - UG Network w/protector

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 115,671
Closing Capital Investment		$ 115,671
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 5,784
Closing Accumulated Amortization		$ 5,784
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 109,888
Average Net Fixed Assets		$ 54,944

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 115,671
UCC Before Half Year Rule		$ 115,671
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 115,671
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 9,254
Closing UCC		$ 106,417

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project
C5 Box Construction

Asset Component
1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 28,696
Closing Capital Investment		$ 28,696
Opening Accumulated Amortization		$ -
Amortization	*7%*	$ 1,913
Closing Accumulated Amortization		$ 1,913
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 26,783
Average Net Fixed Assets		$ 13,392

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 28,696
UCC Before Half Year Rule		$ 28,696
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 28,696
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 2,296
Closing UCC		$ 26,401

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 14

Name or General Description of Project

C5 Box Construction

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 133,954
Closing Capital Investment		$ 133,954
Opening Accumulated Amortization		$ -
Amortization	3%	$ 3,349
Closing Accumulated Amortization		$ 3,349
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 130,605
Average Net Fixed Assets		$ 65,303

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 133,954
UCC Before Half Year Rule		$ 133,954
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 133,954
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 10,716
Closing UCC		$ 123,238

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 15

Name or General Description of Project

C5 Box Construction

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,417,137
Closing Capital Investment		$ 2,417,137
Opening Accumulated Amortization		$ -
Amortization	2%	$ 48,343
Closing Accumulated Amortization		$ 48,343
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 2,368,794
Average Net Fixed Assets		$ 1,184,397

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,417,137
UCC Before Half Year Rule		$ 2,417,137
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,417,137
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 193,371
Closing UCC		$ 2,223,766

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C6 Rear Lot Construction	2012

Details of Project	Number of Asset Components
C6 Rear Lot Construction	13

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	340,086	3%	47	8%
2	1835_Overhead Conductors and Devices	383,403	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	91,447	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	296,991	2%	47	8%
5	1840_Underground Conduit - Duct Bank	2,968,227	3%	47	8%
6	1840_Underground Conduit - Vault	388,989	3%	47	8%
7	1845_Underground Conductors and Devices	5,526,905	3%	47	8%
8	1845_Underground Conductors and Devices - Switch	557,775	5%	47	8%
9	1850_Line Transformers - OH	231,436	3%	47	8%
10	1850_Line Transformers - UG	1,877,090	3%	47	8%
11	1860_Meters - Smart Meters	109,448	7%	47	8%
12	1855_Services - UG	3,505,509	3%	47	8%
13	1855_Services - OH	80,125	2%	47	8%

	2012	2013
Closing Net Fixed Asset	15,890,724	15,424,018
Amortization Expense	466,706	466,706
CCA	1,308,594	1,203,907

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 340,086
Capital Investment		$ 340,086	$ -
Closing Capital Investment		$ 340,086	$ 340,086
Opening Accumulated Amortization		$ -	$ 8,502
Amortization	*3%*	$ 8,502	$ 8,502
Closing Accumulated Amortization		$ 8,502	$ 17,004
Opening Net Fixed Assets		$ -	$ 331,584
Closing Net Fixed Assets		$ 331,584	$ 323,082
Average Net Fixed Assets		$ 165,792	$ 327,333

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 312,879
Capital Additions		$ 340,086	$ -
UCC Before Half Year Rule		$ 340,086	$ 312,879
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 340,086	$ 312,879
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 27,207	$ 25,030
Closing UCC		$ 312,879	$ 287,849

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 383,403
Capital Investment		$ 383,403	$ -
Closing Capital Investment		$ 383,403	$ 383,403
Opening Accumulated Amortization		$ -	$ 7,668
Amortization	*2%*	$ 7,668	$ 7,668
Closing Accumulated Amortization		$ 7,668	$ 15,336
Opening Net Fixed Assets		$ -	$ 375,735
Closing Net Fixed Assets		$ 375,735	$ 368,067
Average Net Fixed Assets		$ 187,868	$ 371,901

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 352,731
Capital Additions		$ 383,403	$ -
UCC Before Half Year Rule		$ 383,403	$ 352,731
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 383,403	$ 352,731
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 30,672	$ 28,218
Closing UCC		$ 352,731	$ 324,513

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 91,447
Capital Investment		$ 91,447	$ -
Closing Capital Investment		$ 91,447	$ 91,447
Opening Accumulated Amortization		$ -	$ 3,048
Amortization	*3%*	$ 3,048	$ 3,048
Closing Accumulated Amortization		$ 3,048	$ 6,096
Opening Net Fixed Assets		$ -	$ 88,398
Closing Net Fixed Assets		$ 88,398	$ 85,350
Average Net Fixed Assets		$ 44,199	$ 86,874

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 84,131
Capital Additions		$ 91,447	$ -
UCC Before Half Year Rule		$ 91,447	$ 84,131
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 91,447	$ 84,131
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 7,316	$ 6,730
Closing UCC		$ 84,131	$ 77,400

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 296,991
Capital Investment		$ 296,991	$ -
Closing Capital Investment		$ 296,991	$ 296,991
Opening Accumulated Amortization		$ -	$ 5,940
Amortization	*2%*	$ 5,940	$ 5,940
Closing Accumulated Amortization		$ 5,940	$ 11,880
Opening Net Fixed Assets		$ -	$ 291,051
Closing Net Fixed Assets		$ 291,051	$ 285,111
Average Net Fixed Assets		$ 145,526	$ 288,081

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 273,232
Capital Additions		$ 296,991	$ -
UCC Before Half Year Rule		$ 296,991	$ 273,232
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 296,991	$ 273,232
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 23,759	$ 21,859
Closing UCC		$ 273,232	$ 251,373

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,968,227
Capital Investment		$ 2,968,227	$ -
Closing Capital Investment		$ 2,968,227	$ 2,968,227
Opening Accumulated Amortization		$ -	$ 98,941
Amortization	*3%*	$ 98,941	$ 98,941
Closing Accumulated Amortization		$ 98,941	$ 197,882
Opening Net Fixed Assets		$ -	$ 2,869,286
Closing Net Fixed Assets		$ 2,869,286	$ 2,770,345
Average Net Fixed Assets		$ 1,434,643	$ 2,819,815

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 2,730,769
Capital Additions		$ 2,968,227	$ -
UCC Before Half Year Rule		$ 2,968,227	$ 2,730,769
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,968,227	$ 2,730,769
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 237,458	$ 218,461
Closing UCC		$ 2,730,769	$ 2,512,307

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 388,989
Capital Investment		$ 388,989	$ -
Closing Capital Investment		$ 388,989	$ 388,989
Opening Accumulated Amortization		$ -	$ 9,725
Amortization	3%	$ 9,725	$ 9,725
Closing Accumulated Amortization		$ 9,725	$ 19,449
Opening Net Fixed Assets		$ -	$ 379,264
Closing Net Fixed Assets		$ 379,264	$ 369,539
Average Net Fixed Assets		$ 189,632	$ 374,402

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 357,870
Capital Additions		$ 388,989	$ -
UCC Before Half Year Rule		$ 388,989	$ 357,870
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 388,989	$ 357,870
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 31,119	$ 28,630
Closing UCC		$ 357,870	$ 329,240

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 5,526,905
Capital Investment		$ 5,526,905	$ -
Closing Capital Investment		$ 5,526,905	$ 5,526,905
Opening Accumulated Amortization		$ -	$ 138,173
Amortization	3%	$ 138,173	$ 138,173
Closing Accumulated Amortization		$ 138,173	$ 276,345
Opening Net Fixed Assets		$ -	$ 5,388,732
Closing Net Fixed Assets		$ 5,388,732	$ 5,250,559
Average Net Fixed Assets		$ 2,694,366	$ 5,319,646

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 5,084,752
Capital Additions		$ 5,526,905	$ -
UCC Before Half Year Rule		$ 5,526,905	$ 5,084,752
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 5,526,905	$ 5,084,752
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 442,152	$ 406,780
Closing UCC		$ 5,084,752	$ 4,677,972

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 557,775
Capital Investment		$ 557,775	$ -
Closing Capital Investment		$ 557,775	$ 557,775
Opening Accumulated Amortization		$ -	$ 27,889
Amortization	*5%*	$ 27,889	$ 27,889
Closing Accumulated Amortization		$ 27,889	$ 55,778
Opening Net Fixed Assets		$ -	$ 529,886
Closing Net Fixed Assets		$ 529,886	$ 501,998
Average Net Fixed Assets		$ 264,943	$ 515,942

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 513,153
Capital Additions		$ 557,775	$ -
UCC Before Half Year Rule		$ 557,775	$ 513,153
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 557,775	$ 513,153
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 44,622	$ 41,052
Closing UCC		$ 513,153	$ 472,101

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 231,436
Capital Investment		$ 231,436	$ -
Closing Capital Investment		$ 231,436	$ 231,436
Opening Accumulated Amortization		$ -	$ 7,715
Amortization	3%	$ 7,715	$ 7,715
Closing Accumulated Amortization		$ 7,715	$ 15,429
Opening Net Fixed Assets		$ -	$ 223,722
Closing Net Fixed Assets		$ 223,722	$ 216,007
Average Net Fixed Assets		$ 111,861	$ 219,864

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 212,921
Capital Additions		$ 231,436	$ -
UCC Before Half Year Rule		$ 231,436	$ 212,921
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 231,436	$ 212,921
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 18,515	$ 17,034
Closing UCC		$ 212,921	$ 195,887

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,877,090
Capital Investment		$ 1,877,090	$ -
Closing Capital Investment		$ 1,877,090	$ 1,877,090
Opening Accumulated Amortization		$ -	$ 62,570
Amortization	3%	$ 62,570	$ 62,570
Closing Accumulated Amortization		$ 62,570	$ 125,139
Opening Net Fixed Assets		$ -	$ 1,814,520
Closing Net Fixed Assets		$ 1,814,520	$ 1,751,951
Average Net Fixed Assets		$ 907,260	$ 1,783,235

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,726,923
Capital Additions		$ 1,877,090	$ -
UCC Before Half Year Rule		$ 1,877,090	$ 1,726,923
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,877,090	$ 1,726,923
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 150,167	$ 138,154
Closing UCC		$ 1,726,923	$ 1,588,769

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 109,448
Capital Investment		$ 109,448	$ -
Closing Capital Investment		$ 109,448	$ 109,448
Opening Accumulated Amortization		$ -	$ 7,297
Amortization	7%	$ 7,297	$ 7,297
Closing Accumulated Amortization		$ 7,297	$ 14,593
Opening Net Fixed Assets		$ -	$ 102,152
Closing Net Fixed Assets		$ 102,152	$ 94,855
Average Net Fixed Assets		$ 51,076	$ 98,503

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 100,692
Capital Additions		$ 109,448	$ -
UCC Before Half Year Rule		$ 109,448	$ 100,692
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 109,448	$ 100,692
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 8,756	$ 8,055
Closing UCC		$ 100,692	$ 92,637

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 3,505,509
Capital Investment		$ 3,505,509	$ -
Closing Capital Investment		$ 3,505,509	$ 3,505,509
Opening Accumulated Amortization		$ -	$ 87,638
Amortization	3%	$ 87,638	$ 87,638
Closing Accumulated Amortization		$ 87,638	$ 175,275
Opening Net Fixed Assets		$ -	$ 3,417,872
Closing Net Fixed Assets		$ 3,417,872	$ 3,330,234
Average Net Fixed Assets		$ 1,708,936	$ 3,374,053

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 3,225,069
Capital Additions		$ 3,505,509	$ -
UCC Before Half Year Rule		$ 3,505,509	$ 3,225,069
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 3,505,509	$ 3,225,069
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 280,441	$ 258,005
Closing UCC		$ 3,225,069	$ 2,967,063

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 80,125
Capital Investment		$ 80,125	$ -
Closing Capital Investment		$ 80,125	$ 80,125
Opening Accumulated Amortization		$ -	$ 1,602
Amortization	*2%*	$ 1,602	$ 1,602
Closing Accumulated Amortization		$ 1,602	$ 3,205
Opening Net Fixed Assets		$ -	$ 78,522
Closing Net Fixed Assets		$ 78,522	$ 76,920
Average Net Fixed Assets		$ 39,261	$ 77,721

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 73,715
Capital Additions		$ 80,125	$ -
UCC Before Half Year Rule		$ 80,125	$ 73,715
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 80,125	$ 73,715
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 6,410	$ 5,897
Closing UCC		$ 73,715	$ 67,818

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project

C6 Rear Lot Construction

Year

2013

Details of Project

C6 Rear Lot Construction

Number of Asset Components

12

Asset Component (Click on the Number to View the Component Details)		Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	2,094,448	3%	47	8%
2	1835_Overhead Conductors and Devices	1,453,818	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	103,680	3%	47	8%
4	1840_Underground Conduit - Duct Bank	13,778,365	3%	47	8%
5	1840_Underground Conduit - Vault	47,739	3%	47	8%
6	1845_Underground Conductors and Devices	4,287,715	3%	47	8%
7	1845_Underground Conductors and Devices - Switch	303,154	5%	47	8%
8	1850_Line Transformers - OH	540,999	3%	47	8%
9	1850_Line Transformers - UG	1,586,065	3%	47	8%
10	1860_Meters - Smart Meters	487,372	7%	47	8%
11	1855_Services - UG	3,414,407	3%	47	8%
12	1855_Services - OH	1,327,800	2%	47	8%

	2013
Closing Net Fixed Asset	28,542,537
Amortization Expense	883,026
CCA	2,354,045

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,094,448
Closing Capital Investment		$ 2,094,448
Opening Accumulated Amortization		$ -
Amortization	3%	$ 52,361
Closing Accumulated Amortization		$ 52,361
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 2,042,087
Average Net Fixed Assets		$ 1,021,044

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,094,448
UCC Before Half Year Rule		$ 2,094,448
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,094,448
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 167,556
Closing UCC		$ 1,926,893

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,453,818
Closing Capital Investment		$ 1,453,818
Opening Accumulated Amortization		$ -
Amortization	2%	$ 29,076
Closing Accumulated Amortization		$ 29,076
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,424,741
Average Net Fixed Assets		$ 712,371

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,453,818
UCC Before Half Year Rule		$ 1,453,818
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,453,818
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 116,305
Closing UCC		$ 1,337,512

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 103,680
Closing Capital Investment		$ 103,680
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 3,456
Closing Accumulated Amortization		$ 3,456
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 100,224
Average Net Fixed Assets		$ 50,112

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 103,680
UCC Before Half Year Rule		$ 103,680
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 103,680
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 8,294
Closing UCC		$ 95,386

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 13,778,365
Closing Capital Investment		$ 13,778,365
Opening Accumulated Amortization		$ -
Amortization	3%	$ 459,279
Closing Accumulated Amortization		$ 459,279
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 13,319,086
Average Net Fixed Assets		$ 6,659,543

For PILs Calculation

UCC		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 13,778,365
UCC Before Half Year Rule		$ 13,778,365
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 13,778,365
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 1,102,269
Closing UCC		$ 12,676,096

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 47,739
Closing Capital Investment		$ 47,739
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 1,193
Closing Accumulated Amortization		$ 1,193
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 46,546
Average Net Fixed Assets		$ 23,273

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 47,739
UCC Before Half Year Rule		$ 47,739
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 47,739
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 3,819
Closing UCC		$ 43,920

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 4,287,715
Closing Capital Investment		$ 4,287,715
Opening Accumulated Amortization		$ -
Amortization	3%	$ 107,193
Closing Accumulated Amortization		$ 107,193
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 4,180,522
Average Net Fixed Assets		$ 2,090,261

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 4,287,715
UCC Before Half Year Rule		$ 4,287,715
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 4,287,715
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 343,017
Closing UCC		$ 3,944,698

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 303,154
Closing Capital Investment		$ 303,154
Opening Accumulated Amortization		$ -
Amortization	5%	$ 15,158
Closing Accumulated Amortization		$ 15,158
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 287,997
Average Net Fixed Assets		$ 143,998

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 303,154
UCC Before Half Year Rule		$ 303,154
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 303,154
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 24,252
Closing UCC		$ 278,902

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 540,999
Closing Capital Investment		$ 540,999
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 18,033
Closing Accumulated Amortization		$ 18,033
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 522,966
Average Net Fixed Assets		$ 261,483

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 540,999
UCC Before Half Year Rule		$ 540,999
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 540,999
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 43,280
Closing UCC		$ 497,719

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,586,065
Closing Capital Investment		$ 1,586,065
Opening Accumulated Amortization		$ -
Amortization	3%	$ 52,869
Closing Accumulated Amortization		$ 52,869
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,533,196
Average Net Fixed Assets		$ 766,598

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,586,065
UCC Before Half Year Rule		$ 1,586,065
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,586,065
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 126,885
Closing UCC		$ 1,459,180

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project
C6 Rear Lot Construction

Asset Component
1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 487,372
Closing Capital Investment		$ 487,372
Opening Accumulated Amortization		$ -
Amortization	*7%*	$ 32,491
Closing Accumulated Amortization		$ 32,491
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 454,880
Average Net Fixed Assets		$ 227,440

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 487,372
UCC Before Half Year Rule		$ 487,372
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 487,372
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 38,990
Closing UCC		$ 448,382

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,414,407
Closing Capital Investment		$ 3,414,407
Opening Accumulated Amortization		$ -
Amortization	3%	$ 85,360
Closing Accumulated Amortization		$ 85,360
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,329,047
Average Net Fixed Assets		$ 1,664,523

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,414,407
UCC Before Half Year Rule		$ 3,414,407
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,414,407
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 273,153
Closing UCC		$ 3,141,254

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project

C6 Rear Lot Construction

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,327,800
Closing Capital Investment		$ 1,327,800
Opening Accumulated Amortization		$ -
Amortization	2%	$ 26,556
Closing Accumulated Amortization		$ 26,556
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,301,244
Average Net Fixed Assets		$ 650,622

For PILs Calculation

UCC		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,327,800
UCC Before Half Year Rule		$ 1,327,800
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,327,800
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 106,224
Closing UCC		$ 1,221,576

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C7 Polymer SMD-20 Fuses	2012

Details of Project	Number of Asset Components
C7 Polymer SMD-20 Fuses	-

Asset Component (Click on the Number to View the Component Details)		Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1		-	0%	0	0%

	2012	2013
Closing Net Fixed Asset	-	-
Amortization Expense	-	-
CCA	-	-

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C7 Polymer SMD-20 Fuses

Asset Component

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ -
Capital Investment		$ -	$ -
Closing Capital Investment		$ -	$ -
Opening Accumulated Amortization		$ -	$ -
Amortization	0%	$ -	$ -
Closing Accumulated Amortization		$ -	$ -
Opening Net Fixed Assets		$ -	$ -
Closing Net Fixed Assets		$ -	$ -
Average Net Fixed Assets		$ -	$ -

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ -
Capital Additions		$ -	$ -
UCC Before Half Year Rule		$ -	$ -
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ -	$ -
CCA Rate Class	0		
CCA Rate	0%		
CCA		$ -	$ -
Closing UCC		$ -	$ -

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C7 Polymer SMD-20 Fuses	**2013**

Details of Project	Number of Asset Components
C7 Polymer SMD-20 Fuses	4

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	261,034	3%	47	8%
2	1835_Overhead Conductors and Devices	195,476	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	1,034,050	3%	47	8%
4	1855_Services - OH	38,537	2%	47	8%

	2013
Closing Net Fixed Asset	1,483,423
Amortization Expense	45,674
CCA	122,328

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C7 Polymer SMD-20 Fuses

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 261,034
Closing Capital Investment		$ 261,034
Opening Accumulated Amortization		$ -
Amortization	3%	$ 6,526
Closing Accumulated Amortization		$ 6,526
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 254,508
Average Net Fixed Assets		$ 127,254

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 261,034
UCC Before Half Year Rule		$ 261,034
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 261,034
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 20,883
Closing UCC		$ 240,151

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C7 Polymer SMD-20 Fuses

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 195,476
Closing Capital Investment		$ 195,476
Opening Accumulated Amortization		$ -
Amortization	*2%*	$ 3,910
Closing Accumulated Amortization		$ 3,910
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 191,567
Average Net Fixed Assets		$ 95,783

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 195,476
UCC Before Half Year Rule		$ 195,476
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 195,476
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 15,638
Closing UCC		$ 179,838

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project
C7 Polymer SMD-20 Fuses

Asset Component
1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,034,050
Closing Capital Investment		$ 1,034,050
Opening Accumulated Amortization		$ -
Amortization	3%	$ 34,468
Closing Accumulated Amortization		$ 34,468
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 999,582
Average Net Fixed Assets		$ 499,791

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,034,050
UCC Before Half Year Rule		$ 1,034,050
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,034,050
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 82,724
Closing UCC		$ 951,326

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C7 Polymer SMD-20 Fuses

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 38,537
Closing Capital Investment		$ 38,537
Opening Accumulated Amortization		$ -
Amortization	2%	$ 771
Closing Accumulated Amortization		$ 771
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 37,766
Average Net Fixed Assets		$ 18,883

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 38,537
UCC Before Half Year Rule		$ 38,537
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 38,537
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 3,083
Closing UCC		$ 35,454

CONCERNING 2014 INFORMATION

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TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.
1st Year of IRM Cycle

Name or General Description of Project	Year
C8 Scadamate R1 Switches	2012

Details of Project	Number of Asset Components
C8 Scadamate R1 Switches	-

Asset Component (Click on the Number to View the Component Details)		Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1		-	0%	0	0%

	2012	2013
Closing Net Fixed Asset	-	-
Amortization Expense	-	-
CCA	-	-

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C8 Scadamate R1 Switches

Asset Component

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ -
Capital Investment		$ -	$ -
Closing Capital Investment		$ -	$ -
Opening Accumulated Amortization		$ -	$ -
Amortization	*0%*	$ -	$ -
Closing Accumulated Amortization		$ -	$ -
Opening Net Fixed Assets		$ -	$ -
Closing Net Fixed Assets		$ -	$ -
Average Net Fixed Assets		$ -	$ -

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ -
Capital Additions		$ -	$ -
UCC Before Half Year Rule		$ -	$ -
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ -	$ -
CCA Rate Class	*0*		
CCA Rate	*0%*		
CCA		$ -	$ -
Closing UCC		$ -	$ -

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.
2nd Year of IRM Cycle

Name or General Description of Project	Year
C8 Scadamate R1 Switches	2013

Details of Project	Number of Asset Components
C8 Scadamate R1 Switches	2

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1835_Overhead Conductors and Devices	39,004	2%	47	8%
2	1835_Overhead Conductors and Devices - Switches	1,390,360	3%	47	8%

	2013
Closing Net Fixed Asset	1,382,238
Amortization Expense	47,125
CCA	114,349

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C8 Scadamate R1 Switches

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 39,004
Closing Capital Investment		$ 39,004
Opening Accumulated Amortization		$ -
Amortization	2%	$ 780
Closing Accumulated Amortization		$ 780
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 38,223
Average Net Fixed Assets		$ 19,112

For PILs Calculation

UCC		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 39,004
UCC Before Half Year Rule		$ 39,004
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 39,004
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 3,120
Closing UCC		$ 35,883

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C8 Scadamate R1 Switches

Asset Component
1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,390,360
Closing Capital Investment		$ 1,390,360
Opening Accumulated Amortization		$ -
Amortization	3%	$ 46,345
Closing Accumulated Amortization		$ 46,345
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,344,015
Average Net Fixed Assets		$ 672,007

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,390,360
UCC Before Half Year Rule		$ 1,390,360
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,390,360
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 111,229
Closing UCC		$ 1,279,131

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C9 Network Vault & Roofs	2012

Details of Project	Number of Asset Components
C9 Network Vault & Roofs	14

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	2,844	3%	47	8%
2	1835_Overhead Conductors and Devices	2,130	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	10,805	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	367,287	2%	47	8%
5	1840_Underground Conduit - Duct Bank	255,320	3%	47	8%
6	1840_Underground Conduit - Vault	688,098	3%	47	8%
7	1840_Underground Conduit - Vault Roof	832	5%	47	8%
8	1845_Underground Conductors and Devices	534,383	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	354,141	5%	47	8%
10	1850_Line Transformers - OH	3,336	3%	47	8%
11	1850_Line Transformers - UG	4,933	3%	47	8%
12	1850_Line Transformers - UG Network w/protector	610,228	5%	47	8%
13	1855_Services - UG	3,403	3%	47	8%
14	1855_Services - OH	420	2%	47	8%

	2012	2013
Closing Net Fixed Asset	2,742,640	2,647,119
Amortization Expense	95,522	95,522
CCA	227,053	208,889

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,844
Capital Investment		$ 2,844	$ -
Closing Capital Investment		$ 2,844	$ 2,844
Opening Accumulated Amortization		$ -	$ 71
Amortization	*3%*	$ 71	$ 71
Closing Accumulated Amortization		$ 71	$ 142
Opening Net Fixed Assets		$ -	$ 2,773
Closing Net Fixed Assets		$ 2,773	$ 2,702
Average Net Fixed Assets		$ 1,387	$ 2,738

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 2,617
Capital Additions		$ 2,844	$ -
UCC Before Half Year Rule		$ 2,844	$ 2,617
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,844	$ 2,617
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 228	$ 209
Closing UCC		$ 2,617	$ 2,407

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,130
Capital Investment		$ 2,130	$ -
Closing Capital Investment		$ 2,130	$ 2,130
Opening Accumulated Amortization		$ -	$ 43
Amortization	*2%*	$ 43	$ 43
Closing Accumulated Amortization		$ 43	$ 85
Opening Net Fixed Assets		$ -	$ 2,087
Closing Net Fixed Assets		$ 2,087	$ 2,045
Average Net Fixed Assets		$ 1,044	$ 2,066

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,960
Capital Additions		$ 2,130	$ -
UCC Before Half Year Rule		$ 2,130	$ 1,960
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,130	$ 1,960
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 170	$ 157
Closing UCC		$ 1,960	$ 1,803

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 10,805
Capital Investment		$ 10,805	$ -
Closing Capital Investment		$ 10,805	$ 10,805
Opening Accumulated Amortization		$ -	$ 360
Amortization	*3%*	$ 360	$ 360
Closing Accumulated Amortization		$ 360	$ 720
Opening Net Fixed Assets		$ -	$ 10,445
Closing Net Fixed Assets		$ 10,445	$ 10,085
Average Net Fixed Assets		$ 5,223	$ 10,265

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 9,941
Capital Additions		$ 10,805	$ -
UCC Before Half Year Rule		$ 10,805	$ 9,941
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 10,805	$ 9,941
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 864	$ 795
Closing UCC		$ 9,941	$ 9,146

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 367,287
Capital Investment		$ 367,287	$ -
Closing Capital Investment		$ 367,287	$ 367,287
Opening Accumulated Amortization		$ -	$ 7,346
Amortization	*2%*	$ 7,346	$ 7,346
Closing Accumulated Amortization		$ 7,346	$ 14,691
Opening Net Fixed Assets		$ -	$ 359,941
Closing Net Fixed Assets		$ 359,941	$ 352,596
Average Net Fixed Assets		$ 179,971	$ 356,269

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 337,904
Capital Additions		$ 367,287	$ -
UCC Before Half Year Rule		$ 367,287	$ 337,904
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 367,287	$ 337,904
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 29,383	$ 27,032
Closing UCC		$ 337,904	$ 310,872

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 255,320
Capital Investment		$ 255,320	$ -
Closing Capital Investment		$ 255,320	$ 255,320
Opening Accumulated Amortization		$ -	$ 8,511
Amortization	*3%*	$ 8,511	$ 8,511
Closing Accumulated Amortization		$ 8,511	$ 17,021
Opening Net Fixed Assets		$ -	$ 246,810
Closing Net Fixed Assets		$ 246,810	$ 238,299
Average Net Fixed Assets		$ 123,405	$ 242,554

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 234,895
Capital Additions		$ 255,320	$ -
UCC Before Half Year Rule		$ 255,320	$ 234,895
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 255,320	$ 234,895
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 20,426	$ 18,792
Closing UCC		$ 234,895	$ 216,103

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project
C9 Network Vault & Roofs

Asset Component
1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 688,098
Capital Investment		$ 688,098	$ -
Closing Capital Investment		$ 688,098	$ 688,098
Opening Accumulated Amortization		$ -	$ 17,202
Amortization	*3%*	$ 17,202	$ 17,202
Closing Accumulated Amortization		$ 17,202	$ 34,405
Opening Net Fixed Assets		$ -	$ 670,895
Closing Net Fixed Assets		$ 670,895	$ 653,693
Average Net Fixed Assets		$ 335,448	$ 662,294

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 633,050
Capital Additions		$ 688,098	$ -
UCC Before Half Year Rule		$ 688,098	$ 633,050
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 688,098	$ 633,050
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 55,048	$ 50,644
Closing UCC		$ 633,050	$ 582,406

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 832
Capital Investment		$ 832	$ -
Closing Capital Investment		$ 832	$ 832
Opening Accumulated Amortization		$ -	$ 42
Amortization	*5%*	$ 42	$ 42
Closing Accumulated Amortization		$ 42	$ 83
Opening Net Fixed Assets		$ -	$ 790
Closing Net Fixed Assets		$ 790	$ 749
Average Net Fixed Assets		$ 395	$ 770

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 765
Capital Additions		$ 832	$ -
UCC Before Half Year Rule		$ 832	$ 765
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 832	$ 765
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 67	$ 61
Closing UCC		$ 765	$ 704

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 534,383
Capital Investment		$ 534,383	$ -
Closing Capital Investment		$ 534,383	$ 534,383
Opening Accumulated Amortization		$ -	$ 13,360
Amortization	*3%*	$ 13,360	$ 13,360
Closing Accumulated Amortization		$ 13,360	$ 26,719
Opening Net Fixed Assets		$ -	$ 521,024
Closing Net Fixed Assets		$ 521,024	$ 507,664
Average Net Fixed Assets		$ 260,512	$ 514,344

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 491,633
Capital Additions		$ 534,383	$ -
UCC Before Half Year Rule		$ 534,383	$ 491,633
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 534,383	$ 491,633
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 42,751	$ 39,331
Closing UCC		$ 491,633	$ 452,302

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 354,141
Capital Investment		$ 354,141	$ -
Closing Capital Investment		$ 354,141	$ 354,141
Opening Accumulated Amortization		$ -	$ 17,707
Amortization	*5%*	$ 17,707	$ 17,707
Closing Accumulated Amortization		$ 17,707	$ 35,414
Opening Net Fixed Assets		$ -	$ 336,434
Closing Net Fixed Assets		$ 336,434	$ 318,727
Average Net Fixed Assets		$ 168,217	$ 327,581

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 325,810
Capital Additions		$ 354,141	$ -
UCC Before Half Year Rule		$ 354,141	$ 325,810
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 354,141	$ 325,810
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 28,331	$ 26,065
Closing UCC		$ 325,810	$ 299,745

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project
C9 Network Vault & Roofs

Asset Component
1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 3,336
Capital Investment		$ 3,336	$ -
Closing Capital Investment		$ 3,336	$ 3,336
Opening Accumulated Amortization		$ -	$ 111
Amortization	*3%*	$ 111	$ 111
Closing Accumulated Amortization		$ 111	$ 222
Opening Net Fixed Assets		$ -	$ 3,225
Closing Net Fixed Assets		$ 3,225	$ 3,114
Average Net Fixed Assets		$ 1,612	$ 3,169

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 3,069
Capital Additions		$ 3,336	$ -
UCC Before Half Year Rule		$ 3,336	$ 3,069
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 3,336	$ 3,069
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 267	$ 246
Closing UCC		$ 3,069	$ 2,824

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 4,933
Capital Investment		$ 4,933	$ -
Closing Capital Investment		$ 4,933	$ 4,933
Opening Accumulated Amortization		$ -	$ 164
Amortization	*3%*	$ 164	$ 164
Closing Accumulated Amortization		$ 164	$ 329
Opening Net Fixed Assets		$ -	$ 4,768
Closing Net Fixed Assets		$ 4,768	$ 4,604
Average Net Fixed Assets		$ 2,384	$ 4,686

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 4,538
Capital Additions		$ 4,933	$ -
UCC Before Half Year Rule		$ 4,933	$ 4,538
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 4,933	$ 4,538
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 395	$ 363
Closing UCC		$ 4,538	$ 4,175

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project
C9 Network Vault & Roofs

Asset Component
1850_Line Transformers - UG Network w/protector

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 610,228
Capital Investment		$ 610,228	$ -
Closing Capital Investment		$ 610,228	$ 610,228
Opening Accumulated Amortization		$ -	$ 30,511
Amortization	*5%*	$ 30,511	$ 30,511
Closing Accumulated Amortization		$ 30,511	$ 61,023
Opening Net Fixed Assets		$ -	$ 579,717
Closing Net Fixed Assets		$ 579,717	$ 549,206
Average Net Fixed Assets		$ 289,859	$ 564,461

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 561,410
Capital Additions		$ 610,228	$ -
UCC Before Half Year Rule		$ 610,228	$ 561,410
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 610,228	$ 561,410
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 48,818	$ 44,913
Closing UCC		$ 561,410	$ 516,497

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 3,403
Capital Investment		$ 3,403	$ -
Closing Capital Investment		$ 3,403	$ 3,403
Opening Accumulated Amortization		$ -	$ 85
Amortization	*3%*	$ 85	$ 85
Closing Accumulated Amortization		$ 85	$ 170
Opening Net Fixed Assets		$ -	$ 3,318
Closing Net Fixed Assets		$ 3,318	$ 3,233
Average Net Fixed Assets		$ 1,659	$ 3,276

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 3,131
Capital Additions		$ 3,403	$ -
UCC Before Half Year Rule		$ 3,403	$ 3,131
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 3,403	$ 3,131
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 272	$ 250
Closing UCC		$ 3,131	$ 2,880

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 14

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 420
Capital Investment		$ 420	$ -
Closing Capital Investment		$ 420	$ 420
Opening Accumulated Amortization		$ -	$ 8
Amortization	*2%*	$ 8	$ 8
Closing Accumulated Amortization		$ 8	$ 17
Opening Net Fixed Assets		$ -	$ 412
Closing Net Fixed Assets		$ 412	$ 403
Average Net Fixed Assets		$ 206	$ 407

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 386
Capital Additions		$ 420	$ -
UCC Before Half Year Rule		$ 420	$ 386
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 420	$ 386
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 34	$ 31
Closing UCC		$ 386	$ 355

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C9 Network Vault & Roofs	2013

Details of Project	Number of Asset Components
C9 Network Vault & Roofs	14

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	24,079	3%	47	8%
2	1835_Overhead Conductors and Devices	18,032	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	91,476	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	1,845,734	2%	47	8%
5	1840_Underground Conduit - Duct Bank	1,135,426	3%	47	8%
6	1840_Underground Conduit - Vault	4,890,520	3%	47	8%
7	1840_Underground Conduit - Vault Roof	113,369	5%	47	8%
8	1845_Underground Conductors and Devices	4,526,475	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	2,354,137	5%	47	8%
10	1850_Line Transformers - OH	28,243	3%	47	8%
11	1850_Line Transformers - UG	61,798	3%	47	8%
12	1850_Line Transformers - UG Network w/protector	3,616,796	5%	47	8%
13	1855_Services - UG	51,115	3%	47	8%
14	1855_Services - OH	3,555	2%	47	8%

	2013
Closing Net Fixed Asset	18,137,989
Amortization Expense	622,764
CCA	1,500,860

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project
C9 Network Vault & Roofs

Asset Component
1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 24,079
Closing Capital Investment		$ 24,079
Opening Accumulated Amortization		$ -
Amortization	3%	$ 602
Closing Accumulated Amortization		$ 602
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 23,477
Average Net Fixed Assets		$ 11,738

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 24,079
UCC Before Half Year Rule		$ 24,079
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 24,079
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 1,926
Closing UCC		$ 22,152

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C9 Network Vault & Roofs

Asset Component
1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 18,032
Closing Capital Investment		$ 18,032
Opening Accumulated Amortization		$ -
Amortization	*2%*	$ 361
Closing Accumulated Amortization		$ 361
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 17,671
Average Net Fixed Assets		$ 8,836

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 18,032
UCC Before Half Year Rule		$ 18,032
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 18,032
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 1,443
Closing UCC		$ 16,589

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project
C9 Network Vault & Roofs

Asset Component
1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 91,476
Closing Capital Investment		$ 91,476
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 3,049
Closing Accumulated Amortization		$ 3,049
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 88,427
Average Net Fixed Assets		$ 44,213

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 91,476
UCC Before Half Year Rule		$ 91,476
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 91,476
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 7,318
Closing UCC		$ 84,158

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,845,734
Closing Capital Investment		$ 1,845,734
Opening Accumulated Amortization		$ -
Amortization	2%	$ 36,915
Closing Accumulated Amortization		$ 36,915
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,808,819
Average Net Fixed Assets		$ 904,410

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,845,734
UCC Before Half Year Rule		$ 1,845,734
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,845,734
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 147,659
Closing UCC		$ 1,698,075

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,135,426
Closing Capital Investment		$ 1,135,426
Opening Accumulated Amortization		$ -
Amortization	3%	$ 37,848
Closing Accumulated Amortization		$ 37,848
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,097,578
Average Net Fixed Assets		$ 548,789

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,135,426
UCC Before Half Year Rule		$ 1,135,426
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,135,426
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 90,834
Closing UCC		$ 1,044,592

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project
C9 Network Vault & Roofs

Asset Component
1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 4,890,520
Closing Capital Investment		$ 4,890,520
Opening Accumulated Amortization		$ -
Amortization	3%	$ 122,263
Closing Accumulated Amortization		$ 122,263
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 4,768,257
Average Net Fixed Assets		$ 2,384,128

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 4,890,520
UCC Before Half Year Rule		$ 4,890,520
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 4,890,520
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 391,242
Closing UCC		$ 4,499,278

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 113,369
Closing Capital Investment		$ 113,369
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 5,668
Closing Accumulated Amortization		$ 5,668
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 107,701
Average Net Fixed Assets		$ 53,850

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 113,369
UCC Before Half Year Rule		$ 113,369
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 113,369
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 9,070
Closing UCC		$ 104,299

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project
C9 Network Vault & Roofs

Asset Component
1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 4,526,475
Closing Capital Investment		$ 4,526,475
Opening Accumulated Amortization		$ -
Amortization	3%	$ 113,162
Closing Accumulated Amortization		$ 113,162
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 4,413,313
Average Net Fixed Assets		$ 2,206,657

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 4,526,475
UCC Before Half Year Rule		$ 4,526,475
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 4,526,475
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 362,118
Closing UCC		$ 4,164,357

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,354,137
Closing Capital Investment		$ 2,354,137
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 117,707
Closing Accumulated Amortization		$ 117,707
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 2,236,430
Average Net Fixed Assets		$ 1,118,215

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,354,137
UCC Before Half Year Rule		$ 2,354,137
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,354,137
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 188,331
Closing UCC		$ 2,165,806

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 28,243
Closing Capital Investment		$ 28,243
Opening Accumulated Amortization		$ -
Amortization	3%	$ 941
Closing Accumulated Amortization		$ 941
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 27,301
Average Net Fixed Assets		$ 13,651

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 28,243
UCC Before Half Year Rule		$ 28,243
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 28,243
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 2,259
Closing UCC		$ 25,983

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 61,798
Closing Capital Investment		$ 61,798
Opening Accumulated Amortization		$ -
Amortization	3%	$ 2,060
Closing Accumulated Amortization		$ 2,060
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 59,738
Average Net Fixed Assets		$ 29,869

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 61,798
UCC Before Half Year Rule		$ 61,798
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 61,798
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 4,944
Closing UCC		$ 56,854

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1850_Line Transformers - UG Network w/protector

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,616,796
Closing Capital Investment		$ 3,616,796
Opening Accumulated Amortization		$ -
Amortization	5%	$ 180,840
Closing Accumulated Amortization		$ 180,840
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,435,956
Average Net Fixed Assets		$ 1,717,978

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,616,796
UCC Before Half Year Rule		$ 3,616,796
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,616,796
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 289,344
Closing UCC		$ 3,327,453

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project
C9 Network Vault & Roofs

Asset Component
1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 51,115
Closing Capital Investment		$ 51,115
Opening Accumulated Amortization		$ -
Amortization	3%	$ 1,278
Closing Accumulated Amortization		$ 1,278
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 49,837
Average Net Fixed Assets		$ 24,918

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 51,115
UCC Before Half Year Rule		$ 51,115
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 51,115
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 4,089
Closing UCC		$ 47,026

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 14

Name or General Description of Project

C9 Network Vault & Roofs

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,555
Closing Capital Investment		$ 3,555
Opening Accumulated Amortization		$ -
Amortization	*2%*	$ 71
Closing Accumulated Amortization		$ 71
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,484
Average Net Fixed Assets		$ 1,742

For PILs Calculation

UCC		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,555
UCC Before Half Year Rule		$ 3,555
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,555
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 284
Closing UCC		$ 3,270

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C10 Fibertop Network Units	2012

Details of Project	Number of Asset Components
C10 Fibertop Network Units	3

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1840_Underground Conduit - Vault	12,660	3%	47	8%
2	1845_Underground Conductors and Devices	112,219	3%	47	8%
3	1850_Line Transformers - UG Network w/protector	1,350,708	5%	47	8%

	2012	2013
Closing Net Fixed Asset	1,404,929	1,334,272
Amortization Expense	70,657	70,657
CCA	118,047	108,603

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C10 Fibertop Network Units

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 12,660
Capital Investment		$ 12,660	$ -
Closing Capital Investment		$ 12,660	$ 12,660
Opening Accumulated Amortization		$ -	$ 316
Amortization	*3%*	$ 316	$ 316
Closing Accumulated Amortization		$ 316	$ 633
Opening Net Fixed Assets		$ -	$ 12,343
Closing Net Fixed Assets		$ 12,343	$ 12,027
Average Net Fixed Assets		$ 6,172	$ 12,185

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 11,647
Capital Additions		$ 12,660	$ -
UCC Before Half Year Rule		$ 12,660	$ 11,647
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 12,660	$ 11,647
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 1,013	$ 932
Closing UCC		$ 11,647	$ 10,715

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C10 Fibertop Network Units

Asset Component
1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 112,219
Capital Investment		$ 112,219	$ -
Closing Capital Investment		$ 112,219	$ 112,219
Opening Accumulated Amortization		$ -	$ 2,805
Amortization	3%	$ 2,805	$ 2,805
Closing Accumulated Amortization		$ 2,805	$ 5,611
Opening Net Fixed Assets		$ -	$ 109,414
Closing Net Fixed Assets		$ 109,414	$ 106,608
Average Net Fixed Assets		$ 54,707	$ 108,011

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 103,242
Capital Additions		$ 112,219	$ -
UCC Before Half Year Rule		$ 112,219	$ 103,242
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 112,219	$ 103,242
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 8,978	$ 8,259
Closing UCC		$ 103,242	$ 94,982

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C10 Fibertop Network Units

Asset Component

1850_Line Transformers - UG Network w/protector

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,350,708
Capital Investment		$ 1,350,708	$ -
Closing Capital Investment		$ 1,350,708	$ 1,350,708
Opening Accumulated Amortization		$ -	$ 67,535
Amortization	*5%*	$ 67,535	$ 67,535
Closing Accumulated Amortization		$ 67,535	$ 135,071
Opening Net Fixed Assets		$ -	$ 1,283,173
Closing Net Fixed Assets		$ 1,283,173	$ 1,215,637
Average Net Fixed Assets		$ 641,586	$ 1,249,405

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,242,652
Capital Additions		$ 1,350,708	$ -
UCC Before Half Year Rule		$ 1,350,708	$ 1,242,652
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,350,708	$ 1,242,652
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 108,057	$ 99,412
Closing UCC		$ 1,242,652	$ 1,143,239

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	**Year**
C10 Fibertop Network Units	**2013**

Details of Project	**Number of Asset Components**
C10 Fibertop Network Units	3

	Asset Component (Click on the Number to View the Component Details)	**Capital Cost**	**Depreciation Rate**	**CCA Class**	**CCA Rate**
1	1840_Underground Conduit - Vault	58,651	3%	47	8%
2	1845_Underground Conductors and Devices	544,849	3%	47	8%
3	1850_Line Transformers - UG Network w/protector	7,107,550	5%	47	8%

	2013
Closing Net Fixed Asset	7,340,585
Amortization Expense	370,465
CCA	616,884

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C10 Fibertop Network Units

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 58,651
Closing Capital Investment		$ 58,651
Opening Accumulated Amortization		$ -
Amortization	3%	$ 1,466
Closing Accumulated Amortization		$ 1,466
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 57,184
Average Net Fixed Assets		$ 28,592

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 58,651
UCC Before Half Year Rule		$ 58,651
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 58,651
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 4,692
Closing UCC		$ 53,959

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C10 Fibertop Network Units

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 544,849
Closing Capital Investment		$ 544,849
Opening Accumulated Amortization		$ -
Amortization	3%	$ 13,621
Closing Accumulated Amortization		$ 13,621
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 531,228
Average Net Fixed Assets		$ 265,614

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 544,849
UCC Before Half Year Rule		$ 544,849
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 544,849
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 43,588
Closing UCC		$ 501,261

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C10 Fibertop Network Units

Asset Component

1850_Line Transformers - UG Network w/protector

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 7,107,550
Closing Capital Investment		$ 7,107,550
Opening Accumulated Amortization		$ -
Amortization	5%	$ 355,377
Closing Accumulated Amortization		$ 355,377
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 6,752,172
Average Net Fixed Assets		$ 3,376,086

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 7,107,550
UCC Before Half Year Rule		$ 7,107,550
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 7,107,550
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 568,604
Closing UCC		$ 6,538,946

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	**Year**
C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)	**2012**
Details of Project	**Number of Asset Components**
C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)	-

Asset Component (Click on the Number to View the Component Details)		**Capital Cost**	**Depreciation Rate**	**CCA Class**	**CCA Rate**
1		-	0%	0	0%

	2012	**2013**
Closing Net Fixed Asset	-	-
Amortization Expense	-	-
CCA	-	-

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ -
Capital Investment		$ -	$ -
Closing Capital Investment		$ -	$ -
Opening Accumulated Amortization		$ -	$ -
Amortization	*0%*	$ -	$ -
Closing Accumulated Amortization		$ -	$ -
Opening Net Fixed Assets		$ -	$ -
Closing Net Fixed Assets		$ -	$ -
Average Net Fixed Assets		$ -	$ -

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ -
Capital Additions		$ -	$ -
UCC Before Half Year Rule		$ -	$ -
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ -	$ -
CCA Rate Class	*0*		
CCA Rate	*0%*		
CCA		$ -	$ -
Closing UCC		$ -	$ -

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	**Year**
C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)	**2013**

Details of Project	**Number of Asset Components**
C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)	12

	Asset Component (Click on the Number to View the Component Details)	**Capital Cost**	**Depreciation Rate**	**CCA Class**	**CCA Rate**
1	1830_Poles Towers and Fixtures	9,214	3%	47	8%
2	1835_Overhead Conductors and Devices	6,900	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	35,005	3%	47	8%
4	1840_Underground Conduit - Duct Bank	7,266	3%	47	8%
5	1840_Underground Conduit - Vault	31,861	3%	47	8%
6	1845_Underground Conductors and Devices	412,291	3%	47	8%
7	1845_Underground Conductors and Devices - Switch	424,741	5%	47	8%
8	1850_Line Transformers - OH	10,808	3%	47	8%
9	1850_Line Transformers - UG	245,152	3%	47	8%
10	1850_Line Transformers - UG Network w/protector	2,076,957	5%	47	8%
11	1855_Services - UG	1,677	3%	47	8%
12	1855_Services - OH	1,360	2%	47	8%

	2013
Closing Net Fixed Asset	3,116,665
Amortization Expense	146,567
CCA	261,059

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 9,214
Closing Capital Investment		$ 9,214
Opening Accumulated Amortization		$ -
Amortization	3%	$ 230
Closing Accumulated Amortization		$ 230
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 8,984
Average Net Fixed Assets		$ 4,492

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 9,214
UCC Before Half Year Rule		$ 9,214
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 9,214
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 737
Closing UCC		$ 8,477

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 6,900
Closing Capital Investment		$ 6,900
Opening Accumulated Amortization		$ -
Amortization	2%	$ 138
Closing Accumulated Amortization		$ 138
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 6,762
Average Net Fixed Assets		$ 3,381

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 6,900
UCC Before Half Year Rule		$ 6,900
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 6,900
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 552
Closing UCC		$ 6,348

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project
C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component
1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 35,005
Closing Capital Investment		$ 35,005
Opening Accumulated Amortization		$ -
Amortization	3%	$ 1,167
Closing Accumulated Amortization		$ 1,167
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 33,838
Average Net Fixed Assets		$ 16,919

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 35,005
UCC Before Half Year Rule		$ 35,005
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 35,005
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 2,800
Closing UCC		$ 32,205

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 7,266
Closing Capital Investment		$ 7,266
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 242
Closing Accumulated Amortization		$ 242
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 7,024
Average Net Fixed Assets		$ 3,512

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 7,266
UCC Before Half Year Rule		$ 7,266
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 7,266
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 581
Closing UCC		$ 6,685

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 31,861
Closing Capital Investment		$ 31,861
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 797
Closing Accumulated Amortization		$ 797
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 31,064
Average Net Fixed Assets		$ 15,532

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 31,861
UCC Before Half Year Rule		$ 31,861
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 31,861
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 2,549
Closing UCC		$ 29,312

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 412,291
Closing Capital Investment		$ 412,291
Opening Accumulated Amortization		$ -
Amortization	3%	$ 10,307
Closing Accumulated Amortization		$ 10,307
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 401,984
Average Net Fixed Assets		$ 200,992

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 412,291
UCC Before Half Year Rule		$ 412,291
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 412,291
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 32,983
Closing UCC		$ 379,308

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 424,741
Closing Capital Investment		$ 424,741
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 21,237
Closing Accumulated Amortization		$ 21,237
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 403,504
Average Net Fixed Assets		$ 201,752

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 424,741
UCC Before Half Year Rule		$ 424,741
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 424,741
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 33,979
Closing UCC		$ 390,762

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 10,808
Closing Capital Investment		$ 10,808
Opening Accumulated Amortization		$ -
Amortization	3%	$ 360
Closing Accumulated Amortization		$ 360
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 10,447
Average Net Fixed Assets		$ 5,224

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 10,808
UCC Before Half Year Rule		$ 10,808
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 10,808
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 865
Closing UCC		$ 9,943

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 245,152
Closing Capital Investment		$ 245,152
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 8,172
Closing Accumulated Amortization		$ 8,172
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 236,980
Average Net Fixed Assets		$ 118,490

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 245,152
UCC Before Half Year Rule		$ 245,152
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 245,152
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 19,612
Closing UCC		$ 225,540

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1850_Line Transformers - UG Network w/protector

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,076,957
Closing Capital Investment		$ 2,076,957
Opening Accumulated Amortization		$ -
Amortization	5%	$ 103,848
Closing Accumulated Amortization		$ 103,848
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,973,109
Average Net Fixed Assets		$ 986,554

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,076,957
UCC Before Half Year Rule		$ 2,076,957
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,076,957
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 166,157
Closing UCC		$ 1,910,800

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,677
Closing Capital Investment		$ 1,677
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 42
Closing Accumulated Amortization		$ 42
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,636
Average Net Fixed Assets		$ 818

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,677
UCC Before Half Year Rule		$ 1,677
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,677
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 134
Closing UCC		$ 1,543

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project

C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,360
Closing Capital Investment		$ 1,360
Opening Accumulated Amortization		$ -
Amortization	2%	$ 27
Closing Accumulated Amortization		$ 27
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,333
Average Net Fixed Assets		$ 667

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,360
UCC Before Half Year Rule		$ 1,360
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,360
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 109
Closing UCC		$ 1,251

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C12 Stations Power Transformers	**2012**

Details of Project	Number of Asset Components
C12 Stations Power Transformers	1

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1820_DS Equip - Normally Primary below 50 kV - Power Transformer	375,540	3%	47	8%

	2012	2013
Closing Net Fixed Asset	363,804	352,069
Amortization Expense	11,736	11,736
CCA	30,043	27,640

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C12 Stations Power Transformers

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Power Transformer

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 375,540
Capital Investment		$ 375,540	$ -
Closing Capital Investment		$ 375,540	$ 375,540
Opening Accumulated Amortization		$ -	$ 11,736
Amortization	*3%*	$ 11,736	$ 11,736
Closing Accumulated Amortization		$ 11,736	$ 23,471
Opening Net Fixed Assets		$ -	$ 363,804
Closing Net Fixed Assets		$ 363,804	$ 352,069
Average Net Fixed Assets		$ 181,902	$ 357,937

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 345,497
Capital Additions		$ 375,540	$ -
UCC Before Half Year Rule		$ 375,540	$ 345,497
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 375,540	$ 345,497
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 30,043	$ 27,640
Closing UCC		$ 345,497	$ 317,857

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C12 Stations Power Transformers	2013

Details of Project	Number of Asset Components
C12 Stations Power Transformers	3

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1808_Buildings and Fixtures - Stn Shell Site	7,352	3%	01	4%
2	1820_DS Equip - Normally Primary below 50 kV - Power Transformer	3,433,562	3%	47	8%
3	1840_Underground Conduit - Duct Bank	41,376	3%	47	8%

	2013
Closing Net Fixed Asset	3,373,367
Amortization Expense	108,923
CCA	278,289

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C12 Stations Power Transformers

Asset Component

1808_Buildings and Fixtures - Stn Shell Site

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 7,352
Closing Capital Investment		$ 7,352
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 245
Closing Accumulated Amortization		$ 245
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 7,107
Average Net Fixed Assets		$ 3,554

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 7,352
UCC Before Half Year Rule		$ 7,352
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 7,352
CCA Rate Class	*01*	
CCA Rate	*4%*	
CCA		$ 294
Closing UCC		$ 7,058

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C12 Stations Power Transformers

Asset Component
1820_DS Equip - Normally Primary below 50 kV - Power Transformer

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,433,562
Closing Capital Investment		$ 3,433,562
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 107,299
Closing Accumulated Amortization		$ 107,299
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,326,263
Average Net Fixed Assets		$ 1,663,131

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,433,562
UCC Before Half Year Rule		$ 3,433,562
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,433,562
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 274,685
Closing UCC		$ 3,158,877

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C12 Stations Power Transformers

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 41,376
Closing Capital Investment		$ 41,376
Opening Accumulated Amortization		$ -
Amortization	3%	$ 1,379
Closing Accumulated Amortization		$ 1,379
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 39,997
Average Net Fixed Assets		$ 19,999

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 41,376
UCC Before Half Year Rule		$ 41,376
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 41,376
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 3,310
Closing UCC		$ 38,066

CONCERNING 2014 INFORMATION

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TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C13 Stations Switchgear	2012

Details of Project	Number of Asset Components
C13 Stations Switchgear	8

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1808_Buildings and Fixtures - Stn Shell Site	9,336	3%	01	4%
2	1820_DS Equip - Normally Primary below 50 kV - Switchgear Air	1,672,454	3%	47	8%
3	1830_Poles Towers and Fixtures	662	3%	47	8%
4	1835_Overhead Conductors and Devices	2,229	2%	47	8%
5	1835_Overhead Conductors and Devices - Switches	6,671	3%	47	8%
6	1840_Underground Conduit - Duct Bank	11,193	3%	47	8%
7	1845_Underground Conductors and Devices	9,062	3%	47	8%
8	1980_System Supervisory Equipment	16,080	7%	08	20%

	2012	2013
Closing Net Fixed Asset	1,683,609	1,639,531
Amortization Expense	44,078	44,078
CCA	139,771	128,218

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1808_Buildings and Fixtures - Stn Shell Site

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 9,336
Capital Investment		$ 9,336	$ -
Closing Capital Investment		$ 9,336	$ 9,336
Opening Accumulated Amortization		$ -	$ 311
Amortization	3%	$ 311	$ 311
Closing Accumulated Amortization		$ 311	$ 622
Opening Net Fixed Assets		$ -	$ 9,025
Closing Net Fixed Assets		$ 9,025	$ 8,714
Average Net Fixed Assets		$ 4,512	$ 8,869

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 8,963
Capital Additions		$ 9,336	$ -
UCC Before Half Year Rule		$ 9,336	$ 8,963
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 9,336	$ 8,963
CCA Rate Class	01		
CCA Rate	4%		
CCA		$ 373	$ 359
Closing UCC		$ 8,963	$ 8,604

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C13 Stations Switchgear

Asset Component
1820_DS Equip - Normally Primary below 50 kV - Switchgear Air

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,672,454
Capital Investment		$ 1,672,454	$ -
Closing Capital Investment		$ 1,672,454	$ 1,672,454
Opening Accumulated Amortization		$ -	$ 41,811
Amortization	3%	$ 41,811	$ 41,811
Closing Accumulated Amortization		$ 41,811	$ 83,623
Opening Net Fixed Assets		$ -	$ 1,630,643
Closing Net Fixed Assets		$ 1,630,643	$ 1,588,831
Average Net Fixed Assets		$ 815,321	$ 1,609,737

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,538,658
Capital Additions		$ 1,672,454	$ -
UCC Before Half Year Rule		$ 1,672,454	$ 1,538,658
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,672,454	$ 1,538,658
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 133,796	$ 123,093
Closing UCC		$ 1,538,658	$ 1,415,565

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 662
Capital Investment		$ 662	$ -
Closing Capital Investment		$ 662	$ 662
Opening Accumulated Amortization		$ -	$ 17
Amortization	*3%*	$ 17	$ 17
Closing Accumulated Amortization		$ 17	$ 33
Opening Net Fixed Assets		$ -	$ 645
Closing Net Fixed Assets		$ 645	$ 629
Average Net Fixed Assets		$ 323	$ 637

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 609
Capital Additions		$ 662	$ -
UCC Before Half Year Rule		$ 662	$ 609
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 662	$ 609
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 53	$ 49
Closing UCC		$ 609	$ 560

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,229
Capital Investment		$ 2,229	$ -
Closing Capital Investment		$ 2,229	$ 2,229
Opening Accumulated Amortization		$ -	$ 45
Amortization	*2%*	$ 45	$ 45
Closing Accumulated Amortization		$ 45	$ 89
Opening Net Fixed Assets		$ -	$ 2,184
Closing Net Fixed Assets		$ 2,184	$ 2,139
Average Net Fixed Assets		$ 1,092	$ 2,162

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 2,050
Capital Additions		$ 2,229	$ -
UCC Before Half Year Rule		$ 2,229	$ 2,050
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,229	$ 2,050
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 178	$ 164
Closing UCC		$ 2,050	$ 1,886

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project
C13 Stations Switchgear

Asset Component
1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 6,671
Capital Investment		$ 6,671	$ -
Closing Capital Investment		$ 6,671	$ 6,671
Opening Accumulated Amortization		$ -	$ 222
Amortization	*3%*	$ 222	$ 222
Closing Accumulated Amortization		$ 222	$ 445
Opening Net Fixed Assets		$ -	$ 6,449
Closing Net Fixed Assets		$ 6,449	$ 6,226
Average Net Fixed Assets		$ 3,224	$ 6,338

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 6,138
Capital Additions		$ 6,671	$ -
UCC Before Half Year Rule		$ 6,671	$ 6,138
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 6,671	$ 6,138
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 534	$ 491
Closing UCC		$ 6,138	$ 5,647

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 11,193
Capital Investment		$ 11,193	$ -
Closing Capital Investment		$ 11,193	$ 11,193
Opening Accumulated Amortization		$ -	$ 373
Amortization	3%	$ 373	$ 373
Closing Accumulated Amortization		$ 373	$ 746
Opening Net Fixed Assets		$ -	$ 10,820
Closing Net Fixed Assets		$ 10,820	$ 10,447
Average Net Fixed Assets		$ 5,410	$ 10,634

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 10,298
Capital Additions		$ 11,193	$ -
UCC Before Half Year Rule		$ 11,193	$ 10,298
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 11,193	$ 10,298
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 895	$ 824
Closing UCC		$ 10,298	$ 9,474

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 9,062
Capital Investment		$ 9,062	$ -
Closing Capital Investment		$ 9,062	$ 9,062
Opening Accumulated Amortization		$ -	$ 227
Amortization	*3%*	$ 227	$ 227
Closing Accumulated Amortization		$ 227	$ 453
Opening Net Fixed Assets		$ -	$ 8,836
Closing Net Fixed Assets		$ 8,836	$ 8,609
Average Net Fixed Assets		$ 4,418	$ 8,722

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 8,337
Capital Additions		$ 9,062	$ -
UCC Before Half Year Rule		$ 9,062	$ 8,337
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 9,062	$ 8,337
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 725	$ 667
Closing UCC		$ 8,337	$ 7,670

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1980_System Supervisory Equipment

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 16,080
Capital Investment		$ 16,080	$ -
Closing Capital Investment		$ 16,080	$ 16,080
Opening Accumulated Amortization		$ -	$ 1,072
Amortization	7%	$ 1,072	$ 1,072
Closing Accumulated Amortization		$ 1,072	$ 2,144
Opening Net Fixed Assets		$ -	$ 15,008
Closing Net Fixed Assets		$ 15,008	$ 13,936
Average Net Fixed Assets		$ 7,504	$ 14,472

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 12,864
Capital Additions		$ 16,080	$ -
UCC Before Half Year Rule		$ 16,080	$ 12,864
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 16,080	$ 12,864
CCA Rate Class	08		
CCA Rate	20%		
CCA		$ 3,216	$ 2,573
Closing UCC		$ 12,864	$ 10,291

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C13 Stations Switchgear	**2013**

Details of Project	Number of Asset Components
C13 Stations Switchgear	18

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1808_Buildings and Fixtures - Stn Shell Site	129,458	3%	01	4%
2	1820_DS Equip - Normally Primary below 50 kV - Indoor Breaker	49,364	3%	47	8%
3	1820_DS Equip - Normally Primary below 50 kV - Stn Service Batteries	5,886	10%	47	8%
4	1820_DS Equip - Normally Primary below 50 kV - Stn Service Chargers	7,063	5%	47	8%
5	1820_DS Equip - Normally Primary below 50 kV - Switchgear Air	17,842,403	3%	47	8%
6	1820_DS Equip - Normally Primary below 50 kV - Switchgear GIS	224,633	3%	47	8%
7	1830_Poles Towers and Fixtures	154,302	3%	47	8%
8	1835_Overhead Conductors and Devices	303,642	2%	47	8%
9	1835_Overhead Conductors and Devices - Switches	728,483	3%	47	8%
10	1840_Underground Conduit - Cable Chamber	258,971	2%	47	8%
11	1840_Underground Conduit - Duct Bank	999,969	3%	47	8%
12	1840_Underground Conduit - Vault	4,167	3%	47	8%
13	1840_Underground Conduit - Vault Roof	1,856	5%	47	8%
14	1845_Underground Conductors and Devices	924,876	3%	47	8%
15	1845_Underground Conductors and Devices - Switch	6,491	5%	47	8%
16	1980_System Supervisory Equipment	169,860	7%	08	20%
17	1855_Services - UG	515	3%	47	8%
18	1855_Services - OH	1,253	2%	47	8%

	2013
Closing Net Fixed Asset	21,246,886
Amortization Expense	566,309
CCA	1,760,260

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1808_Buildings and Fixtures - Stn Shell Site

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 129,458
Closing Capital Investment		$ 129,458
Opening Accumulated Amortization		$ -
Amortization	3%	$ 4,315
Closing Accumulated Amortization		$ 4,315
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 125,143
Average Net Fixed Assets		$ 62,571

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 129,458
UCC Before Half Year Rule		$ 129,458
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 129,458
CCA Rate Class	01	
CCA Rate	4%	
CCA		$ 5,178
Closing UCC		$ 124,280

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C13 Stations Switchgear

Asset Component
1820_DS Equip - Normally Primary below 50 kV - Indoor Breaker

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 49,364
Closing Capital Investment		$ 49,364
Opening Accumulated Amortization		$ -
Amortization	3%	$ 1,645
Closing Accumulated Amortization		$ 1,645
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 47,719
Average Net Fixed Assets		$ 23,859

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 49,364
UCC Before Half Year Rule		$ 49,364
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 49,364
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 3,949
Closing UCC		$ 45,415

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Stn Service Batteries

Average Net Fixed Assets

Net Fixed Assets		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 5,886
Closing Capital Investment		$ 5,886
Opening Accumulated Amortization		$ -
Amortization	10%	$ 589
Closing Accumulated Amortization		$ 589
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 5,297
Average Net Fixed Assets		$ 2,649

For PILs Calculation

UCC		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 5,886
UCC Before Half Year Rule		$ 5,886
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 5,886
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 471
Closing UCC		$ 5,415

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Stn Service Chargers

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 7,063
Closing Capital Investment		$ 7,063
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 353
Closing Accumulated Amortization		$ 353
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 6,710
Average Net Fixed Assets		$ 3,355

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 7,063
UCC Before Half Year Rule		$ 7,063
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 7,063
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 565
Closing UCC		$ 6,498

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Switchgear Air

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 17,842,403
Closing Capital Investment		$ 17,842,403
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 446,060
Closing Accumulated Amortization		$ 446,060
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 17,396,343
Average Net Fixed Assets		$ 8,698,171

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 17,842,403
UCC Before Half Year Rule		$ 17,842,403
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 17,842,403
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 1,427,392
Closing UCC		$ 16,415,011

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project
C13 Stations Switchgear

Asset Component
1820_DS Equip - Normally Primary below 50 kV - Switchgear GIS

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 224,633
Closing Capital Investment		$ 224,633
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 5,616
Closing Accumulated Amortization		$ 5,616
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 219,017
Average Net Fixed Assets		$ 109,509

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 224,633
UCC Before Half Year Rule		$ 224,633
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 224,633
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 17,971
Closing UCC		$ 206,662

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 154,302
Closing Capital Investment		$ 154,302
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 3,858
Closing Accumulated Amortization		$ 3,858
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 150,445
Average Net Fixed Assets		$ 75,222

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 154,302
UCC Before Half Year Rule		$ 154,302
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 154,302
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 12,344
Closing UCC		$ 141,958

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 303,642
Closing Capital Investment		$ 303,642
Opening Accumulated Amortization		$ -
Amortization	2%	$ 6,073
Closing Accumulated Amortization		$ 6,073
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 297,569
Average Net Fixed Assets		$ 148,785

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 303,642
UCC Before Half Year Rule		$ 303,642
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 303,642
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 24,291
Closing UCC		$ 279,351

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project
C13 Stations Switchgear

Asset Component
1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 728,483
Closing Capital Investment		$ 728,483
Opening Accumulated Amortization		$ -
Amortization	3%	$ 24,283
Closing Accumulated Amortization		$ 24,283
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 704,201
Average Net Fixed Assets		$ 352,100

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 728,483
UCC Before Half Year Rule		$ 728,483
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 728,483
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 58,279
Closing UCC		$ 670,205

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 258,971
Closing Capital Investment		$ 258,971
Opening Accumulated Amortization		$ -
Amortization	2%	$ 5,179
Closing Accumulated Amortization		$ 5,179
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 253,791
Average Net Fixed Assets		$ 126,896

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 258,971
UCC Before Half Year Rule		$ 258,971
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 258,971
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 20,718
Closing UCC		$ 238,253

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 999,969
Closing Capital Investment		$ 999,969
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 33,332
Closing Accumulated Amortization		$ 33,332
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 966,637
Average Net Fixed Assets		$ 483,318

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 999,969
UCC Before Half Year Rule		$ 999,969
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 999,969
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 79,998
Closing UCC		$ 919,972

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project
C13 Stations Switchgear

Asset Component
1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 4,167
Closing Capital Investment		$ 4,167
Opening Accumulated Amortization		$ -
Amortization	3%	$ 104
Closing Accumulated Amortization		$ 104
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 4,063
Average Net Fixed Assets		$ 2,032

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 4,167
UCC Before Half Year Rule		$ 4,167
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 4,167
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 333
Closing UCC		$ 3,834

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project
C13 Stations Switchgear

Asset Component
1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,856
Closing Capital Investment		$ 1,856
Opening Accumulated Amortization		$ -
Amortization	5%	$ 93
Closing Accumulated Amortization		$ 93
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,763
Average Net Fixed Assets		$ 882

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,856
UCC Before Half Year Rule		$ 1,856
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,856
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 149
Closing UCC		$ 1,708

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 14

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 924,876
Closing Capital Investment		$ 924,876
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 23,122
Closing Accumulated Amortization		$ 23,122
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 901,754
Average Net Fixed Assets		$ 450,877

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 924,876
UCC Before Half Year Rule		$ 924,876
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 924,876
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 73,990
Closing UCC		$ 850,886

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 15

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 6,491
Closing Capital Investment		$ 6,491
Opening Accumulated Amortization		$ -
Amortization	5%	$ 325
Closing Accumulated Amortization		$ 325
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 6,167
Average Net Fixed Assets		$ 3,083

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 6,491
UCC Before Half Year Rule		$ 6,491
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 6,491
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 519
Closing UCC		$ 5,972

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 16

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1980_System Supervisory Equipment

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 169,860
Closing Capital Investment		$ 169,860
Opening Accumulated Amortization		$ -
Amortization	7%	$ 11,324
Closing Accumulated Amortization		$ 11,324
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 158,536
Average Net Fixed Assets		$ 79,268

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 169,860
UCC Before Half Year Rule		$ 169,860
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 169,860
CCA Rate Class	08	
CCA Rate	20%	
CCA		$ 33,972
Closing UCC		$ 135,888

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 17

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 515
Closing Capital Investment		$ 515
Opening Accumulated Amortization		$ -
Amortization	3%	$ 13
Closing Accumulated Amortization		$ 13
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 502
Average Net Fixed Assets		$ 251

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 515
UCC Before Half Year Rule		$ 515
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 515
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 41
Closing UCC		$ 474

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 18

Name or General Description of Project

C13 Stations Switchgear

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,253
Closing Capital Investment		$ 1,253
Opening Accumulated Amortization		$ -
Amortization	*2%*	$ 25
Closing Accumulated Amortization		$ 25
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,228
Average Net Fixed Assets		$ 614

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,253
UCC Before Half Year Rule		$ 1,253
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,253
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 100
Closing UCC		$ 1,153

CONCERNING 2014 INFORMATION

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TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C14 Stations Circuit Breakers	**2012**

Details of Project	Number of Asset Components
C14 Stations Circuit Breakers	3

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1808_Buildings and Fixtures - Stn Shell Site	8,108	3%	01	4%
2	1820_DS Equip - Normally Primary below 50 kV - Outdoor Breaker	742,106	3%	47	8%
3	1840_Underground Conduit - Duct Bank	9,445	3%	47	8%

	2012	2013
Closing Net Fixed Asset	734,336	709,014
Amortization Expense	25,322	25,322
CCA	60,448	55,625

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C14 Stations Circuit Breakers

Asset Component

1808_Buildings and Fixtures - Stn Shell Site

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 8,108
Capital Investment		$ 8,108	$ -
Closing Capital Investment		$ 8,108	$ 8,108
Opening Accumulated Amortization		$ -	$ 270
Amortization	3%	$ 270	$ 270
Closing Accumulated Amortization		$ 270	$ 541
Opening Net Fixed Assets		$ -	$ 7,837
Closing Net Fixed Assets		$ 7,837	$ 7,567
Average Net Fixed Assets		$ 3,919	$ 7,702

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 7,783
Capital Additions		$ 8,108	$ -
UCC Before Half Year Rule		$ 8,108	$ 7,783
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 8,108	$ 7,783
CCA Rate Class	01		
CCA Rate	4%		
CCA		$ 324	$ 311
Closing UCC		$ 7,783	$ 7,472

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C14 Stations Circuit Breakers

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Outdoor Breaker

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 742,106
Capital Investment		$ 742,106	$ -
Closing Capital Investment		$ 742,106	$ 742,106
Opening Accumulated Amortization		$ -	$ 24,737
Amortization	3%	$ 24,737	$ 24,737
Closing Accumulated Amortization		$ 24,737	$ 49,474
Opening Net Fixed Assets		$ -	$ 717,369
Closing Net Fixed Assets		$ 717,369	$ 692,632
Average Net Fixed Assets		$ 358,685	$ 705,001

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 682,737
Capital Additions		$ 742,106	$ -
UCC Before Half Year Rule		$ 742,106	$ 682,737
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 742,106	$ 682,737
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 59,368	$ 54,619
Closing UCC		$ 682,737	$ 628,118

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C14 Stations Circuit Breakers

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 9,445
Capital Investment		$ 9,445	$ -
Closing Capital Investment		$ 9,445	$ 9,445
Opening Accumulated Amortization		$ -	$ 315
Amortization	3%	$ 315	$ 315
Closing Accumulated Amortization		$ 315	$ 630
Opening Net Fixed Assets		$ -	$ 9,130
Closing Net Fixed Assets		$ 9,130	$ 8,815
Average Net Fixed Assets		$ 4,565	$ 8,973

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 8,689
Capital Additions		$ 9,445	$ -
UCC Before Half Year Rule		$ 9,445	$ 8,689
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 9,445	$ 8,689
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 756	$ 695
Closing UCC		$ 8,689	$ 7,994

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C14 Stations Circuit Breakers	**2013**

Details of Project	Number of Asset Components
C14 Stations Circuit Breakers	3

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1808_Buildings and Fixtures - Stn Shell Site	7,308	3%	01	4%
2	1820_DS Equip - Normally Primary below 50 kV - Outdoor Breaker	536,231	3%	47	8%
3	1840_Underground Conduit - Duct Bank	8,337	3%	47	8%

	2013
Closing Net Fixed Asset	533,480
Amortization Expense	18,396
CCA	43,858

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C14 Stations Circuit Breakers

Asset Component

1808_Buildings and Fixtures - Stn Shell Site

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 7,308
Closing Capital Investment		$ 7,308
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 244
Closing Accumulated Amortization		$ 244
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 7,064
Average Net Fixed Assets		$ 3,532

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 7,308
UCC Before Half Year Rule		$ 7,308
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 7,308
CCA Rate Class	*01*	
CCA Rate	*4%*	
CCA		$ 292
Closing UCC		$ 7,015

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C14 Stations Circuit Breakers

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Outdoor Breaker

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 536,231
Closing Capital Investment		$ 536,231
Opening Accumulated Amortization		$ -
Amortization	3%	$ 17,874
Closing Accumulated Amortization		$ 17,874
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 518,357
Average Net Fixed Assets		$ 259,178

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 536,231
UCC Before Half Year Rule		$ 536,231
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 536,231
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 42,898
Closing UCC		$ 493,333

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C14 Stations Circuit Breakers

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 8,337
Closing Capital Investment		$ 8,337
Opening Accumulated Amortization		$ -
Amortization	3%	$ 278
Closing Accumulated Amortization		$ 278
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 8,059
Average Net Fixed Assets		$ 4,029

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 8,337
UCC Before Half Year Rule		$ 8,337
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 8,337
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 667
Closing UCC		$ 7,670

CONCERNING 2014 INFORMATION

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Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C15 Stations Control & Communicaton Systems	**2012**

Details of Project	Number of Asset Components
C15 Stations Control & Communicaton Systems	1

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1980_System Supervisory Equipment	135,429	7%	08	20%

	2012	2013
Closing Net Fixed Asset	126,400	117,372
Amortization Expense	9,029	9,029
CCA	27,086	21,669

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project
C15 Stations Control & Communicaton Systems

Asset Component
1980_System Supervisory Equipment

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 135,429
Capital Investment		$ 135,429	$ -
Closing Capital Investment		$ 135,429	$ 135,429
Opening Accumulated Amortization		$ -	$ 9,029
Amortization	7%	$ 9,029	$ 9,029
Closing Accumulated Amortization		$ 9,029	$ 18,057
Opening Net Fixed Assets		$ -	$ 126,400
Closing Net Fixed Assets		$ 126,400	$ 117,372
Average Net Fixed Assets		$ 63,200	$ 121,886

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 108,343
Capital Additions		$ 135,429	$ -
UCC Before Half Year Rule		$ 135,429	$ 108,343
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 135,429	$ 108,343
CCA Rate Class	08		
CCA Rate	20%		
CCA		$ 27,086	$ 21,669
Closing UCC		$ 108,343	$ 86,674

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C15 Stations Control & Communicaton Systems	**2013**

Details of Project	Number of Asset Components
C15 Stations Control & Communicaton Systems	1

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1980_System Supervisory Equipment	1,000,375	7%	08	20%

	2013
Closing Net Fixed Asset	933,683
Amortization Expense	66,692
CCA	200,075

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C15 Stations Control & Communicaton Systems

Asset Component

1980_System Supervisory Equipment

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,000,375
Closing Capital Investment		$ 1,000,375
Opening Accumulated Amortization		$ -
Amortization	*7%*	$ 66,692
Closing Accumulated Amortization		$ 66,692
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 933,683
Average Net Fixed Assets		$ 466,842

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,000,375
UCC Before Half Year Rule		$ 1,000,375
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,000,375
CCA Rate Class	*08*	
CCA Rate	*20%*	
CCA		$ 200,075
Closing UCC		$ 800,300

CONCERNING 2014 INFORMATION

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TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	**Year**
C16 Downtown Station Load Transfers	**2012**
Details of Project	**Number of Asset Components**
C16 Downtown Station Load Transfers	1

Asset Component (Click on the Number to View the Component Details)		**Capital Cost**	**Depreciation Rate**	**CCA Class**	**CCA Rate**
1	1845_Underground Conductors and Devices	679,135	3%	47	8%

	2012	**2013**
Closing Net Fixed Asset	662,156	645,178
Amortization Expense	16,978	16,978
CCA	54,331	49,984

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 679,135
Capital Investment		$ 679,135	$ -
Closing Capital Investment		$ 679,135	$ 679,135
Opening Accumulated Amortization		$ -	$ 16,978
Amortization	3%	$ 16,978	$ 16,978
Closing Accumulated Amortization		$ 16,978	$ 33,957
Opening Net Fixed Assets		$ -	$ 662,156
Closing Net Fixed Assets		$ 662,156	$ 645,178
Average Net Fixed Assets		$ 331,078	$ 653,667

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 624,804
Capital Additions		$ 679,135	$ -
UCC Before Half Year Rule		$ 679,135	$ 624,804
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 679,135	$ 624,804
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 54,331	$ 49,984
Closing UCC		$ 624,804	$ 574,820

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C16 Downtown Station Load Transfers	2013

Details of Project	Number of Asset Components
C16 Downtown Station Load Transfers	10

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	29,340	3%	47	8%
2	1835_Overhead Conductors and Devices	49,375	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	84,548	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	107,041	2%	47	8%
5	1840_Underground Conduit - Duct Bank	114,455	3%	47	8%
6	1840_Underground Conduit - Vault	4,547	3%	47	8%
7	1840_Underground Conduit - Vault Roof	2,026	5%	47	8%
8	1845_Underground Conductors and Devices	1,642,438	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	99,384	5%	47	8%
10	1855_Services - OH	3,909	2%	47	8%

	2013
Closing Net Fixed Asset	2,080,244
Amortization Expense	56,819
CCA	170,965

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 29,340
Closing Capital Investment		$ 29,340
Opening Accumulated Amortization		$ -
Amortization	3%	$ 734
Closing Accumulated Amortization		$ 734
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 28,607
Average Net Fixed Assets		$ 14,303

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 29,340
UCC Before Half Year Rule		$ 29,340
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 29,340
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 2,347
Closing UCC		$ 26,993

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C16 Downtown Station Load Transfers

Asset Component
1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 49,375
Closing Capital Investment		$ 49,375
Opening Accumulated Amortization		$ -
Amortization	2%	$ 988
Closing Accumulated Amortization		$ 988
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 48,388
Average Net Fixed Assets		$ 24,194

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 49,375
UCC Before Half Year Rule		$ 49,375
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 49,375
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 3,950
Closing UCC		$ 45,425

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 84,548
Closing Capital Investment		$ 84,548
Opening Accumulated Amortization		$ -
Amortization	3%	$ 2,818
Closing Accumulated Amortization		$ 2,818
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 81,730
Average Net Fixed Assets		$ 40,865

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 84,548
UCC Before Half Year Rule		$ 84,548
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 84,548
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 6,764
Closing UCC		$ 77,784

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 107,041
Closing Capital Investment		$ 107,041
Opening Accumulated Amortization		$ -
Amortization	*2%*	$ 2,141
Closing Accumulated Amortization		$ 2,141
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 104,900
Average Net Fixed Assets		$ 52,450

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 107,041
UCC Before Half Year Rule		$ 107,041
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 107,041
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 8,563
Closing UCC		$ 98,477

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 114,455
Closing Capital Investment		$ 114,455
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 3,815
Closing Accumulated Amortization		$ 3,815
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 110,640
Average Net Fixed Assets		$ 55,320

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 114,455
UCC Before Half Year Rule		$ 114,455
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 114,455
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 9,156
Closing UCC		$ 105,299

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 4,547
Closing Capital Investment		$ 4,547
Opening Accumulated Amortization		$ -
Amortization	3%	$ 114
Closing Accumulated Amortization		$ 114
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 4,434
Average Net Fixed Assets		$ 2,217

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 4,547
UCC Before Half Year Rule		$ 4,547
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 4,547
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 364
Closing UCC		$ 4,184

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,026
Closing Capital Investment		$ 2,026
Opening Accumulated Amortization		$ -
Amortization	5%	$ 101
Closing Accumulated Amortization		$ 101
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,924
Average Net Fixed Assets		$ 962

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,026
UCC Before Half Year Rule		$ 2,026
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,026
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 162
Closing UCC		$ 1,864

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,642,438
Closing Capital Investment		$ 1,642,438
Opening Accumulated Amortization		$ -
Amortization	3%	$ 41,061
Closing Accumulated Amortization		$ 41,061
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,601,377
Average Net Fixed Assets		$ 800,689

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,642,438
UCC Before Half Year Rule		$ 1,642,438
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,642,438
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 131,395
Closing UCC		$ 1,511,043

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 99,384
Closing Capital Investment		$ 99,384
Opening Accumulated Amortization		$ -
Amortization	5%	$ 4,969
Closing Accumulated Amortization		$ 4,969
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 94,414
Average Net Fixed Assets		$ 47,207

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 99,384
UCC Before Half Year Rule		$ 99,384
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 99,384
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 7,951
Closing UCC		$ 91,433

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C16 Downtown Station Load Transfers

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,909
Closing Capital Investment		$ 3,909
Opening Accumulated Amortization		$ -
Amortization	*2%*	$ 78
Closing Accumulated Amortization		$ 78
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,831
Average Net Fixed Assets		$ 1,916

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,909
UCC Before Half Year Rule		$ 3,909
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,909
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 313
Closing UCC		$ 3,597

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project

C17 Bremner Transformer Station

Year

2012

Details of Project

C17 Bremner Transformer Station

Number of Asset Components

8

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1808_Buildings and Fixtures - Stn Shell Site	400,480	3%	01	4%
2	1808_Buildings and Fixtures - Stn Substructure	3,619,271	1%	01	4%
3	1815_TS Equip - Normally Primary above 50 kV - Disconnect Switch	1,174,252	3%	47	8%
4	1815_TS Equip - Normally Primary above 50 kV - Power Transformer	1,388,728	3%	47	8%
5	1815_TS Equip - Normally Primary above 50 kV - Station Service	412,865	3%	47	8%
6	1820_DS Equip - Normally Primary below 50 kV - Stn Service Batteries	61,208	10%	47	8%
7	1820_DS Equip - Normally Primary below 50 kV - Switchgear GIS	1,328,186	3%	47	8%
8	1820_DS Equip - Normally Primary below 50 kV - Station Service	115,011	3%	47	8%

	2012	2013
Closing Net Fixed Asset	8,302,613	8,105,226
Amortization Expense	197,387	197,387
CCA	519,210	484,105

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1808_Buildings and Fixtures - Stn Shell Site

Average Net Fixed Assets

Net Fixed Assets		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 400,480
Capital Investment		$ 400,480	$ -
Closing Capital Investment		$ 400,480	$ 400,480
Opening Accumulated Amortization		$ -	$ 13,349
Amortization	3%	$ 13,349	$ 13,349
Closing Accumulated Amortization		$ 13,349	$ 26,699
Opening Net Fixed Assets		$ -	$ 387,131
Closing Net Fixed Assets		$ 387,131	$ 373,782
Average Net Fixed Assets		$ 193,566	$ 380,456

For PILs Calculation

UCC		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 384,461
Capital Additions		$ 400,480	$ -
UCC Before Half Year Rule		$ 400,480	$ 384,461
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 400,480	$ 384,461
CCA Rate Class	01		
CCA Rate	4%		
CCA		$ 16,019	$ 15,378
Closing UCC		$ 384,461	$ 369,083

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1808_Buildings and Fixtures - Stn Substructure

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 3,619,271
Capital Investment		$ 3,619,271	$ -
Closing Capital Investment		$ 3,619,271	$ 3,619,271
Opening Accumulated Amortization		$ -	$ 48,257
Amortization	*1%*	$ 48,257	$ 48,257
Closing Accumulated Amortization		$ 48,257	$ 96,514
Opening Net Fixed Assets		$ -	$ 3,571,014
Closing Net Fixed Assets		$ 3,571,014	$ 3,522,757
Average Net Fixed Assets		$ 1,785,507	$ 3,546,885

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 3,474,500
Capital Additions		$ 3,619,271	$ -
UCC Before Half Year Rule		$ 3,619,271	$ 3,474,500
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 3,619,271	$ 3,474,500
CCA Rate Class	*01*		
CCA Rate	*4%*		
CCA		$ 144,771	$ 138,980
Closing UCC		$ 3,474,500	$ 3,335,520

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1815_TS Equip - Normally Primary above 50 kV - Disconnect Switch

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,174,252
Capital Investment		$ 1,174,252	$ -
Closing Capital Investment		$ 1,174,252	$ 1,174,252
Opening Accumulated Amortization		$ -	$ 39,142
Amortization	3%	$ 39,142	$ 39,142
Closing Accumulated Amortization		$ 39,142	$ 78,283
Opening Net Fixed Assets		$ -	$ 1,135,111
Closing Net Fixed Assets		$ 1,135,111	$ 1,095,969
Average Net Fixed Assets		$ 567,555	$ 1,115,540

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,080,312
Capital Additions		$ 1,174,252	$ -
UCC Before Half Year Rule		$ 1,174,252	$ 1,080,312
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,174,252	$ 1,080,312
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 93,940	$ 86,425
Closing UCC		$ 1,080,312	$ 993,887

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project
C17 Bremner Transformer Station

Asset Component
1815_TS Equip - Normally Primary above 50 kV - Power Transformer

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,388,728
Capital Investment		$ 1,388,728	$ -
Closing Capital Investment		$ 1,388,728	$ 1,388,728
Opening Accumulated Amortization		$ -	$ 43,398
Amortization	3%	$ 43,398	$ 43,398
Closing Accumulated Amortization		$ 43,398	$ 86,795
Opening Net Fixed Assets		$ -	$ 1,345,330
Closing Net Fixed Assets		$ 1,345,330	$ 1,301,932
Average Net Fixed Assets		$ 672,665	$ 1,323,631

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,277,629
Capital Additions		$ 1,388,728	$ -
UCC Before Half Year Rule		$ 1,388,728	$ 1,277,629
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,388,728	$ 1,277,629
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 111,098	$ 102,210
Closing UCC		$ 1,277,629	$ 1,175,419

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1815_TS Equip - Normally Primary above 50 kV - Station Service

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 412,865
Capital Investment		$ 412,865	$ -
Closing Capital Investment		$ 412,865	$ 412,865
Opening Accumulated Amortization		$ -	$ 10,322
Amortization	*3%*	$ 10,322	$ 10,322
Closing Accumulated Amortization		$ 10,322	$ 20,643
Opening Net Fixed Assets		$ -	$ 402,543
Closing Net Fixed Assets		$ 402,543	$ 392,222
Average Net Fixed Assets		$ 201,272	$ 397,383

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 379,836
Capital Additions		$ 412,865	$ -
UCC Before Half Year Rule		$ 412,865	$ 379,836
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 412,865	$ 379,836
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 33,029	$ 30,387
Closing UCC		$ 379,836	$ 349,449

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Stn Service Batteries

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 61,208
Capital Investment		$ 61,208	$ -
Closing Capital Investment		$ 61,208	$ 61,208
Opening Accumulated Amortization		$ -	$ 6,121
Amortization	*10%*	$ 6,121	$ 6,121
Closing Accumulated Amortization		$ 6,121	$ 12,242
Opening Net Fixed Assets		$ -	$ 55,087
Closing Net Fixed Assets		$ 55,087	$ 48,966
Average Net Fixed Assets		$ 27,544	$ 52,027

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 56,311
Capital Additions		$ 61,208	$ -
UCC Before Half Year Rule		$ 61,208	$ 56,311
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 61,208	$ 56,311
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 4,897	$ 4,505
Closing UCC		$ 56,311	$ 51,806

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Switchgear GIS

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,328,186
Capital Investment		$ 1,328,186	$ -
Closing Capital Investment		$ 1,328,186	$ 1,328,186
Opening Accumulated Amortization		$ -	$ 33,205
Amortization	3%	$ 33,205	$ 33,205
Closing Accumulated Amortization		$ 33,205	$ 66,409
Opening Net Fixed Assets		$ -	$ 1,294,981
Closing Net Fixed Assets		$ 1,294,981	$ 1,261,777
Average Net Fixed Assets		$ 647,491	$ 1,278,379

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,221,931
Capital Additions		$ 1,328,186	$ -
UCC Before Half Year Rule		$ 1,328,186	$ 1,221,931
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,328,186	$ 1,221,931
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 106,255	$ 97,754
Closing UCC		$ 1,221,931	$ 1,124,177

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Station Service

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 115,011
Capital Investment		$ 115,011	$ -
Closing Capital Investment		$ 115,011	$ 115,011
Opening Accumulated Amortization		$ -	$ 3,594
Amortization	*3%*	$ 3,594	$ 3,594
Closing Accumulated Amortization		$ 3,594	$ 7,188
Opening Net Fixed Assets		$ -	$ 111,416
Closing Net Fixed Assets		$ 111,416	$ 107,822
Average Net Fixed Assets		$ 55,708	$ 109,619

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 105,810
Capital Additions		$ 115,011	$ -
UCC Before Half Year Rule		$ 115,011	$ 105,810
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 115,011	$ 105,810
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 9,201	$ 8,465
Closing UCC		$ 105,810	$ 97,345

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C17 Bremner Transformer Station	**2013**

Details of Project	Number of Asset Components
C17 Bremner Transformer Station	9

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1808_Buildings and Fixtures - Stn Interior	5,227,493	5%	01	4%
2	1808_Buildings and Fixtures - Stn Shell Site	5,959,821	3%	01	4%
3	1808_Buildings and Fixtures - Stn Substructure	30,804,869	1%	01	4%
4	1815_TS Equip - Normally Primary above 50 kV - Disconnect Switch	10,448,051	3%	47	8%
5	1815_TS Equip - Normally Primary above 50 kV - Power Transformer	12,135,252	3%	47	8%
6	1815_TS Equip - Normally Primary above 50 kV - Station Service	3,593,901	3%	47	8%
7	1820_DS Equip - Normally Primary below 50 kV - Stn Service Batteries	522,084	10%	47	8%
8	1820_DS Equip - Normally Primary below 50 kV - Switchgear GIS	11,327,643	3%	47	8%
9	1820_DS Equip - Normally Primary below 50 kV - Station Service	980,885	3%	47	8%

	2013
Closing Net Fixed Asset	78,945,838
Amortization Expense	2,054,162
CCA	4,800,313

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1808_Buildings and Fixtures - Stn Interior

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 5,227,493
Closing Capital Investment		$ 5,227,493
Opening Accumulated Amortization		$ -
Amortization	5%	$ 261,375
Closing Accumulated Amortization		$ 261,375
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 4,966,118
Average Net Fixed Assets		$ 2,483,059

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 5,227,493
UCC Before Half Year Rule		$ 5,227,493
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 5,227,493
CCA Rate Class	01	
CCA Rate	4%	
CCA		$ 209,100
Closing UCC		$ 5,018,393

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1808_Buildings and Fixtures - Stn Shell Site

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 5,959,821
Closing Capital Investment		$ 5,959,821
Opening Accumulated Amortization		$ -
Amortization	3%	$ 198,661
Closing Accumulated Amortization		$ 198,661
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 5,761,160
Average Net Fixed Assets		$ 2,880,580

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 5,959,821
UCC Before Half Year Rule		$ 5,959,821
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 5,959,821
CCA Rate Class	01	
CCA Rate	4%	
CCA		$ 238,393
Closing UCC		$ 5,721,428

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project
C17 Bremner Transformer Station

Asset Component
1808_Buildings and Fixtures - Stn Substructure

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 30,804,869
Closing Capital Investment		$ 30,804,869
Opening Accumulated Amortization		$ -
Amortization	1%	$ 410,732
Closing Accumulated Amortization		$ 410,732
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 30,394,138
Average Net Fixed Assets		$ 15,197,069

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 30,804,869
UCC Before Half Year Rule		$ 30,804,869
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 30,804,869
CCA Rate Class	01	
CCA Rate	4%	
CCA		$ 1,232,195
Closing UCC		$ 29,572,675

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project
C17 Bremner Transformer Station

Asset Component
1815_TS Equip - Normally Primary above 50 kV - Disconnect Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 10,448,051
Closing Capital Investment		$ 10,448,051
Opening Accumulated Amortization		$ -
Amortization	3%	$ 348,268
Closing Accumulated Amortization		$ 348,268
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 10,099,783
Average Net Fixed Assets		$ 5,049,891

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 10,448,051
UCC Before Half Year Rule		$ 10,448,051
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 10,448,051
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 835,844
Closing UCC		$ 9,612,207

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1815_TS Equip - Normally Primary above 50 kV - Power Transformer

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 12,135,252
Closing Capital Investment		$ 12,135,252
Opening Accumulated Amortization		$ -
Amortization	3%	$ 379,227
Closing Accumulated Amortization		$ 379,227
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 11,756,025
Average Net Fixed Assets		$ 5,878,012

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 12,135,252
UCC Before Half Year Rule		$ 12,135,252
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 12,135,252
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 970,820
Closing UCC		$ 11,164,431

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1815_TS Equip - Normally Primary above 50 kV - Station Service

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 3,593,901
Closing Capital Investment		$ 3,593,901
Opening Accumulated Amortization		$ -
Amortization	3%	$ 89,848
Closing Accumulated Amortization		$ 89,848
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 3,504,054
Average Net Fixed Assets		$ 1,752,027

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 3,593,901
UCC Before Half Year Rule		$ 3,593,901
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 3,593,901
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 287,512
Closing UCC		$ 3,306,389

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Stn Service Batteries

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 522,084
Closing Capital Investment		$ 522,084
Opening Accumulated Amortization		$ -
Amortization	*10%*	$ 52,208
Closing Accumulated Amortization		$ 52,208
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 469,876
Average Net Fixed Assets		$ 234,938

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 522,084
UCC Before Half Year Rule		$ 522,084
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 522,084
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 41,767
Closing UCC		$ 480,317

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Switchgear GIS

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 11,327,643
Closing Capital Investment		$ 11,327,643
Opening Accumulated Amortization		$ -
Amortization	3%	$ 283,191
Closing Accumulated Amortization		$ 283,191
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 11,044,452
Average Net Fixed Assets		$ 5,522,226

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 11,327,643
UCC Before Half Year Rule		$ 11,327,643
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 11,327,643
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 906,211
Closing UCC		$ 10,421,431

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C17 Bremner Transformer Station

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Station Service

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 980,885
Closing Capital Investment		$ 980,885
Opening Accumulated Amortization		$ -
Amortization	3%	$ 30,653
Closing Accumulated Amortization		$ 30,653
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 950,233
Average Net Fixed Assets		$ 475,116

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 980,885
UCC Before Half Year Rule		$ 980,885
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 980,885
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 78,471
Closing UCC		$ 902,414

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C18 Hydro One Capital Contributions	**2012**

Details of Project	Number of Asset Components
C18 Hydro One Capital Contributions	1

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1815_TS Equip - Normally Primary above 50 kV - Contribution to HONI	22,977,664	4%	CEC	0%

	2012	2013
Closing Net Fixed Asset	22,058,558	21,139,451
Amortization Expense	919,107	919,107
CCA	-	-

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C18 Hydro One Capital Contributions

Asset Component

1815_TS Equip - Normally Primary above 50 kV - Contribution to HONI

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 22,977,664
Capital Investment		$ 22,977,664	$ -
Closing Capital Investment		$ 22,977,664	$ 22,977,664
Opening Accumulated Amortization		$ -	$ 919,107
Amortization	*4%*	$ 919,107	$ 919,107
Closing Accumulated Amortization		$ 919,107	$ 1,838,213
Opening Net Fixed Assets		$ -	$ 22,058,558
Closing Net Fixed Assets		$ 22,058,558	$ 21,139,451
Average Net Fixed Assets		$ 11,029,279	$ 21,599,004

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 22,977,664
Capital Additions		$ 22,977,664	$ -
UCC Before Half Year Rule		$ 22,977,664	$ 22,977,664
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 22,977,664	$ 22,977,664
CCA Rate Class	*CEC*		
CCA Rate	*0%*		
CCA		$ -	$ -
Closing UCC		$ 22,977,664	$ 22,977,664

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C18 Hydro One Capital Contributions	**2013**

Details of Project	Number of Asset Components
C18 Hydro One Capital Contributions	1

Asset Component (Click on the Number to View the Component Details)		Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1815_TS Equip - Normally Primary above 50 kV - Contribution to HONI	48,118,000	4%	CEC	0%

	2013
Closing Net Fixed Asset	46,193,280
Amortization Expense	1,924,720
CCA	-

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C18 Hydro One Capital Contributions

Asset Component

1815_TS Equip - Normally Primary above 50 kV - Contribution to HONI

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 48,118,000
Closing Capital Investment		$ 48,118,000
Opening Accumulated Amortization		$ -
Amortization	*4%*	$ 1,924,720
Closing Accumulated Amortization		$ 1,924,720
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 46,193,280
Average Net Fixed Assets		$ 23,096,640

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 48,118,000
UCC Before Half Year Rule		$ 48,118,000
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 48,118,000
CCA Rate Class	*CEC*	
CCA Rate	*0%*	
CCA		$ -
Closing UCC		$ 48,118,000

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C19 Feeder Automation	**2012**

Details of Project	Number of Asset Components
C19 Feeder Automation	4

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	85,222	3%	47	8%
2	1835_Overhead Conductors and Devices	30,370	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	2,186,990	3%	47	8%
4	1855_Services - OH	1,323	2%	47	8%

	2012	2013
Closing Net Fixed Asset	2,228,241	2,152,577
Amortization Expense	75,664	75,664
CCA	184,312	169,567

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C19 Feeder Automation

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 85,222
Capital Investment		$ 85,222	$ -
Closing Capital Investment		$ 85,222	$ 85,222
Opening Accumulated Amortization		$ -	$ 2,131
Amortization	3%	$ 2,131	$ 2,131
Closing Accumulated Amortization		$ 2,131	$ 4,261
Opening Net Fixed Assets		$ -	$ 83,092
Closing Net Fixed Assets		$ 83,092	$ 80,961
Average Net Fixed Assets		$ 41,546	$ 82,026

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 78,405
Capital Additions		$ 85,222	$ -
UCC Before Half Year Rule		$ 85,222	$ 78,405
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 85,222	$ 78,405
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 6,818	$ 6,272
Closing UCC		$ 78,405	$ 72,132

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C19 Feeder Automation

Asset Component
1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 30,370
Capital Investment		$ 30,370	$ -
Closing Capital Investment		$ 30,370	$ 30,370
Opening Accumulated Amortization		$ -	$ 607
Amortization	2%	$ 607	$ 607
Closing Accumulated Amortization		$ 607	$ 1,215
Opening Net Fixed Assets		$ -	$ 29,763
Closing Net Fixed Assets		$ 29,763	$ 29,155
Average Net Fixed Assets		$ 14,881	$ 29,459

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 27,941
Capital Additions		$ 30,370	$ -
UCC Before Half Year Rule		$ 30,370	$ 27,941
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 30,370	$ 27,941
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 2,430	$ 2,235
Closing UCC		$ 27,941	$ 25,705

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C19 Feeder Automation

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 2,186,990
Capital Investment		$ 2,186,990	$ -
Closing Capital Investment		$ 2,186,990	$ 2,186,990
Opening Accumulated Amortization		$ -	$ 72,900
Amortization	*3%*	$ 72,900	$ 72,900
Closing Accumulated Amortization		$ 72,900	$ 145,799
Opening Net Fixed Assets		$ -	$ 2,114,090
Closing Net Fixed Assets		$ 2,114,090	$ 2,041,190
Average Net Fixed Assets		$ 1,057,045	$ 2,077,640

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 2,012,031
Capital Additions		$ 2,186,990	$ -
UCC Before Half Year Rule		$ 2,186,990	$ 2,012,031
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 2,186,990	$ 2,012,031
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 174,959	$ 160,962
Closing UCC		$ 2,012,031	$ 1,851,068

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C19 Feeder Automation

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 1,323
Capital Investment		$ 1,323	$ -
Closing Capital Investment		$ 1,323	$ 1,323
Opening Accumulated Amortization		$ -	$ 26
Amortization	2%	$ 26	$ 26
Closing Accumulated Amortization		$ 26	$ 53
Opening Net Fixed Assets		$ -	$ 1,297
Closing Net Fixed Assets		$ 1,297	$ 1,270
Average Net Fixed Assets		$ 648	$ 1,283

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 1,217
Capital Additions		$ 1,323	$ -
UCC Before Half Year Rule		$ 1,323	$ 1,217
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 1,323	$ 1,217
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 106	$ 97
Closing UCC		$ 1,217	$ 1,120

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C19 Feeder Automation	2013

Details of Project	Number of Asset Components
C19 Feeder Automation	7

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	854,434	3%	47	8%
2	1835_Overhead Conductors and Devices	401,635	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	19,067,132	3%	47	8%
4	1845_Underground Conductors and Devices	12,479	3%	47	8%
5	1845_Underground Conductors and Devices - Switch	272,772	5%	47	8%
6	1855_Services - UG	1,079	3%	47	8%
7	1855_Services - OH	53,021	2%	47	8%

	2013
Closing Net Fixed Asset	19,982,550
Amortization Expense	680,003
CCA	1,653,004

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C19 Feeder Automation

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 854,434
Closing Capital Investment		$ 854,434
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 21,361
Closing Accumulated Amortization		$ 21,361
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 833,074
Average Net Fixed Assets		$ 416,537

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 854,434
UCC Before Half Year Rule		$ 854,434
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 854,434
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 68,355
Closing UCC		$ 786,080

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project
C19 Feeder Automation

Asset Component
1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 401,635
Closing Capital Investment		$ 401,635
Opening Accumulated Amortization		$ -
Amortization	2%	$ 8,033
Closing Accumulated Amortization		$ 8,033
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 393,602
Average Net Fixed Assets		$ 196,801

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 401,635
UCC Before Half Year Rule		$ 401,635
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 401,635
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 32,131
Closing UCC		$ 369,504

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C19 Feeder Automation

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 19,067,132
Closing Capital Investment		$ 19,067,132
Opening Accumulated Amortization		$ -
Amortization	3%	$ 635,571
Closing Accumulated Amortization		$ 635,571
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 18,431,561
Average Net Fixed Assets		$ 9,215,781

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 19,067,132
UCC Before Half Year Rule		$ 19,067,132
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 19,067,132
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 1,525,371
Closing UCC		$ 17,541,762

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C19 Feeder Automation

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 12,479
Closing Capital Investment		$ 12,479
Opening Accumulated Amortization		$ -
Amortization	3%	$ 312
Closing Accumulated Amortization		$ 312
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 12,167
Average Net Fixed Assets		$ 6,084

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 12,479
UCC Before Half Year Rule		$ 12,479
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 12,479
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 998
Closing UCC		$ 11,481

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project
C19 Feeder Automation

Asset Component
1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 272,772
Closing Capital Investment		$ 272,772
Opening Accumulated Amortization		$ -
Amortization	5%	$ 13,639
Closing Accumulated Amortization		$ 13,639
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 259,133
Average Net Fixed Assets		$ 129,567

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 272,772
UCC Before Half Year Rule		$ 272,772
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 272,772
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 21,822
Closing UCC		$ 250,950

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C19 Feeder Automation

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,079
Closing Capital Investment		$ 1,079
Opening Accumulated Amortization		$ -
Amortization	3%	$ 27
Closing Accumulated Amortization		$ 27
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,052
Average Net Fixed Assets		$ 526

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,079
UCC Before Half Year Rule		$ 1,079
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,079
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 86
Closing UCC		$ 993

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C19 Feeder Automation

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 53,021
Closing Capital Investment		$ 53,021
Opening Accumulated Amortization		$ -
Amortization	2%	$ 1,060
Closing Accumulated Amortization		$ 1,060
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 51,961
Average Net Fixed Assets		$ 25,980

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 53,021
UCC Before Half Year Rule		$ 53,021
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 53,021
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 4,242
Closing UCC		$ 48,779

CONCERNING 2014 INFORMATION

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TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	**Year**
C20 Wholesale and Smart Metering	**2012**

Details of Project	**Number of Asset Components**
C20 Wholesale and Smart Metering	2

	Asset Component (Click on the Number to View the Component Details)	**Capital Cost**	**Depreciation Rate**	**CCA Class**	**CCA Rate**
1	1820_DS Equip - Normally Primary below 50 kV - Grid Point Meters	983,180	4%	47	8%
2	1860_Meters - Smart Meters	3,755,933	7%	47	8%

	2012	**2013**
Closing Net Fixed Asset	4,449,391	4,159,668
Amortization Expense	289,723	289,723
CCA	379,129	348,799

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C20 Wholesale and Smart Metering

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Grid Point Meters

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 983,180
Capital Investment		$ 983,180	$ -
Closing Capital Investment		$ 983,180	$ 983,180
Opening Accumulated Amortization		$ -	$ 39,327
Amortization	4%	$ 39,327	$ 39,327
Closing Accumulated Amortization		$ 39,327	$ 78,654
Opening Net Fixed Assets		$ -	$ 943,853
Closing Net Fixed Assets		$ 943,853	$ 904,526
Average Net Fixed Assets		$ 471,927	$ 924,190

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 904,526
Capital Additions		$ 983,180	$ -
UCC Before Half Year Rule		$ 983,180	$ 904,526
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 983,180	$ 904,526
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 78,654	$ 72,362
Closing UCC		$ 904,526	$ 832,164

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C20 Wholesale and Smart Metering

Asset Component

1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 3,755,933
Capital Investment		$ 3,755,933	$ -
Closing Capital Investment		$ 3,755,933	$ 3,755,933
Opening Accumulated Amortization		$ -	$ 250,396
Amortization	7%	$ 250,396	$ 250,396
Closing Accumulated Amortization		$ 250,396	$ 500,791
Opening Net Fixed Assets		$ -	$ 3,505,538
Closing Net Fixed Assets		$ 3,505,538	$ 3,255,142
Average Net Fixed Assets		$ 1,752,769	$ 3,380,340

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 3,455,459
Capital Additions		$ 3,755,933	$ -
UCC Before Half Year Rule		$ 3,755,933	$ 3,455,459
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 3,755,933	$ 3,455,459
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 300,475	$ 276,437
Closing UCC		$ 3,455,459	$ 3,179,022

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	Year
C20 Wholesale and Smart Metering	**2013**

Details of Project	Number of Asset Components
C20 Wholesale and Smart Metering	2

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1820_DS Equip - Normally Primary below 50 kV - Grid Point Meters	6,296,119	4%	47	8%
2	1860_Meters - Smart Meters	2,107,979	7%	47	8%

	2013
Closing Net Fixed Asset	8,011,721
Amortization Expense	392,377
CCA	672,328

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C20 Wholesale and Smart Metering

Asset Component

1820_DS Equip - Normally Primary below 50 kV - Grid Point Meters

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 6,296,119
Closing Capital Investment		$ 6,296,119
Opening Accumulated Amortization		$ -
Amortization	4%	$ 251,845
Closing Accumulated Amortization		$ 251,845
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 6,044,274
Average Net Fixed Assets		$ 3,022,137

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 6,296,119
UCC Before Half Year Rule		$ 6,296,119
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 6,296,119
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 503,690
Closing UCC		$ 5,792,430

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C20 Wholesale and Smart Metering

Asset Component

1860_Meters - Smart Meters

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,107,979
Closing Capital Investment		$ 2,107,979
Opening Accumulated Amortization		$ -
Amortization	*7%*	$ 140,532
Closing Accumulated Amortization		$ 140,532
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,967,447
Average Net Fixed Assets		$ 983,723

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,107,979
UCC Before Half Year Rule		$ 2,107,979
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,107,979
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 168,638
Closing UCC		$ 1,939,340

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

1st Year of IRM Cycle

Name or General Description of Project	Year
C21 Externally-Initiated Plant Relocations and Expansions	2012

Details of Project	Number of Asset Components
C21 Externally-Initiated Plant Relocations and Expansions	12

	Asset Component (Click on the Number to View the Component Details)	Capital Cost	Depreciation Rate	CCA Class	CCA Rate
1	1830_Poles Towers and Fixtures	467,216	3%	47	8%
2	1835_Overhead Conductors and Devices	642,660	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	83,917	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	253,040	2%	47	8%
5	1840_Underground Conduit - Duct Bank	4,159,150	3%	47	8%
6	1840_Underground Conduit - Vault	17,599	3%	47	8%
7	1840_Underground Conduit - Vault Roof	52,866	5%	47	8%
8	1845_Underground Conductors and Devices	3,777,042	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	566,496	5%	47	8%
10	1850_Line Transformers - OH	75,802	3%	47	8%
11	1855_Services - UG	4,213	3%	47	8%
12	1855_Services - OH	63,653	2%	47	8%

	2012	2013
Closing Net Fixed Asset	9,862,883	9,562,114
Amortization Expense	300,769	300,769
CCA	813,092	748,045

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 467,216
Capital Investment		$ 467,216	$ -
Closing Capital Investment		$ 467,216	$ 467,216
Opening Accumulated Amortization		$ -	$ 11,680
Amortization	*3%*	$ 11,680	$ 11,680
Closing Accumulated Amortization		$ 11,680	$ 23,361
Opening Net Fixed Assets		$ -	$ 455,535
Closing Net Fixed Assets		$ 455,535	$ 443,855
Average Net Fixed Assets		$ 227,768	$ 449,695

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 429,838
Capital Additions		$ 467,216	$ -
UCC Before Half Year Rule		$ 467,216	$ 429,838
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 467,216	$ 429,838
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 37,377	$ 34,387
Closing UCC		$ 429,838	$ 395,451

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 642,660
Capital Investment		$ 642,660	$ -
Closing Capital Investment		$ 642,660	$ 642,660
Opening Accumulated Amortization		$ -	$ 12,853
Amortization	2%	$ 12,853	$ 12,853
Closing Accumulated Amortization		$ 12,853	$ 25,706
Opening Net Fixed Assets		$ -	$ 629,807
Closing Net Fixed Assets		$ 629,807	$ 616,953
Average Net Fixed Assets		$ 314,903	$ 623,380

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 591,247
Capital Additions		$ 642,660	$ -
UCC Before Half Year Rule		$ 642,660	$ 591,247
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 642,660	$ 591,247
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 51,413	$ 47,300
Closing UCC		$ 591,247	$ 543,947

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 83,917
Capital Investment		$ 83,917	$ -
Closing Capital Investment		$ 83,917	$ 83,917
Opening Accumulated Amortization		$ -	$ 2,797
Amortization	*3%*	$ 2,797	$ 2,797
Closing Accumulated Amortization		$ 2,797	$ 5,594
Opening Net Fixed Assets		$ -	$ 81,119
Closing Net Fixed Assets		$ 81,119	$ 78,322
Average Net Fixed Assets		$ 40,560	$ 79,721

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 77,203
Capital Additions		$ 83,917	$ -
UCC Before Half Year Rule		$ 83,917	$ 77,203
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 83,917	$ 77,203
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 6,713	$ 6,176
Closing UCC		$ 77,203	$ 71,027

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 253,040
Capital Investment		$ 253,040	$ -
Closing Capital Investment		$ 253,040	$ 253,040
Opening Accumulated Amortization		$ -	$ 5,061
Amortization	2%	$ 5,061	$ 5,061
Closing Accumulated Amortization		$ 5,061	$ 10,122
Opening Net Fixed Assets		$ -	$ 247,979
Closing Net Fixed Assets		$ 247,979	$ 242,918
Average Net Fixed Assets		$ 123,990	$ 245,449

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 232,797
Capital Additions		$ 253,040	$ -
UCC Before Half Year Rule		$ 253,040	$ 232,797
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 253,040	$ 232,797
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 20,243	$ 18,624
Closing UCC		$ 232,797	$ 214,173

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project
C21 Externally-Initiated Plant Relocations and Expansions

Asset Component
1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 4,159,150
Capital Investment		$ 4,159,150	$ -
Closing Capital Investment		$ 4,159,150	$ 4,159,150
Opening Accumulated Amortization		$ -	$ 138,638
Amortization	*3%*	$ 138,638	$ 138,638
Closing Accumulated Amortization		$ 138,638	$ 277,277
Opening Net Fixed Assets		$ -	$ 4,020,512
Closing Net Fixed Assets		$ 4,020,512	$ 3,881,873
Average Net Fixed Assets		$ 2,010,256	$ 3,951,192

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 3,826,418
Capital Additions		$ 4,159,150	$ -
UCC Before Half Year Rule		$ 4,159,150	$ 3,826,418
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 4,159,150	$ 3,826,418
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 332,732	$ 306,113
Closing UCC		$ 3,826,418	$ 3,520,305

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 17,599
Capital Investment		$ 17,599	$ -
Closing Capital Investment		$ 17,599	$ 17,599
Opening Accumulated Amortization		$ -	$ 440
Amortization	3%	$ 440	$ 440
Closing Accumulated Amortization		$ 440	$ 880
Opening Net Fixed Assets		$ -	$ 17,159
Closing Net Fixed Assets		$ 17,159	$ 16,719
Average Net Fixed Assets		$ 8,580	$ 16,939

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 16,191
Capital Additions		$ 17,599	$ -
UCC Before Half Year Rule		$ 17,599	$ 16,191
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 17,599	$ 16,191
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 1,408	$ 1,295
Closing UCC		$ 16,191	$ 14,896

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project
C21 Externally-Initiated Plant Relocations and Expansions

Asset Component
1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 52,866
Capital Investment		$ 52,866	$ -
Closing Capital Investment		$ 52,866	$ 52,866
Opening Accumulated Amortization		$ -	$ 2,643
Amortization	5%	$ 2,643	$ 2,643
Closing Accumulated Amortization		$ 2,643	$ 5,287
Opening Net Fixed Assets		$ -	$ 50,222
Closing Net Fixed Assets		$ 50,222	$ 47,579
Average Net Fixed Assets		$ 25,111	$ 48,901

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 48,636
Capital Additions		$ 52,866	$ -
UCC Before Half Year Rule		$ 52,866	$ 48,636
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 52,866	$ 48,636
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 4,229	$ 3,891
Closing UCC		$ 48,636	$ 44,746

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 3,777,042
Capital Investment		$ 3,777,042	$ -
Closing Capital Investment		$ 3,777,042	$ 3,777,042
Opening Accumulated Amortization		$ -	$ 94,426
Amortization	*3%*	$ 94,426	$ 94,426
Closing Accumulated Amortization		$ 94,426	$ 188,852
Opening Net Fixed Assets		$ -	$ 3,682,616
Closing Net Fixed Assets		$ 3,682,616	$ 3,588,190
Average Net Fixed Assets		$ 1,841,308	$ 3,635,403

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 3,474,879
Capital Additions		$ 3,777,042	$ -
UCC Before Half Year Rule		$ 3,777,042	$ 3,474,879
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 3,777,042	$ 3,474,879
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 302,163	$ 277,990
Closing UCC		$ 3,474,879	$ 3,196,888

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 566,496
Capital Investment		$ 566,496	$ -
Closing Capital Investment		$ 566,496	$ 566,496
Opening Accumulated Amortization		$ -	$ 28,325
Amortization	*5%*	$ 28,325	$ 28,325
Closing Accumulated Amortization		$ 28,325	$ 56,650
Opening Net Fixed Assets		$ -	$ 538,171
Closing Net Fixed Assets		$ 538,171	$ 509,846
Average Net Fixed Assets		$ 269,085	$ 524,008

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 521,176
Capital Additions		$ 566,496	$ -
UCC Before Half Year Rule		$ 566,496	$ 521,176
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 566,496	$ 521,176
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 45,320	$ 41,694
Closing UCC		$ 521,176	$ 479,482

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 75,802
Capital Investment		$ 75,802	$ -
Closing Capital Investment		$ 75,802	$ 75,802
Opening Accumulated Amortization		$ -	$ 2,527
Amortization	3%	$ 2,527	$ 2,527
Closing Accumulated Amortization		$ 2,527	$ 5,053
Opening Net Fixed Assets		$ -	$ 73,275
Closing Net Fixed Assets		$ 73,275	$ 70,748
Average Net Fixed Assets		$ 36,638	$ 72,012

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 69,738
Capital Additions		$ 75,802	$ -
UCC Before Half Year Rule		$ 75,802	$ 69,738
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 75,802	$ 69,738
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 6,064	$ 5,579
Closing UCC		$ 69,738	$ 64,159

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 4,213
Capital Investment		$ 4,213	$ -
Closing Capital Investment		$ 4,213	$ 4,213
Opening Accumulated Amortization		$ -	$ 105
Amortization	3%	$ 105	$ 105
Closing Accumulated Amortization		$ 105	$ 211
Opening Net Fixed Assets		$ -	$ 4,108
Closing Net Fixed Assets		$ 4,108	$ 4,002
Average Net Fixed Assets		$ 2,054	$ 4,055

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 3,876
Capital Additions		$ 4,213	$ -
UCC Before Half Year Rule		$ 4,213	$ 3,876
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 4,213	$ 3,876
CCA Rate Class	47		
CCA Rate	8%		
CCA		$ 337	$ 310
Closing UCC		$ 3,876	$ 3,566

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2012 Forecasted	2013 Forecasted
Opening Capital Investment		$ -	$ 63,653
Capital Investment		$ 63,653	$ -
Closing Capital Investment		$ 63,653	$ 63,653
Opening Accumulated Amortization		$ -	$ 1,273
Amortization	*2%*	$ 1,273	$ 1,273
Closing Accumulated Amortization		$ 1,273	$ 2,546
Opening Net Fixed Assets		$ -	$ 62,380
Closing Net Fixed Assets		$ 62,380	$ 61,107
Average Net Fixed Assets		$ 31,190	$ 61,743

For PILs Calculation

UCC

		2012 Forecasted	2013 Forecasted
Opening UCC		$ -	$ 58,560
Capital Additions		$ 63,653	$ -
UCC Before Half Year Rule		$ 63,653	$ 58,560
Half Year Rule (1/2 Additions - Disposals)		$ -	$ -
Reduced UCC		$ 63,653	$ 58,560
CCA Rate Class	*47*		
CCA Rate	*8%*		
CCA		$ 5,092	$ 4,685
Closing UCC		$ 58,560	$ 53,876

TORONTO HYDRO

Incremental Capital Project Summary

Using the pull-down menu below, please identify what year of the IRM cycle you are in.

2nd Year of IRM Cycle

Name or General Description of Project	**Year**
C21 Externally-Initiated Plant Relocations and Expansions	**2013**

Details of Project	**Number of Asset Components**
C21 Externally-Initiated Plant Relocations and Expansions	14

	Asset Component (Click on the Number to View the Component Details)	**Capital Cost**	**Depreciation Rate**	**CCA Class**	**CCA Rate**
1	1830_Poles Towers and Fixtures	83,204	3%	47	8%
2	1835_Overhead Conductors and Devices	130,691	2%	47	8%
3	1835_Overhead Conductors and Devices - Switches	16,567	3%	47	8%
4	1840_Underground Conduit - Cable Chamber	2,590,674	2%	47	8%
5	1840_Underground Conduit - Duct Bank	18,814,555	3%	47	8%
6	1840_Underground Conduit - Vault	342,104	3%	47	8%
7	1840_Underground Conduit - Vault Roof	55,911	5%	47	8%
8	1845_Underground Conductors and Devices	2,625,760	3%	47	8%
9	1845_Underground Conductors and Devices - Switch	1,010	5%	47	8%
10	1850_Line Transformers - OH	5,946	3%	47	8%
11	1850_Line Transformers - UG	2,828	3%	47	8%
12	1850_Line Transformers - UG Network w/protector	163,664	5%	47	8%
13	1855_Services - UG	1,155	3%	47	8%
14	1855_Services - OH	6,021	2%	47	8%

	2013
Closing Net Fixed Asset	24,070,211
Amortization Expense	769,879
CCA	1,987,207

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 1

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1830_Poles Towers and Fixtures

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 83,204
Closing Capital Investment		$ 83,204
Opening Accumulated Amortization		$ -
Amortization	3%	$ 2,080
Closing Accumulated Amortization		$ 2,080
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 81,123
Average Net Fixed Assets		$ 40,562

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 83,204
UCC Before Half Year Rule		$ 83,204
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 83,204
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 6,656
Closing UCC		$ 76,547

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 2

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1835_Overhead Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 130,691
Closing Capital Investment		$ 130,691
Opening Accumulated Amortization		$ -
Amortization	2%	$ 2,614
Closing Accumulated Amortization		$ 2,614
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 128,078
Average Net Fixed Assets		$ 64,039

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 130,691
UCC Before Half Year Rule		$ 130,691
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 130,691
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 10,455
Closing UCC		$ 120,236

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 3

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1835_Overhead Conductors and Devices - Switches

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 16,567
Closing Capital Investment		$ 16,567
Opening Accumulated Amortization		$ -
Amortization	3%	$ 552
Closing Accumulated Amortization		$ 552
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 16,014
Average Net Fixed Assets		$ 8,007

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 16,567
UCC Before Half Year Rule		$ 16,567
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 16,567
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 1,325
Closing UCC		$ 15,241

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 4

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1840_Underground Conduit - Cable Chamber

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,590,674
Closing Capital Investment		$ 2,590,674
Opening Accumulated Amortization		$ -
Amortization	2%	$ 51,813
Closing Accumulated Amortization		$ 51,813
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 2,538,861
Average Net Fixed Assets		$ 1,269,430

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,590,674
UCC Before Half Year Rule		$ 2,590,674
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,590,674
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 207,254
Closing UCC		$ 2,383,420

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 5

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1840_Underground Conduit - Duct Bank

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 18,814,555
Closing Capital Investment		$ 18,814,555
Opening Accumulated Amortization		$ -
Amortization	3%	$ 627,152
Closing Accumulated Amortization		$ 627,152
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 18,187,403
Average Net Fixed Assets		$ 9,093,702

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 18,814,555
UCC Before Half Year Rule		$ 18,814,555
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 18,814,555
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 1,505,164
Closing UCC		$ 17,309,390

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 6

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1840_Underground Conduit - Vault

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 342,104
Closing Capital Investment		$ 342,104
Opening Accumulated Amortization		$ -
Amortization	3%	$ 8,553
Closing Accumulated Amortization		$ 8,553
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 333,552
Average Net Fixed Assets		$ 166,776

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 342,104
UCC Before Half Year Rule		$ 342,104
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 342,104
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 27,368
Closing UCC		$ 314,736

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 7

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1840_Underground Conduit - Vault Roof

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 55,911
Closing Capital Investment		$ 55,911
Opening Accumulated Amortization		$ -
Amortization	*5%*	$ 2,796
Closing Accumulated Amortization		$ 2,796
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 53,115
Average Net Fixed Assets		$ 26,558

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 55,911
UCC Before Half Year Rule		$ 55,911
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 55,911
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 4,473
Closing UCC		$ 51,438

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 8

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1845_Underground Conductors and Devices

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,625,760
Closing Capital Investment		$ 2,625,760
Opening Accumulated Amortization		$ -
Amortization	3%	$ 65,644
Closing Accumulated Amortization		$ 65,644
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 2,560,116
Average Net Fixed Assets		$ 1,280,058

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,625,760
UCC Before Half Year Rule		$ 2,625,760
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,625,760
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 210,061
Closing UCC		$ 2,415,700

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 9

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1845_Underground Conductors and Devices - Switch

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,010
Closing Capital Investment		$ 1,010
Opening Accumulated Amortization		$ -
Amortization	5%	$ 50
Closing Accumulated Amortization		$ 50
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 959
Average Net Fixed Assets		$ 480

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,010
UCC Before Half Year Rule		$ 1,010
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,010
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 81
Closing UCC		$ 929

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 10

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1850_Line Transformers - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 5,946
Closing Capital Investment		$ 5,946
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 198
Closing Accumulated Amortization		$ 198
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 5,748
Average Net Fixed Assets		$ 2,874

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 5,946
UCC Before Half Year Rule		$ 5,946
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 5,946
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 476
Closing UCC		$ 5,470

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 11

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1850_Line Transformers - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 2,828
Closing Capital Investment		$ 2,828
Opening Accumulated Amortization		$ -
Amortization	*3%*	$ 94
Closing Accumulated Amortization		$ 94
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 2,734
Average Net Fixed Assets		$ 1,367

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 2,828
UCC Before Half Year Rule		$ 2,828
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 2,828
CCA Rate Class	*47*	
CCA Rate	*8%*	
CCA		$ 226
Closing UCC		$ 2,602

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 12

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1850_Line Transformers - UG Network w/protector

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 163,664
Closing Capital Investment		$ 163,664
Opening Accumulated Amortization		$ -
Amortization	5%	$ 8,183
Closing Accumulated Amortization		$ 8,183
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 155,481
Average Net Fixed Assets		$ 77,740

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 163,664
UCC Before Half Year Rule		$ 163,664
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 163,664
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 13,093
Closing UCC		$ 150,571

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 13

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1855_Services - UG

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 1,155
Closing Capital Investment		$ 1,155
Opening Accumulated Amortization		$ -
Amortization	3%	$ 29
Closing Accumulated Amortization		$ 29
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 1,126
Average Net Fixed Assets		$ 563

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 1,155
UCC Before Half Year Rule		$ 1,155
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 1,155
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 92
Closing UCC		$ 1,062

TORONTO HYDRO

Incremental Capital Project Summary

Return to Main Summary

Fixed Asset Amortization and UCC 14

Name or General Description of Project

C21 Externally-Initiated Plant Relocations and Expansions

Asset Component

1855_Services - OH

Average Net Fixed Assets

Net Fixed Assets

		2013 Forecasted
Opening Capital Investment		$ -
Capital Investment		$ 6,021
Closing Capital Investment		$ 6,021
Opening Accumulated Amortization		$ -
Amortization	2%	$ 120
Closing Accumulated Amortization		$ 120
Opening Net Fixed Assets		$ -
Closing Net Fixed Assets		$ 5,901
Average Net Fixed Assets		$ 2,950

For PILs Calculation

UCC

		2013 Forecasted
Opening UCC		$ -
Capital Additions		$ 6,021
UCC Before Half Year Rule		$ 6,021
Half Year Rule (1/2 Additions - Disposals)		$ -
Reduced UCC		$ 6,021
CCA Rate Class	47	
CCA Rate	8%	
CCA		$ 482
Closing UCC		$ 5,539

CONCERNING 2014 INFORMATION

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation and phasing of the proceeding, the material filed in this schedule regarding the 2014 work program cannot be updated during the first phase of this application and therefore is not currently of assistance to the OEB or intervenors. THESL will update the material in this schedule regarding the 2014 work program in the second phase of this application.

FINAL DISPOSITION OF THE PILs DEFERRAL ACCOUNTS 1562 AND 1563

In its June 24, 2011 EB-2008-0381 Decision, the Board announced its expectation that all distributors will apply for final disposition of Account 1562 in their next general rates filing. The Board noted that if the distributor files evidence in accordance with the various decisions made in the course of the proceeding, and uses the updated SIMPIL model, the determination of the account balance would be handled expeditiously and in an administrative manner.

THESL has reviewed recent OEB decisions and interrogatories in other distributors' proceedings with respect to Account 1562 in order to ensure that its evidence is in accordance with them. THESL has calculated the credit balance of $5.7 million for Account 1562 which /U THESL proposes to refund to customers. The amount is allocated to customer rate classes on the basis of the most recent Board-approved distribution revenue to calculate the proposed rate riders by rate class. The supporting calculations for the amount are provided in the following schedules under Tab 5:

- Schedule A – Summary Continuity Schedule for Account 1562
- Schedule B – Detailed Continuity Schedules for Account 1562
- Schedule C – 2001 SIMPIL Model
- Schedule D – 2002 SIMPIL Model
- Schedule E– 2003 SIMPIL Model
- Schedule F– 2004 SIMPIL Model
- Schedule G – 2005 SIMPIL Model

The amount and the disposition rate riders for Payments in Lieu of Taxes (PILs) are shown in Sheet 10 and 12 of the updated 2013 IRM Rate Generator model, respectively. /U

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RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 1.1

INTERROGATORY 2:

Reference(s): **Tab 3, Schedule E1, page 4**
Tab 2, Appendix 1, page 2

a) Please reconcile the "% of Revenue" values shown columns K to N of the first reference with those shown in columns A to C of the second reference. (Note: The values in columns K-M of the first reference must be multiplied by the value in column N to get the comparable values in the second reference)

RESPONSE:

a) The values for "% of Revenue" in Tab 2, Appendix 1 are incorrect. THESL has provided a corrected and updated version of Tab 2, Appendix 1. See also response to EP interrogatory 7a (Tab 6C, Schedule 7-7, part a). **/U**

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 1.1

INTERROGATORY 3:

Reference(s): Tab 4. Schedule E1.1, pages 5 and 7-9

a) Please explain the basis for the loads/customer count and rates used on each of the following three pages: 5, 7 and 8.

RESPONSE:

a) The loads and customer counts on Pages 5 and 8 ("Re-based billed customer, connections, kWh and kW") are based on 2011 OEB-approved load and customer forecast. The load and customer count on page 7 represents 2010 actual billing units. The rates on all pages are the current 2011 Board-approved rates. Please also note that the customer/connection rates shown on Tab 4, Schedule E1.1, page 8 of for Residential Urban and Unmetered Scattered load are incorrect. THESL has provided an updated version of Schedule E1.1, reflecting the updated capital forecast, and corrections for the rates on page 8. **/U**

b) Please review the rates and loads associated with each class on pages 5 and 8 and reconcile any differences. For example, on page 5 the second USL class associates the $0.49 service charge with 21.729 connections and no volumes or volumetric charges. However, on page 8, the first USL class associates the $0.49 service charge with 1,130 connections as well as volumetric use and volumetric charges.

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 1.1

RESPONSE:

b) Please see the response in part (a). THESL has a three-part rate for USL customers. In order for these rates to be accommodated in the OEB's models, the class is shown twice – once with the monthly service charge per customer and the volumetric charge, and the second time with the connection charge.

c) Please provide weather normalized usage values for 2010.

RESPONSE:

c) The table below presents the 2010 loads normalized to 2011 OEB-approved weather variables.

Customer Class	Weather-Normalized Billed kWh	Weather-Normalized Billed kVA
Residential	5,083,877,203	
Residentail Urban	99,359,319	
General Service less than than 50 kW	2,084,449,526	
General Service 50 to 999 kW	10,188,050,194	26,708,165
General Service 1,000 to 4,999 kW	4,830,124,728	10,974,154
Large Use	2,260,681,437	5,260,625
Street Lighting	112,727,603	321,995
USL	52,097,299	

d) Please re-do page 7 based on weather normalized loads.

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 1.1

RESPONSE:

d) Please see attached Appendix A, which uses the values from the above table.

RESPONSES TO CANADIAN UNION OF PUBLIC EMPLOYEES, LOCAL ONE INTERROGATORIES ON ISSUE 1.2

INTERROGATORY 1:

Reference(s): **TAB 2 - Managers Summary, Page 9, Line 22 – Page 10, Line 13**

Please explain in detail the paragraphs in THESL's application noted above (and included below for your convenience).

Please provide the following details:

a) What percentage of THESL's annual capital work program has, or will be completed by an eternal contractor/vendor for the years 2011, 2012, 2013 and 2014.

RESPONSE:

a) For 2011, the percentage of THESL's annual capital work program completed by external contractors/vendors was approximately 44%. For 2012 August year-to-date, the percentage was approximately 36%. For year-end 2012, the percentage is forecasted to be 47%. (When considering the percentage of the capital work program completed by external contractors/vendors, it is also important to note that, in absolute terms, THESL's spending on external contractors performing capital work has decreased significantly in 2012.) For 2013, the percentage is forecasted to be 50%. THESL's absolute spending on the annual capital work program is discussed in the response to (b), below. /U

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB

RESPONSES TO CANADIAN UNION OF PUBLIC EMPLOYEES, LOCAL ONE INTERROGATORIES ON ISSUE 1.2

to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application. /U

b) What are the dollar values of THESL's annual capital work program that have, or will be been completed by external contractors/vendors for the years 2011, 2012, 2013 and 2014.

RESPONSE:

b) For 2011, the dollar value of THESL's annual capital work program completed by external contractors/vendors was approximately $141.4 million. For 2012 August year-to-date, the dollar value was approximately $38.7 million. For year-end 2012, the dollar value is forecasted to be $58.3 million. For 2013, the dollar value is forecasted to be $215.5 million.

For the reasons described in the response to part (a), it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application.

c) Please indicate how many external contracts/vendors THESL currently uses for the capital work program, and how many are planned for the years 2013, and 2014.

RESPONSES TO CANADIAN UNION OF PUBLIC EMPLOYEES, LOCAL ONE INTERROGATORIES ON ISSUE 1.2

RESPONSE:

c) THESL currently has contracted with six external contractor firms. This number is not expected to change during the period 2012-2014.

RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES ON ISSUE 1.2

INTERROGATORY 9:

Reference(s): **Tab 2**

Please provide, for the period 2006-2012 THESL's as filed forecast, Board approved and actual capital expenditures in the same format as Exhibit D1/T7/S1/p. 16 (EB-2010-0142).

RESPONSE:

THESL is not able to present the capital expenditures for 2006 and 2007 in the requested format because it did not track capital costs in the same manner as that presented in Exhibit D1, Tab 7, Schedule 1 of EB-2010-0142. The table below presents the actual capital expenditures from 2008 to 2011 in the format requested. With respect to 2012 information, THESL is not able to provide the actual and forecast capital expenditures in the same format requested as THESL adopted a different manner of presenting the said information as the current rates proceeding is under an incentive regulation mechanism and not cost of service. Please also see THESL's response to SEC interrogatory 6 (Tab 6E, Schedule 10-6).

Table 2 below presents the 2012 actual capital expenditures until August 31, 2012 and the 2012 forecast total capital expenditures which include the said actual figures. This table is also presented in Table 1 of the Addendum to the Manager's Summary in Tab 2**.**

/U

RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES ON ISSUE 1.2

1 **Table 1**

	2008 Actual	2009 Actual	2010 Actual	2011 Actual
OPERATIONAL INVESTMENTS				
Grid System Investments				
Underground System	62.0	68.5	111.6	99.0
Overhead System	19.3	20.5	31.7	39.3
Network System	4.7	5.0	7.4	4.8
Stations	16.8	14.1	17.0	18.2
Total Grid System Investments	102.9	108.2	167.7	161.4
Reactive Work	19.3	20.7	25.1	28.6
Customer Connections	42.8	37.6	42.6	58.2
Customer Capital Contribution	(32.7)	(23.4)	(26.6)	(29.8)
Externally Initiated Plant Relocations	-	-	-	7.8
Capital Contributions to HONI	0.4	0.3	1.1	27.8
Engineering Capital	26.4	25.8	34.5	23.6
AFUDC	2.0	2.8	3.5	5.2
Other	(4.3)	3.1	12.3	(4.2)
Total Distribution Plant Capital	156.8	175.1	260.3	278.6
CORPORATE OPERATIONAL INVESTMENTS				
Fleet &Equipment Services	7.9	9.9	10.6	11.8
Facilities	3.4	7.6	12.1	25.3
Other	0.3	3.2	-	-
Total Corporate Operational Investments	11.6	20.7	22.7	37.1
CUSTOMER SERVICES				
Wholesale Metering	4.4	(0.5)	1.8	-
Smart Metering	5.6	2.6	0.4	10.1
Suite Metering	2.7	3.3	6.4	10.2
Other	0.5	0.3	0.2	0.0
Total CUSTOMER SERVICES	13.2	5.6	8.8	20.3
Total INFORMATION TECHNOLOGY	24.1	35.7	33.0	32.4
Total OPERATIONAL INVESTMENTS	205.7	237.1	324.7	368.4
CRITICAL ISSUES				
Standardization	-	5.7	30.2	44.6
Downtown Contingency	-	-	1.1	4.7
FESI / WPF	-	-	16.7	19.3
Stations System Enhancements	-	(1.0)	5.8	4.7
Secondary Upgrade	-	-	2.6	3.9
Total CRITICAL ISSUES		4.7	56.4	77.1
TOTAL CAPITAL	205.7	241.7	381.1	445.5

/U

RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES ON ISSUE 1.2

1 **Table 2**

Schedule Number	Projects	Segments	2012 Actuals (Aug/12)	2012 Forecast
B1	Underground Infrastructure and Cable	Underground Infrastructure	14.63	28.75
B2		Paper Insulated Lead Covered Cable - Piece Outs and Leakers	-	0.08
B3		Handwell Replacement	6.37	13.65
B4	Overhead Infrastructure and Equipment	Overhead Infrastructure	1.63	9.07
B5		Box Construction	0.02	0.58
B6		Rear Lot Construction	9.36	16.36
B7		Polymer SMD-20 Switches		
B8		SCADA-Mate R1 Switches		
B9	Network Infrastructure and Equipment	Network Vault & Roofs	0.65	2.84
B10		Fibertop Network Units	0.00	1.48
B11		Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)		
B12	Station Infrastructure and Equipment	Stations Power Transformers	-	0.38
B13.1 & 13.2		Stations Switchgear - Muncipal and Transformer Stations	1.05	1.73
B14		Stations Circuit Breakers	0.11	0.76
B15		Stations Control & Communicaton Systems	0.03	0.14
B16		Downtown Station Load Transfers	0.03	0.68
B17	Bremner TS	Bremner Transformer Station	3.38	8.50
B18	Hydro One Capital Contributions	Hydro One Capital Contributions	18.21	22.98
B19	Feeder Automation	Feeder Automation	-	2.30
B20	Metering	Metering	2.41	4.74
B21	Plant Relocations	Externally-Initiated Plant Relocations and Expansions	2.23	10.16
C1	Operations Portfolio Capital		71.92	120.51
C2	Information Technology Capital		13.53	22.00
C3	Fleet Capital		0.73	0.80
C4	Buildings and Facilities Capital		3.01	5.00
	Allowance for Funds Used During Construction			1.20
Total			**149.30**	**274.68**

Note: Updated amount for 2012 Hydro One Capital Contributions reflects a credit amount from a prior period, unrelated to proposed ICM projects.

/U

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 1.3

INTERROGATORY 4:

Reference(s): Manager's Summary Tab 2, Page 3

a) Please provide a schedule that shows the continuity of Rate Base for 2011-2014, including approved Opening 2011 Rate Base and 2011 Closing Rate Base.

b) Please include a breakdown of the major RB components including Gross and Net fixed Assets, CAPEX, Depreciation and Working Capital.

c) Please reconcile the 2011 Rate base to the EB-2010-0142 Settlement Agreement and Board Order and to the Amount shown in the Managers Summary Appendix 2 Line 1.

RESPONSE:

a), b) and c) Please see the table below. **/U**

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 1.3

	2011 Approved	2011 Actual	2012 Forecast (1)	2013 Forecast (1)
CAPEX	*$ 378.8*	$ 445.5	$ 274.7	$ 579.1
GROSS FIXED ASSETS				
Opening Balance	*$ 4,183.6*	$ 4,179.7	$ 4,607.8	$ 4,882.3
Additions	*$ 348.9*	$ 439.1	$ 274.5	$ 578.6
Disposals	*$ -*	$ (11.1)	$ -	$ -
Closing Balance	*$ 4,532.5*	$ 4,607.8	$ 4,882.3	$ 5,460.9
ACCUMULATED DEPRECIATION				
Opening Balance	*$ (2,285.7)*	$ (2,283.9)	$ (2,424.2)	$ (2,571.6)
Accumulated Depreciation	*$ (141.6)*	$ (148.6)	$ (147.4)	$ (156.5)
Disposals	*$ -*	$ 8.3	$ -	$ -
Closing Balance	*$ (2,427.4)*	$ (2,424.2)	$ (2,571.6)	$ (2,728.1)
NET FIXED ASSETS OPENING BALANCE	*$ 1,897.8*	$ 1,895.8	$ 2,183.5	$ 2,310.7
NET FIXED ASSETS CLOSING BALANCE	*$ 2,105.1*	$ 2,183.5	$ 2,310.7	$ 2,732.8
Average NFA	*$ 2,001.4*	*$ 2,039.7*	*$ 2,247.1*	*$ 2,521.7*
Working Capital Allowance	*$ 296.7*	*$ 313.6*	*$ 326.2*	*$ 348.5*
Rate Base	*$ 2,298.2*	*$ 2,353.2*	*$ 2,573.3*	*$ 2,870.2*
As per Manager Summary and 2011 Decision	*$ 2,298.2*	*n/a*	*n/a*	*n/a*
Variance	*$ 0.0*	*n/a*	*n/a*	*n/a*

(1) Additions are assumed as per the ICM framework to be effective January 1st of the year in which the capital spend is reported and well as the associated depreciation.

/U

The concept of Rate Base is applicable only to cost of service rate applications, and not rate applications that are made under the OEB's Incentive Regulation Mechanism (IRM) such as the current proceeding. Notwithstanding this, THESL presents for illustration purposes in the schedule above the components the Board-approved rate base for 2011, actual rate base for 2011, and assumed rate base for the years 2012 and 2013. The latter amounts assume that (a) the OEB will approve, for purposes of calculating distribution

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 1.3

rates for the said years, capital expenditures that are at the same levels as those proposed in the current IRM on a/ICM application, and (b) the working capital allowance is determined on a historical basis.

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide the 2014 information requested in this interrogatory during the first phase of this application. **/U**

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 1.3

INTERROGATORY 6:

Reference(s): **Manager's Summary Tab 2, Page 4**

a) Please provide a continuity schedule for 2011A, 2012 YTD and 2012 E and 2013-2015 F showing CAPEX and Rate Base.

RESPONSE:

a) The concept of Rate Base is applicable only to cost of service rate applications, and not rate applications that are made under the OEB's Incentive Regulation Mechanism (IRM) such as the current proceeding. Notwithstanding this, THESL presents for illustration purposes in the schedule below the components the Board-approved rate base for 2011, actual rate base for 2011, and assumed rate base for the years 2012 and 2013. The latter amounts assume that (a) the OEB will approve, for purposes of calculating distribution rates for the said years, capital expenditures that are at the same levels as those proposed in the current IRM on a/ICM application, and (b) the working capital allowance is determined on a historical basis. /U

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	2011 Approved	2011 Actual	2012 (YTD Actual)	2012 Forecast (1)	2013 Forecast (1)
CAPEX	$ 378.8	$ 445.5	$ 152.5	$ 274.7	$ 579.1
GROSS FIXED ASSETS					
Opening Balance	$ 4,183.6	$ 4,179.7	$ 4,607.8	$ 4,607.8	$ 4,882.3
Additions	$ 348.9	$ 439.1	$ 120.8	$ 274.5	$ 578.6
Disposals	$ -	$ (11.1)	$ (6.2)	$ -	$ -
Closing Balance	**$ 4,532.5**	**$ 4,607.8**	**$ 4,722.3**	**$ 4,882.3**	**$ 5,460.9**
ACCUMULATED DEPRECIATION					
Opening Balance	$ (2,285.7)	$ (2,283.9)	$ (2,424.2)	$ (2,424.2)	$ (2,571.6)
Accumulated Depreciation	$ (141.6)	$ (148.6)	$ (93.0)	$ (147.4)	$ (156.5)
Disposals	$ -	$ 8.3	$ 5.7	$ -	$ -
Closing Balance	**$ (2,427.4)**	**$ (2,424.2)**	**$ (2,511.5)**	**$ (2,571.6)**	**$ (2,728.1)**
NET FIXED ASSETS OPENING BALANCE	$ 1,897.8	$ 1,895.8	$ 2,183.5	$ 2,183.5	$ 2,310.7
NET FIXED ASSETS CLOSING BALANCE	$ 2,105.1	$ 2,183.5	$ 2,210.9	$ 2,310.7	$ 2,732.8
Average NFA	$ 2,001.4	$ 2,039.7	$ 2,197.2	$ 2,247.1	$ 2,521.7
Working Capital Allowance	$ 296.7	$ 313.6	n/a	$ 326.2	$ 348.5
Rate Base	$ 2,298.2	$ 2,353.2	n/a	$ 2,573.3	$ 2,870.2

(1) Additions are assumed as per the ICM framework to be effective January 1st of the year in which the capital spend is reported and well as the associated depreciation.

/U

b) Please reconcile to Gross and Net fixed assets in the Spreadsheet "Incremental Capital Proj. Wksheet 20120510".

RESPONSE:

b) Please see the schedules below. /U

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 1.3

	2012 Forecast	2013 Forecast
CAPEX	$ 274.7	$ 579.1
GROSS FIXED ASSETS		
Opening Balance	$ 4,607.8	$ 4,882.3
C1 Underground Infrastructure	$ 28.8	$ 58.9
C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers	$ 0.1	$ 5.4
C3 Handwell Replacement	$ 13.7	$ 16.7
C4 Overhead Infrastructure	$ 9.1	$ 55.9
C5 Box Construction	$ 0.6	$ 23.0
C6 Rear Lot Construction	$ 16.4	$ 29.4
C7 Polymer SMD-20 Fuses	$ -	$ 1.5
C8 Scadamate R1 Switches	$ -	$ 1.4
C9 Network Vault & Roofs	$ 2.8	$ 18.8
C10 Fibertop Network Units	$ 1.5	$ 7.7
C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)	$ -	$ 3.3
C12 Stations Power Transformers	$ 0.4	$ 3.5
C13 Stations Switchgear	$ 1.7	$ 21.8
C14 Stations Circuit Breakers	$ 0.8	$ 0.6
C15 Stations Control & Communicaton Systems	$ 0.1	$ 1.0
C16 Downtown Station Load Transfers	$ 0.7	$ 2.1
C17 Bremner Transformer Station	$ 8.5	$ 81.0
C18 Hydro One Capital Contributions	$ 23.0	$ 48.1
C19 Feeder Automation	$ 2.3	$ 20.7
C20 Wholesale and Smart Metering	$ 4.7	$ 8.4
C21 Externally-Initiated Plant Relocations and Expansions	$ 10.2	$ 24.8
PCI Total	$ 149.3	$ 144.5
Additions	$ 274.5	$ 578.6
Disposables	$ -	$ -
Closing Balance	**$ 4,882.3**	**$ 5,460.9**

/U

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 1.3

	2012 Forecast	2013 Forecast
ACCUMULATED DEPRECIATION		
Opening Balance	$ (2,424.2)	$ (2,571.6)
C1 Underground Infrastructure	$ (0.9)	$ (1.9)
C2 Paper Insulated Lead Covered Cable - Piece Outs and Leakers	$ (0.0)	$ (0.1)
C3 Handwell Replacement	$ (0.3)	$ (0.4)
C4 Overhead Infrastructure	$ (0.2)	$ (1.5)
C5 Box Construction	$ (0.0)	$ (0.6)
C6 Rear Lot Construction	$ (0.5)	$ (0.9)
C7 Polymer SMD-20 Fuses	$ -	$ (0.0)
C8 Scadamate R1 Switches	$ -	$ (0.0)
C9 Network Vault & Roofs	$ (0.1)	$ (0.6)
C10 Fibertop Network Units	$ (0.1)	$ (0.4)
C11 Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)	$ -	$ (0.1)
C12 Stations Power Transformers	$ (0.0)	$ (0.1)
C13 Stations Switchgear	$ (0.0)	$ (0.6)
C14 Stations Circuit Breakers	$ (0.0)	$ (0.0)
C15 Stations Control & Communicaton Systems	$ (0.0)	$ (0.1)
C16 Downtown Station Load Transfers	$ (0.0)	$ (0.1)
C17 Bremner Transformer Station	$ (0.2)	$ (2.1)
C18 Hydro One Capital Contributions	$ (0.9)	$ (1.9)
C19 Feeder Automation	$ (0.1)	$ (0.7)
C20 Wholesale and Smart Metering	$ (0.3)	$ (0.4)
C21 Externally-Initiated Plant Relocations and Expansions	$ (0.3)	$ (0.8)
Depreciation on 2012 Additions		$ (4.1)
PCI Total /Depreciation on 2012 Opening Balance/Accounting vs ICM Depreciation Calcu	$ (143.3)	$ (139.1)
Accumulated Depreciation	$ (147.4)	$ (156.5)
Disposables	$ -	$ -
Closing Balance	**$ (2,571.6)**	**$ (2,728.1)**
NET FIXED ASSETS OPENING BALANCE	$ 2,183.5	$ 2,310.7
NET FIXED ASSETS CLOSING BALANCE	$ 2,310.7	$ 2,732.8
Average NFA	$ 2,247.1	$ 2,521.7
Working Capital Allowance	$ 326.2	$ 348.5
Rate Base	$ 2,573.3	$ 2,870.2

/U

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 1.3

INTERROGATORY 10:

Reference(s): **Managers Summary Tab 2, Page 8 &**
EB-2010-0142 Exhibit B1, Tab 7, Schedule 1, Appendix A
Corrected: 2010 Nov 8, Proforma statement of cash Flows

THESL indicates that "The only source of funds available to THESL to cover the cost of the investment is revenue through distribution rates".

Please provide a proforma Statement of Cash Flows 2011-2014 in the same format as the second reference.

RESPONSE:

The 2011 actual and 2012 and 2013 proforma Statement of Cash Flow is presented below. /U

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 1.3

$ Millions, Rounding variances may exist	mCGAAP	USGAAP	USGAAP
Consolidated Statements of Cash Flows As at December 31	Actual 2011	Forecast 2012	Budget 2013
	THESR	THESR	THESR
Net income for the period	94.6	90.7	113.1
Adjustments for non-cash items			
Equity in net income of subsidiary companies	-	-	-
Depreciation and amortization	146.4	137.6	141.5
Change in fair value of investment	-	-	-
Net change in other assets and liabilities	(1.5)	(2.0)	(5.6)
Payments in lieu of corporate taxes	(6.2)	8.7	-
Post-employment benefits	9.6	12.3	8.0
Dividends from subsidiary	-	-	-
Future Income taxes	0.3	(0.3)	-
Gain on disposal of PP&E	(3.9)	(1.5)	(1.5)
Changes in non-cash working capital balances			
Decrease (increase) in accounts receivable	(6.8)	(36.8)	10.5
Decrease (increase) in unbilled revenue	20.9	(9.1)	5.8
Increase (decrease) in current assets	0.0	1.7	(0.8)
Increase (decrease) in restructuring costs	-	10.2	(10.2)
Increase (decrease) in current liabilities	38.4	(22.7)	56.7
Net cash provided by operating activities	**291.7**	**188.9**	**317.5**
Investing activities			
Purchase of property, plant, eq. and intangibles	(425.9)	(288.9)	(582.0)
Investment in subsidiary	-	-	-
Purchase of investment	-	-	-
Proceeds from investments	-	1.7	2.0
Increase in note receivable from related party	-	-	-
Net change in regulatory assets and liabilities	(31.7)	(7.5)	3.5
Proceeds from sale of assets	5.0	-	-
Common shares issued	-	-	-
Net cash used in investing activities	**(452.6)**	**(294.7)**	**(576.5)**
Financing activities			
Dividends paid	-	-	(46.7)
Increase in notes payables and debentures	53.0	60.0	725.1
Repayment of debentures	-	-	(485.1)
Borrowings (payment) from/of line of credit	-	-	37.0
Increase (decrease) in customers' advance dep.	(8.2)	9.0	6.7
Other financing activities	-	-	-
Net cash provided by (used in) financing activities	**44.8**	**69.0**	**237.0**
Net incr. (decr.) in C&E during the period	**(116.1)**	**(36.8)**	**(22.0)**
Cash and cash equivalents, beginning of period	175.51	59.4	22.6
Cash and cash equivalents, end of period	**59.4**	**22.7**	**0.6**

/U

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 1.3

As described in the cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide the 2014 information requested in this interrogatory during the first phase of this application. **/U**

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 1.3

INTERROGATORY 10:

Reference(s): Tab 2. Appendix 1

a) Please confirm that the allocation of the $12.9 M for 2012 to customer classes is based on each class' revenue contribution to the approved base distribution revenue requirement using 2011 rates and loads.

RESPONSE:

a) The allocation of the $12.9M for 2012 to customer classes is based on each class' revenue contribution to the approved base distribution revenue requirement using 2011 OEB-approved rates and loads.

b) If this is the case, please explain why the resulting rider for the Residential class is more than twice that for the Competitive Sector Multi-Unit Residential class ($0.44 vs. $0.17) when the monthly service charge is only 7.3% higher ($18.25 vs. $17).

RESPONSE:

b) The values for percentage of revenue used in the tables filed are incorrect. Please see the response to EP interrogatory 7a (Tab 6C, Schedule 7-7, part a).

c) Please provide the working excel spreadsheet that derives the fixed and variable revenues for each rate class based on approved rates and the resulting percentages set out in columns A-C of the tables on pages 2-4.

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 1.3

RESPONSE:

c) The derivation of the fixed and variable revenues is contained in Tab 4, Schedule E1.1, page 8. The attached Appendix A recreates this sheet from the ICM model in Excel format.

THESL has provided an updated and corrected version of Tab 4, Schedule E1.1, as well as an updated and corrected version of Tab 2, Appendix 1. **/U**

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 2.1

INTERROGATORY 16:

Reference(s): Tab 2, page 16, lines 3-5 Tab 4, Schedule A, Appendix 1, page 1

a) How much of the capital spending for each year (as set out in Tab 4) is for facilities that will actually be in-service by the end of the year in which the capital is reported as being spent?

b) If all the capital spending set out in Tab 4 will not be in-service the same year in which the spend occurs, please provide a schedule that sets out for each of 2012 through 2014 year ends, the capital spending that is "in-service" versus "work-in-progress".

RESPONSE:

a) and b)

Forecasted spend in-service and not in-service for 2012 and 2013 year-ends is as follows:

Year	Forecasted Capital Spend ($M)	Forecasted Capital In-Service (%)	Forecasted Capital In-Service ($M)	Forecasted Capital Not In-Service ($M)
2012	274.68	41%	112.62	162.06
2013	579.09	49%	283.76	295.34

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information /U

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 2.1

for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application. /U

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 2.1

INTERROGATORY 17:

Reference(s): Tab 2, page 23, lines 1-2

Preamble:

The Board's ICM filing requirements as set out on pages VI and VII of Appendix B in the Supplementary require the Applicant to provide a description of the actions the distributor will take in the event that the Board does not approve the application.

a) Is it THESL's position that it will not undertake the proposed capital spending if the ICM request is not approved (per the statement on page 23)?

RESPONSE:

a) On a planned basis, THESL will expect to operate within the resource envelope approved by the OEB in this proceeding. If unforeseen critical contingencies arise after the decision is released, THESL may be required to re-prioritize the deployment of its remaining resources to meet the most critical needs.

b) If yes, what actions will THESL take to address/manage the issues identified in the Application?

RESPONSE:

b) Please see THESL's response to OEB Staff interrogatory 10 (Tab 6A, Schedule 1-10).

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 2.1

c) What is the current status of the ICM spending proposed for 2012? Please provide a schedule that sets out the actual 2012 spending to date for each project.

RESPONSE:

c) The following table provides the actual spending for each project to the end of August 2012:

Schedule Number	Projects	Segments	2012 Actuals (Aug/12)
B1	Underground Infrastructure and Cable	Underground Infrastructure	14.63
B2		Paper Insulated Lead Covered Cable - Piece Outs and	-
B3		Handwell Replacement	6.37
B4	Overhead Infrastructure and Equipment	Overhead Infrastructure	1.63
B5		Box Construction	0.02
B6		Rear Lot Construction	9.36
B7		Polymer SMD-20 Switches	
B8		SCADA-Mate R1 Switches	
B9	Network Infrastructure and Equipment	Network Vault & Roofs	0.65
B10		Fibertop Network Units	0.00
B11		Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)	
B12	Station Infrastructure and Equipment	Stations Power Transformers	-
B13.1 & 13.2		Stations Switchgear - Muncipal and Transformer Stations	1.05
B14		Stations Circuit Breakers	0.11
B15		Stations Control & Communicaton Systems	0.03
B16		Downtown Station Load Transfers	0.03
B17	Bremner TS	Bremner Transformer Station	3.38
B18	Hydro One Capital Contributions	Hydro One Capital Contributions	18.21
B19	Feeder Automation	Feeder Automation	-
B20	Metering	Metering	2.41
B21	Plant Relocations	Externally-Initiated Plant Relocations and Expansions	2.23
B22	Grid Solutions	Grid Solutions	
C1	Operations Portfolio Capital		71.92
C2	Information Technology Capital		13.53
C3	Fleet Capital		0.73
C4	Buildings and Facilities Capital		3.01
	Allowance for Funds Used During Construction		
Total			**149.30**

/U

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 2.1

INTERROGATORY 19:

Reference(s): **Tab 4, Schedule E1.1, page 11**

a) Please provide fully accessible versions of the ICM models that allow parties to see the derivation of the Incremental Capital CAPEX (e.g. $275,754,831 for 2012).

RESPONSE:

a) An updated Tab 4, Schedule E1.1, E1.2 and E1.3 reflecting the updated capital for 2012 has been filed in Excel and hardcopy formats. Schedule E1.2 shows the derivation of the Incremental Capital amount input on page 11 of Tab 4, Schedule E1.1. **/U**

RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES ON ISSUE 2.2

INTERROGATORY 26:

Reference(s): **T4/S A/App. 1 and *Filing Requirements for Electricity Transmission and Distribution Applications,* June 28, 2012, Ch. 3**

On page 8 of Chapter 3 of the Filing Requirements, it is stated that:

> "A distributor applying for recovery of incremental capital should calculate the eligible incremental capital amount by taking the difference between the 2012 total non-discretionary capital expenditure and the materiality threshold." [emphasis added].

The first reference is to the "Summary of the Capital Program provided by THESL which is a table listing the various projects that make up THESL's requests in the present application:

a) Please state the definition of 'non-discretionary' that THESL is using for the purposes of this application. If the definition includes more than one factor, please provide at least one example for each factor from this application.

RESPONSE:

a) Please refer to the Revised Manager's Summary discussion of this issue under the headings 'Need' and 'Safety Considerations Pertinent to Need' at pages 16-19. Please also refer to THESL's responses to SEC interrogatories 8 and 9 (Tab 6E, Schedules 10-8 and 10-9).

RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES ON ISSUE 2.2

b) Please provide a priority ranking for each of the projects listed in this table from Schedule Number B1 to B22 from "1" for most important to "22" for least important.

RESPONSE:

b) THESL does not believe that the projects can be ranked in terms of priority. The projects in THESL's application have been identified and included because they meet the ICM eligibility factors, are essential to maintain the safety and reliability of the distribution system and THESL has no other options to fund them at this time. While THESL can only implement a limited number of jobs in a given year for a variety of reasons (including resource availability, project planning constraints, external factors such as availability and timing of permits, etc.), each aggregate project contains jobs that require more or less equally essential work.

c) For each of the years 2012 to 2014, please break down the amounts in this table into assets that will be in service in the year in question versus those which will be in service in subsequent years.

RESPONSE:

c) Please see THESL's response to VECC interrogatory 16 (Tab 6E, Schedule 11-16). **/U**

d) Please state how much of the capital program outlined in this table was not included in the capital program proposed by THESL in the EB-2011-0144 application.

RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES ON ISSUE 2.2

RESPONSE:

d) Of the jobs comprising the capital program outlined in the referenced table, $120.89M was not included in the capital program identified by THESL in the EB-2011-0144 application.

e) Please state how much of the capital program proposed in this application was not included in the capital program proposed by THESL in the EB-2010-0142 application.

RESPONSE:

e) Of the jobs comprising the capital program outlined in the referenced table, $1,371.33M was not included in the capital program as filed by THESL in its EB-2010-0142 application. As stated in the Revised Manager's Summary, the ICM projects and associated jobs are new and incremental to the rebasing year (2011) revenue requirement. The limited overlap between capital work that was originally proposed in THESL's 2011 application (EB-2010-0142) and this application consists of:

(i) continuing capital work that was begun in 2011 and scheduled to be completed in 2012 (see Tab 4, Schedule C1, pp. 7-9), and

(ii) non-discretionary jobs initially proposed for construction in 2011 that could not proceed due to the unique circumstances of each job. No capital work was previously undertaken (i.e., prior to 2012) in respect of jobs in this category.

RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES ON ISSUE 2.2

INTERROGATORY 67:

Reference(s): **T4/S C1/p. 2**

The above reference indicates that Engineering Capital consists of the labour costs of engineers, technologists, design technicians and power system controllers for engineering, design and planning work that they perform on distribution assets that are put in service. These costs are estimated at $9.5M per year for 2012-2014.

a) Please explain why the proposed engineering capital costs are not assigned to the associated distribution system assets or projects to which the work pertains.

RESPONSE:

a) Engineering capital has been assigned directly to the ICM projects, but presented separately for projects within the materiality threshold. Engineering capital costs are allocated to projects at the time of completion based on the cost of each project before the allocation. The total cost of each project is then capitalized to a specific asset. Thus, all Engineering Capital costs are ultimately capitalized to project-specific assets.

b) Please explain how the proposed $9.5M per year for 2012-2014 for Engineering Capital was arrived at, including appropriate cost breakdowns.

RESPONSE:

b) $9.5 million represents approximately 8% of the distribution asset capital budget for projects comprising the Operations Portfolio Capital for 2012 and 2013. The 8% is **/U**

RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES ON ISSUE 2.2

the proportion of the 2011 Engineering Capital amount to the 2011 total distribution capital expenditures. Both the Engineering Capital and total distribution capital expenditures are based on gross distribution capital (excluding recoverable customer contributions), and excluding station enhancement capital. As stated in Tab 4, Schedule C1, page 2, Engineering Capital consist of the labour costs of engineers, technologists, design technicians and power system controllers ("PSCs") for engineering, design and planning work that they perform on distribution assets that are put in service.

As described in the cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application.

/U

RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES ON ISSUE 2.2

INTERROGATORY 68:

Reference(s): **T4/S C1/p. 2**

Table 3 on page 5 of the reference provides THESL's proposed expenditures for Worst Performing Feeder (WPF) of $6.10M, $24.50M and $24.50M for 2012, 2013 and 2014, respectively for a total WPF expenditure of $55.1M.

Please explain how the proposed WPF expenditures shown in Table 3 of the reference were arrived at, including appropriate cost breakdowns.

RESPONSE:

THESL's proposed expenditures for the Worst Performing Feeder (WPF) program are based on the most recent cost estimates to complete each specific project under the program. The updated proposed estimated expenditures are $4.90 million and $5.44 million for 2012 and 2013, respectively.

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application.

Tables 1 and 2 below present the breakdown of 2012 and 2013 forecast costs by project.

/U

RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES ON ISSUE 2.2

1 **Table 1: 2012 WPF Projects** /U

Project Name	Estimated Cost ($ Million)
W11204 FESI NY55M07 UG Cable ENHN-Phase IV	0.01
W12747 FESI - Dovehaven Crt.Voltage Conversion (SS55-F5)	0.28
W10504 BRIAN D W10504 McGLASHAN CRT UG REBUILD	0.32
W12729 FESI - Harlandale OH 80M1 Civil (poles & anchors) and Electrical	0.02
E12349 Leslie Railway/Steeles Porcelain Insulator Replacement NYSS68F4	0.18
E12356 Finch Ave Pole Rep. NY51M8 OH Rebuild	0.08
E12682 NY53M8 FESI Lightning Arrestors and Pole Replacement	0.18
W10495 - 1040 SHEPPARD AVE E APRIL 2012	0.04
W10495 - 3533 BATHURST ST MARCH 2012	0.02
W10495 - 3575 Bathurst Street Created Oct 2010	0.04
W10495 -560 St Germain & 95 Falkirk Created Oct 2010	0.03
W10495 - 145 Neptune Drive Created Oct 2010	0.05
W10495 - 125 Neptune Drive Created Oct 2010	0.10
W10495 - 130 Neptune Drive Created Oct 2010	0.11
W10495 - 20 DANBY AVE APRIL 2012	0.02
W12328 - Ridley UG Rebuild & Cable	0.17
W10505 Spot Tx Replacement on Feeder 85M8 (est.22284)	0.48
X11733 P0067837 35m11 Pole/Tx Replac	0.01
E11704 XJF3 OH Tree Proof Rebuild Deep Dene	0.31
W10473 FESI-12 NY85M5 Harlock St Area OH Rbld	0.17
W10491 FESI-12 YK11M4 Runnymede UG Rehabs Ph1	0.00
W10495 FESI-12 85M5 Bathurst St UG Rehab (Ph1)	0.37
E11639 Finch-404 Feeder Upgrade (SS68-F9)	0.34
W10491 FESI-12 YK11M4 Runnymede UG Rehabs Ph2	0.32
W10495 FESI-12 85M5 Bathurst St UG Rehab (Ph2) (DESIGN ONLY)	0.03
W12729 FESI - Harlandale OH 80M1 Civil (poles & anchors) and Electrical	0.34

RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES ON ISSUE 2.2

Project Name	Estimated Cost ($ Million)
W12328 FESI Ridley Blvd UG Reb and Cable Rep NY85M8	0.22
FESI Mitigation Patrols	0.66
Total	**4.90**

Table 2: 2013 WPF Projects /U

Project Name	Estimated Cost ($ Million)
W11204 FESI 55M7 Weston Knob Hill	1.34
W12294 FESI - Lateral Cable Replacmnt Finch TS 55M25	0.73
E11713 Installation of Animal Guards RC 4210	0.02
E11704 Deep Deene XJF3 Tree proof OH	0.26
W11443-Fairchild Trunk Cable Rehab Fairchild TS	1.99
FESI Mitigation CAPEX 2013	1.10
Total	**5.44**

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INTERROGATORY 69:

Reference(s): **T4/S C1/pp. 5-6**

Table 4 on page 6 of the reference provides THESL's proposed expenditures for Customer Connections (net of Customer Contributions) of $25.8M, $30.00M and $30.00M for 2012, 2013 and 2014, respectively for a total expenditure of $85.8M.

Please explain how the proposed customer connection expenditures shown in Table 4 of the reference were arrived at, including appropriate cost breakdowns.

RESPONSE:

THESL's proposed estimated expenditures for Customer Connections are calculated based on the historical costs associated with the different types of activities that are anticipated to occur based on historical customer connection work and additional confirmed large customer connection requests. These activities include normal construction work to supply new residential services and general services class customers. The historical costs and labour requirements for each specific activity performed by THESL crews are determined and normalized over the past three years and are used to forecast future requirements and costs. Information for large customer connection requests is gathered through existing signed or draft Offers to Connect, as well as through communications between THESL designers and developers.

The updated proposed expenditures are $24.98 million and $37.39 million for 2012 and 2013, respectively.

/U

RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES ON ISSUE 2.2

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application. /U

The table below provides the breakdown of the updated proposed expenditures for Customer Connections (net of Customer Contributions) for 2012 and 2013.

Customer Class	2012	2013
Residential services	$2.55	$3.90
General services	$15.57	$17.31
Large customer requests	$6.87	$16.19
TOTAL	**$24.98**	**$37.39**

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INTERROGATORY 70:

Reference(s): **T4/S C1/pp. 6-7**

Table 5 on page 6 of the reference provides THESL's proposed Reactive Capital expenditures of $27.70M, $31.90M and $32.70M for 2012, 2013 and 2014, respectively for a total expenditure of $92.3M.

Please explain how the proposed Reactive Capital expenditures shown in Table 5 of the reference were arrived at, including appropriate cost breakdowns.

RESPONSE:

The Reactive Capital program focuses on work requiring capital expenditures on overhead assets, underground assets and stations and metering assets needed to restore power to customers in the case of outages, to mitigate potential safety risks to the public, to maintain system integrity, to maintain accurate billing, to perform corrective work to address failed and defective equipment and/or to address other unexpected events that require immediate action. THESL calculated the proposed expenditures by for each of these asset classifications based on their historical system performance, analyses of failure trends, and the trends of the number of work requests for reactive capital work over the past five years. **/U**

The updated proposed expenditures for the Reactive Capital work are $25.43 million and $29.30 million for 2012 and 2013, respectively.

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As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application.

The table below provides the breakdown of the updated proposed expenditures for Reactive Capital for 2012 and 2013. /U

Table 1: Reactive Capital Summary ($ M)

Asset Classification	2012	2013
Underground Assets	16.10	17.80
Overhead Assets	7.80	9.60
Stations and	0.70	1.10
Metering Assets	0.80	0.80
Total	**25.40**	**29.30**

Table 2 summarizes the historical Reactive Capital investments in 2008-2011 and the proposed Reactive Capital budget in 2012-2013.

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Table 2: Historical Reactive Capital Summary ($ millions)

	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Projected	2013 Projected
Underground Assets	11.2	9.4	12.9	17.6	16.10	17.80
Overhead Assets	7.6	10.7	11.7	10.7	7.80	9.60
Stations Assets	0.5	0.6	0.5	0.3	0.70	1.10
Metering Assets	-	-	-	-	0.80	0.80
Total	19.3	20.7	25.1	28.6	25.40	29.30

As shown in Table 2, Reactive Capital expenditures have been steadily increasing from 2008 to 2011 and the trend is expected to continue for the period 2012 to 2013. /U

Underground Assets

The Underground Reactive Capital expenditure indicates an increasing historical trend in Table 2. The cause of defective underground equipment outages by asset class is shown below in Figure 1 with primary underground cable and joint breakdown being the major contributors. This reactive work is very costly but is necessary to restore power to the system. The projected spend in 2012 is lower than 2011 and that is attributed to the successful upgrades and replacements on THESL’s underground system over the last several years. The deteriorating underground assets issues are not sustained and are anticipated to continue to occur in 2013.

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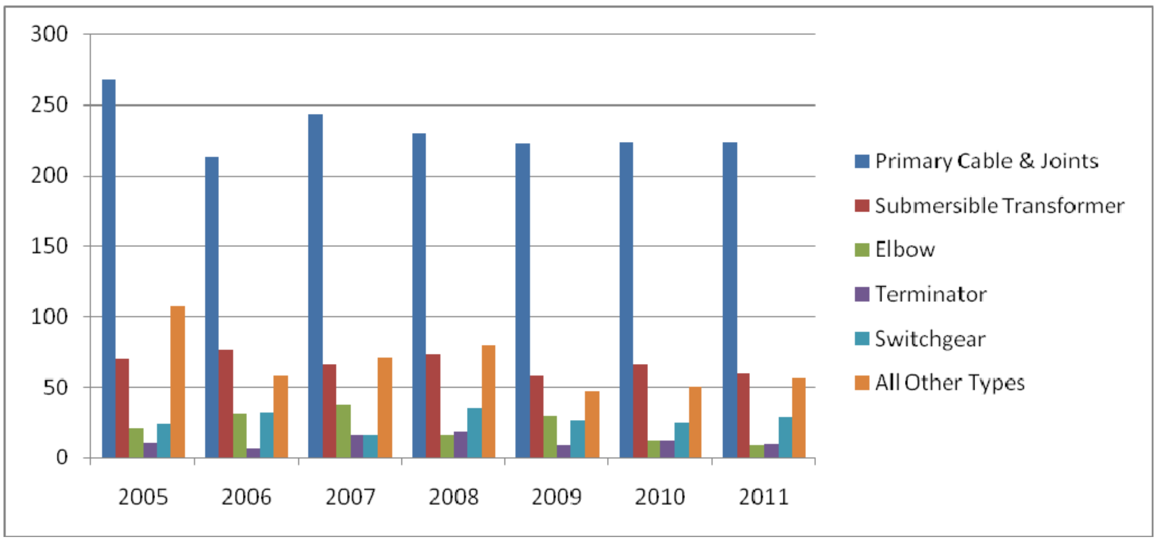

Figure 1: Historical Cause of Underground Outages

/U

Overhead Assets

The historical expenditures from 2008-2011 for Overhead Reactive Capital work in Table 2, shows a slow but steady increase in spending to address the outages and subsequent corrective work requests. Based on this trend, THESL projects $7.8 million in 2012 and $9.6 million in 2013 to address all overhead system corrective work requests

Stations Assets

The Stations Reactive Capital budget consists of the replacement of station equipment failures such as transformers, circuit breakers, batteries/chargers, SCADA telemetry and/or control equipment, station alarms, DC panels, station heating and ventilations, and sump pumps installed inside stations. THESL is projecting a continuation of the above-mentioned trends for all classes of distribution and stations equipment through 2012-2013. The outages caused by defective stations equipment are shown in Figure 2. Based

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on historical portfolio trends, and asset age, THESL projects the Stations Reactive Capital of $0.7 million in 2012, and an increase to $1.0 million in 2013.

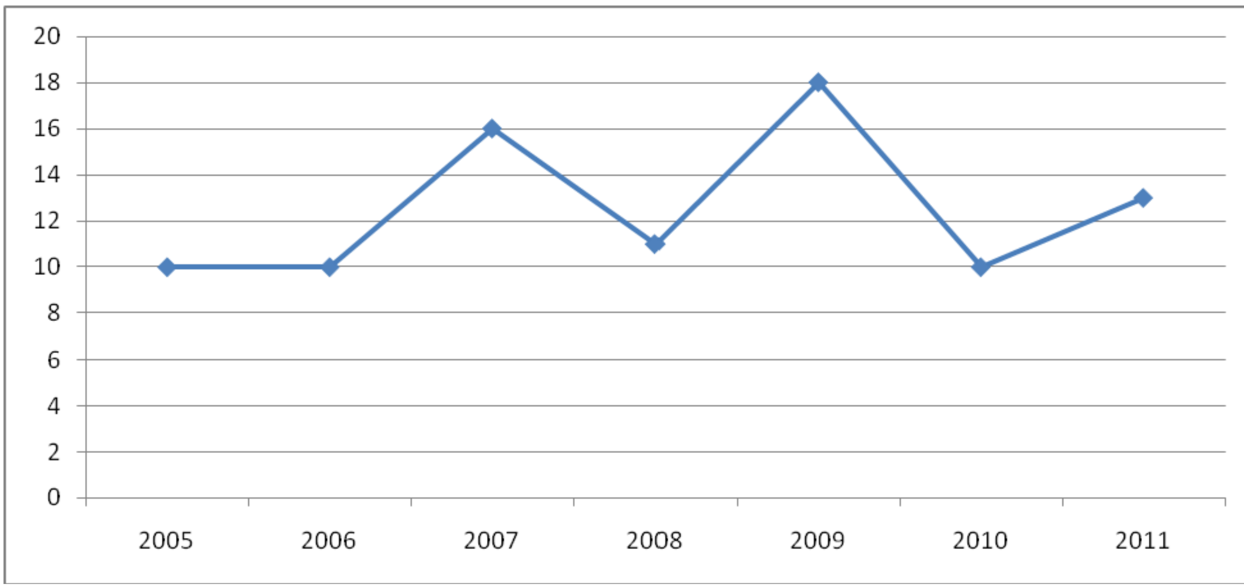

Figure 2: Historical Outages due to Defective Stations Equipment

Metering Assets

THESL has replaced close to 685,000 conventional meters with smart meters to date. Smart meters consist of more complex components than traditional mechanical meters. As shown in Figure 3, the potential failure of smart meters can be caused by the following malfunctions: liquid crystal display (LCD), health check, meter error codes, wide area network (WAN) communication modems, firmware, local area network (LAN) transmitters and receivers. The 2012 projection is based on historic average number of malfunctions experienced from 2008 to 2011.

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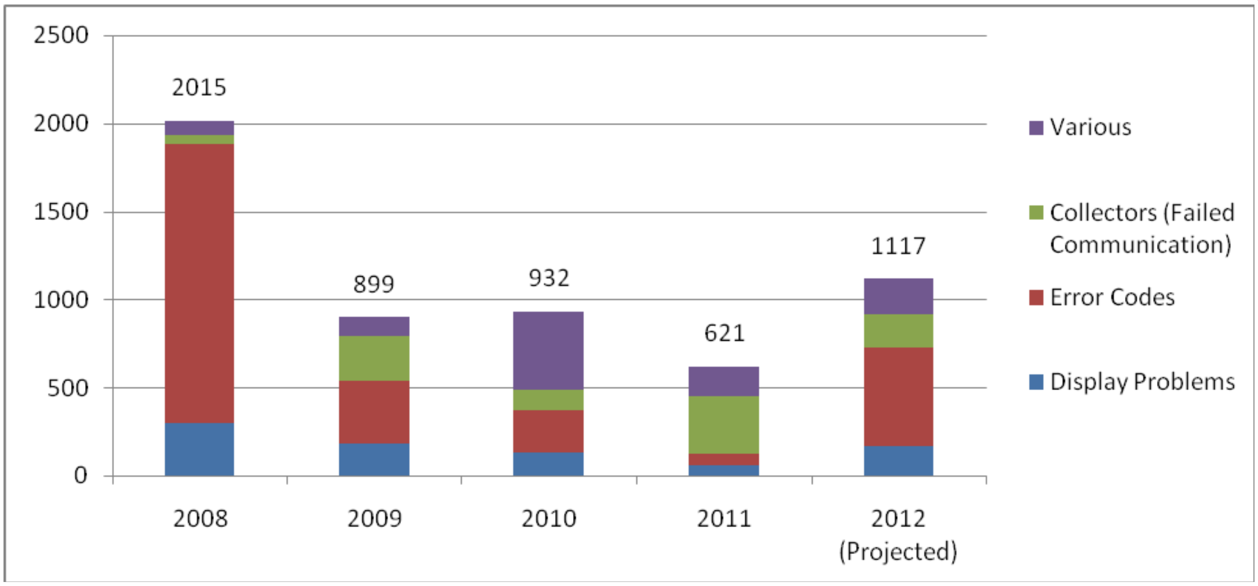

1 **Figure 3: Metering Assets Failure Causes**

/U

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INTERROGATORY 71:

Reference(s): T4/S C1/pp. 7-9

The proposed capital expenditures for each of these groups is given in Table 6 on page 9 of the reference which indicates expenditures of $52.60M, $25.70M and $24.90M for 2012, 2013 and 2014, respectively for a total expenditure of $103.2M.

Please explain how the proposed capital expenditures shown in Table 6 of the reference were arrived at, including appropriate cost breakdowns.

RESPONSE:

The proposed capital expenditures in the Continuing Projects and Emerging Issues Portfolio were arrived at through the identification and forecasting of capital work that satisfies the criteria described in the referenced evidence. The updated proposed expenditures for the Continuing Projects and Emerging Issues Portfolio are $55.73 million and $40.00 million for 2012 and 2013, respectively. The forecast costs are based on the most recent cost estimates to complete each specific project or program. **/U**

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application.

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Tables 1 to 3 below present the breakdown of forecast costs as follows: /U

- Table 1 – Breakdown of Continuing Projects from 2011 to 2012
- Table 2 – Breakdown of Emerging Projects for 2012
- Table 3 – Breakdown of Emerging Projects for 2013

Table 1: Breakdown of Continuing Projects from 2011 to 2012 /U

Project Name	Estimated Cost ($ Million)
X11633 Roncesvalles Dundas TTC OH Rearrangement (DC-Carry Over)	$0.19
E11664 Duncan Mills Road Bridge Rehabilitation NY51M29	$0.07
S11651 Bathurst TS UIM for feeder automation NY85	$0.08
S11652 Bathurst TS New relays for Grid NY85	$0.24
X11414 ATS Replacement Locn #D9010 Richmond St. W. (Carry Over)	$0.06
X11402 Replace 1-750KVA NW Tx A46GD	$0.13
X12056 B2CD VC - Box Construction (Carry Over)	$0.82
W11192 Eglinton MS Stage 3 B-3-5-EG OH Conv	$0.78
W10096 O'Hara St OH VC	$0.30
X11242 Runnymede YK11M8 (Carry Over)	$1.27
W10365 Etobicoke Richview TS 88M1 to 88M16 Fusing (71 loc'ns)	$0.01
E11749 PCB Transformer Rep OT72762 SCREF3	$0.01
W10365 Etobicoke Richview TS 88M1 to 88M16 Fusing (71 loc'ns)	$0.18
S11459 Bathurst ORC Customer project station work	$0.28
S11446 Strachan TS feeder transfers (5 feeders remain & HONI work on 2nd TX connection to new bus)	$0.09
S10160 Wiltshire TS remove tie to old bus & make safe	$0.04
S10157 Glengrove TS remove tie to old bus & make safe	$0.12

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Project Name	Estimated Cost ($ Million)
S09346 George & Duke TS decomm- contractor on site in progress -relocate G&D to X group trip panel	$0.17
S11608 Windsor TS: new CBC feeder - pilot wire	$0.01
S11650 Terrauley TS: 3 new feeders Sick Kids Hospital - pilot wire	$0.23
S12623 continue S11099 Centennial D'arcy Magee MS: Replace TR	$0.47
S12777 Various MS Switchgear commitments with suppliers	$0.40
S12627 High Level MS replace TR4 - high risk and high impact on reliability	$0.22
S12626 High Level MS replace TR3 - high risk and high impact on reliability	$0.22
S11656 Sherbourne MS: finish install of T3- tx on site- load on 2 remaining TX's primary LB switch to arrive Jan 16, 2012.	$0.06
S11442 Jane MS: Replace TR#1 (to continue remaining work)	$0.03
S10109 University MS Continue to complete TR3 & TR4 transformer replacement	$0.40
S11099 Centennial D'arcy Magee MS: Replace TR (to continue remaining work)	$0.12
S10438 Dufferin TS: Transfer A13DN and A14 DN (Carried over from 2011)	$0.02
S11112 Improve SONET Redundancy: Parkdale MS (PQ) to Strachan TS	$0.03
S11171 Scar Civic Centre: Replace RTU	$0.05
S11398 Terauley TS: Replace S.S. main AC panel & Replace obsolete station Alarm Annunciator panel	$0.12
X10421 Load Transfer Dufferin TS A5-6DN	$0.03
E12424 Braymore West SCN47M14 UG Rebuild Electrical Ph1	$0.59
E11158 Crow Trail 26M34 Underground Rehab Area A (Electrical)	$0.29

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Project Name	Estimated Cost ($ Million)
E11160 Crow Trail/Dunsfold 26M34 UG Rehab Area C (Electrical)	$0.36
E11159 - Crow Trail B	$0.01
E11457 Baylawn Petworth UG SCSGF2 (Civl)	$0.02
E12215 Morningside Casebridge SCNT47M1 - Civil	$0.01
E12423 Braymore W NA47M14 UG Rebuild Ph 1 (Civil)	$0.02
X11292 FESI-12 Lawrence UG Feeder Cable Rebuild (NY34M7)	$0.04
W11203 A3-4T to A9-22T Strachan Fdr Transfer	$0.23
W11033 A47-49H Feeder Upgrade	$0.01
W10335 Blaketon MS FUSING	$0.17
W11757 PCB Transformers and Cable replacement	$0.03
E10182 Conlins Morningside HWY401 UG Crossing NT47M8,NA47M15	$0.10
W11033 A47-49H Feeder Upgrade	$0.08
W10335 BLAKETON MS FUSING & SCADA INSTALLATION ETHLF2	$0.01
Costs for completion of in-progress work elements, site restoration, work site demobilisation, contract design completion, customer engagement	$7.63
Total:	**$16.85**

1 **Table 2: Breakdown of Emerging Projects for 2012** /U

Program	Estimated Cost ($ Million)
Externally Initiated Plant Relocation	$1.54
Feeder Automation	$1.67
Network System Rebuild	$1.88
Network Transformer Replacements	$3.44

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Program	Estimated Cost ($ Million)
Network Vault	$1.00
Overhead Rear Lot Rebuild	$2.02
Overhead System	$8.22
Standardization	$0.99
Stations Capital Work	$2.83
Underground Capacity Growth	$0.99
Underground Direct Buried Cable Replacement	$7.87
Underground PILC	$1.43
Underground Rehab	$5.00
Total:	$38.88

1 **Table 3: Breakdown of Emerging Projects for 2013** /U

Program	Estimated Cost ($ Million)
Externally Initiated Plant Relocation	$2.77
Network Automation	$2.14
Network Transformer Replacements	$2.30
Overhead System	$5.36
Stations Capital Work	$4.74
Underground Capacity Growth	$5.39
Underground Direct Buried Cable Replacement	$5.26
Underground Rehab	$12.04
Total:	**$40.00**

RESPONSES TO ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO INTERROGATORIES ON ISSUE 2.2

INTERROGATORY 6:

Reference(s): Tab 4, Schedule A, Appendix 1, Page 1

a) Please provide the labour components of the capital programs listed in Appendix 1.

RESPONSE:

a) Please see table below: **/U**

Summary of Capital Program

Schedule Number	Projects	Segments	Cost Estimates ($M) 2012 Forecast	2012 Labour	2013 Budget	2013 Labour	Total
B1	Underground Infrastructure and Cable	Underground Infrastructure	28.75	1.77	58.94	7.37	87.70
B2		Paper Insulated Lead Covered Cable - Piece Outs and Leakers	0.08	0.06	5.42	3.35	5.50
B3		Handwell Replacement	13.65	-	16.65	-	30.30
B4	Overhead Infrastructure and Equipment	Overhead Infrastructure	9.07	4.01	55.88	23.79	64.95
B5		Box Construction	0.58	0.26	23.04	9.39	23.62
B6		Rear Lot Construction	16.36	3.28	29.43	6.80	45.78
B7		Polymer SMD-20 Switches		-	1.53	1.25	1.53
B8		SCADA-Mate R1 Switches		-	1.43	0.15	1.43
B9	Network Infrastructure and Equipment	Network Vault & Roofs	2.84	0.46	18.76	3.75	21.60
B10		Fibertop Network Units	1.48	0.21	7.71	0.98	9.19
B11		Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)		-	3.26	0.92	3.26
B12	Station Infrastructure and Equipment	Stations Power Transformers	0.38	0.09	3.48	0.69	3.86
B13.1 & 13.2		Stations Switchgear - Muncipal and Transformer Stations	1.73	0.63	21.81	4.16	23.54
B14		Stations Circuit Breakers	0.76	0.28	0.55	0.15	1.31
B15		Stations Control & Communicaton Systems	0.14	0.06	1.00	0.27	1.14
B16		Downtown Station Load Transfers	0.68	0.33	2.14	0.80	2.82
B17	Bremner TS	Bremner Transformer Station	8.50	-	81.00	-	89.50
B18	Hydro One Capital Contributions	Hydro One Capital Contributions	22.98	-	48.12	-	71.10
B19	Feeder Automation	Feeder Automation	2.30	0.40	20.66	3.54	22.97
B20	Metering	Metering	4.74	1.57	8.40	1.65	13.14
B21	Plant Relocations	Externally-Initiated Plant Relocations and Expansions	10.16	2.53	24.84	1.89	35.00
B22	Grid Solutions	Grid Solutions					-
C1	Operations Portfolio Capital		120.51	34.01	121.63	35.05	242.14
C2	Information Technology Capital		22.00	7.52	15.00	5.12	37.00
C3	Fleet Capital		0.80	0.04	2.00	0.04	2.80
C4	Buildings and Facilities Capital		5.00	0.36	5.00	0.36	10.00
	Allowance for Funds Used During Construction		1.20	-	1.40	-	2.60
Total			**274.68**	**57.85**	**579.09**	**111.47**	**853.78**

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As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on labour components of the 2014 work program in response to this interrogatory during the first phase of this application. /U

b) Please discuss the basis for the budget amounts i.e. which ones will be determined by competitive bidding?

RESPONSE:

b) THESL's practice is to undertake work that maximises the use of internal labour first. Once internal resources are fully utilised, the remaining work is provided to external contractors in accordance with their bid unit prices. The particular breakdown of what portions of each segment are to be contracted is dependent on scheduling and resource availability, and can change over time.

c) Please provide details of any new hires planned to carry out the incremental projects and reconcile total labour costs with new hires.

RESPONSE:

c) THESL currently has no plans for additional hires to carry out the incremental projects.

RESPONSES TO ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO INTERROGATORIES ON ISSUE 2.2

d) Please reproduce the Summary of Capital Program Table in Appendix 1 on the basis of highest priority to lowest priority.

RESPONSE:

d) Please refer to THESL's response to OEB Staff interrogatory 26 (Tab 6F, Schedule 1-26 part b).

e) Please provide a Capital Spending Schedule that sets out on a comparative basis 2009 actual capital spending, 2010 actual capital spending, 2011 approved (EB-2011-0142), 2011 actual, 2012 year to date and the proposed capital spending for 2012, 2013 and 2014 using the spending categories from EB-2011-0142 (Tab 8, Schedule 1, Page 5).

RESPONSE:

e) Please refer to THESL's response to SEC interrogatory 6 (Tab 6E, Schedule 10-6).

f) Please provide explanations for any categories where the variance is plus/minus 10 % between 2011 approved and the 2011 actual.

RESPONSE:

f) The OEB has historically approved overall total amounts for capital expenditures; it has not divided that amount between capital portfolios. As a result, it is not possible to compare variance by category between 2011 approved and the 2011 actuals. Please refer to THESL's response to SEC interrogatory 6 (Tab 6E, Schedule 10-6).

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g) Please explain any significant variances for 2012, 2013 and 2014 compared to previous years.

RESPONSE:

g) Please refer to THESL's response to SEC interrogatory 6 (Tab 6E, Schedule 10-6).

h) Please identify the spending in the 2012, 2013 and 2014 budget that does not include replacement.

RESPONSE:

h) Of the capital spending over 2012 to 2014, $366.74M does not pertain to work including replacement.

RESPONSES TO ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO INTERROGATORIES ON ISSUE 2.2

INTERROGATORY 9:

Reference(s): Tab 4, Schedule B1

a) Page 4 – The evidence indicates that in 2011 Customers Interrupted (CI) and Customer Hours Interrupted (CHI) values for direct buried cables accounted for 57% and 43% respectively for the CI and CHI for the entire underground distribution system. Please provide a breakdown of the other causes that make up 100% of the CI and CHI values in 2011.

RESPONSE:

a) Table 1 below provides a breakdown of CI and CHI for 2011 by underground asset type.

Table 1: Breakdown of CI and CHI for 2011 by underground asset type

Asset	% CI	% CHI
Direct buried cable	57.0	43.0
Cable in duct	18.7	29.6
Elbow	3.0	1.7
Pothead	0.2	0.3
Switch	8.0	11.5
Termination	4.6	2.1
Transformer	8.4	11.9

b) The Table on Page 4 provides the number of interruptions attributed to direct buried cable failures. Please explain the increase in 2005 and decrease in 2006.

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RESPONSE:

b) Please note that Figures 1 and 43 in Tab 4, Schedule B1, which are the same, include both momentary and sustained interruptions atrributed to direct buried cable failures. This is an error as the figure should only include sustained interruptions.

Figure 1 below updates and corrects Figures 1 and 43. It shows only sustained interruptions due to direct buried cable failures. As is evident from the figure, there is only a slight difference between the number of interruptions attributed to direct buried cable failures in 2005 and 2006 that is well within the range of variation fluctuation seen among the years.

The number for 2012 is for the first six months of the year.

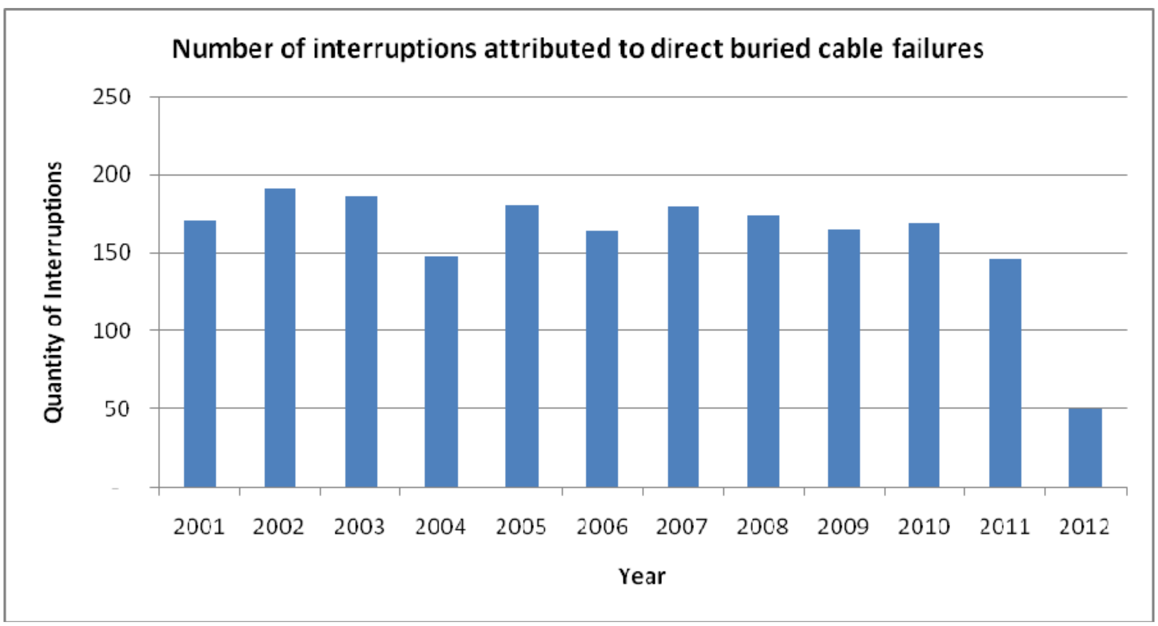

Figure 1: Number of interruptions attributed to direct bured cable failures.

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c) Page 110 – The evidence indicates that 66% of the direct buried XLPE cables (580 circuit kilometres) are in need of immediate attention. Please confirm the total km proposed for replacement in 2012, 2013 and 2014.

RESPONSE:

c) The total conductor kilometres of direct buried XLPE cable proposed for replacement in 2012 and 2013 are 237 and 49, respectively.

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application. **/U**

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INTERROGATORY 11:

Reference(s): **Tab 4, Schedule B3**

a) Please provide the number of proposed handwell replacements by year.

RESPONSE:

a)

Year	Number of Handwell Replacements (Target)
2012	2,587
2013	2,078
Total	4,665

/U

b) Please provide the number of handwell replacements in the downtown core by year.

RESPONSE:

b)

Year	Number of Handwell Replacements in the Downtown Core
2010	2,592 (actual)
2011	2,999 (actual)
2012	2,587 (target)
2013	0

/U

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INTERROGATORY 19:

Reference(s): Tab 4, Schedule B10, Appendix A

Preamble:

Appendix A contains a detailed list of projects.

a) Please confirm the number of proposed replacements by year is 61 in 2012, 61 in 2013 and 65 in 2014.

RESPONSE:

The number of proposed replacements is 13 in 2012 and 48 in 2013.

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application. **/U**

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INTERROGATORY 29:

Reference(s): **Tab 4, Schedule C1**

a) Please reproduce Table 1 on Page 1 to include data for 2009 to 2011.

RESPONSE:

a) Please see the table below.

Operations Capital Budget 2009-2011 ($ M)

Project Name	2009	2010	2011
Engineering Capital	25.80	34.50	23.60
Worst Performing Feeder	*see Note 1*	16.70	19.30
Customer Connections (net of Customer Contributions)	14.20	16.00	28.40
Reactive Capital	20.70	25.10	28.60
Continuing Projects and Emerging Issues Portfolio	*see Note 2*	*see Note 2*	*see Note 2*
TOTAL	60.70	92.30	99.90

/U

Note 1: 2009 Spending in Worst Performing Feeder

THESL introduced the Worst Performing Feeder portfolio at the beginning of 2010 to ensure the continued improvement in system reliability. This portfolio was not tracked prior to 2010. Therefore, THESL is unable to provide 2009 capital expenditure for the Worst Performing Feeder portfolio.

Note 2: 2009-2011

Spending in the Continuing Projects and Emerging Issues Portfolio

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THESL developed the "Emerging Issues" portfolio in May of 2012 as part of the change to IRM regulatory framework to address urgent and non-discretionary projects that emerge throughout the year that require short term attention. Historically, under Cost of Service (COS), THESL did not have a unique portfolio to keep track of Emerging issues as such projects were spread in other portfolios such as Customer Connection, Worse Performing Feeder, Overhead Infrastructure, Underground Infrastructure, etc. Therefore, THESL is unable to provide historical capital expenditure for the Emerging portfolio. /U

b) Please provide a breakdown of the Continuing projects from 2011 into 2012 in Table 6 on Page 9.

RESPONSE:

b) Please see the response in OEB Staff interrogatory 71 (Tab 6F, Schedule 1-71).

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INTERROGATORY 27:

Reference(s): **Tab 2, Appendix 4, pages 3 -5 Supplemental Report of the Board (EB-2007-0673), Appendix B, page VII**

a) Does the Risk Cost associated with the existing asset include the ongoing maintenance costs as well as any additional maintenance costs associated with repairing the assets when/if they fail?

RESPONSE:

a) As maintenance costs are typically the same between the existing asset to be replaced and the new asset to be installed, these costs are not included within the business case as they would cancel each other out. There are only two specific business cases – rear lot and box construction conversion – where a maintenance savings are identified between the existing assets to be replaced and the new assets to be installed. Under these instances, the differing maintenance costs are identified as an "ongoing cost" within the cost of ownership for the existing and new assets. The risk cost of the existing asset does include the cost of emergency repairs should an asset failure take place.

b) To the extent earlier replacement is justified on the basis of lower risk costs are there not O&M savings accruing to THESL as compared to the non-early replacement case? If not, please explain why.

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RESPONSE:

b) Typically, when performing like-for-like replacement of assets, there is no difference in maintenance policy to the assets in question, and therefore no change in maintenance costs. In the case of non-in-kind replacement projects, where existing infrastructure is replaced with new infrastructure with new configurations and designs, there may be maintenance savings achieved. For instance, there is typically a savings in maintenance costs achieved with rear lot conversion, as tree trimming activities no longer need to be performed. Similarly, there is a savings in maintenance costs achieved for box construction conversion, as maintenance to the corresponding 4kV municipal stations assets will no longer be required once these assets can be decommissioned.

c) Given that such savings represent a source of funds, how are they accounted for in the determination of the ICM requirements – as directed in the Supplemental Report of the Board?

RESPONSE:

c) The avoided maintenance costs are small in the context of the overall capital spend contained in this application and thus do not represent a significant source of funds.

d) For each of the Segments that utilize a Business Case Evaluation which relies on Avoided Risk cost analysis to support the investment decision, please identify the O&M costs avoided over the 2012-2014 period.

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RESPONSE:

d) Total O&M costs expected to be avoided would be as follows:

1. Total O&M Savings due to Box Construction ICM Project (due to Stations decommissioning): $26,831
2. Total O&M Savings due to Rear Lot Conversion ICM Project (due to Tree Trimming & Pole Inspection savings): $12,400

/U

Therefore, the total savings achieved between 2012 and 2014 in terms of associated O&M costs are expected to be $39,231. These savings are expected to grow in future years as rear lot and box construction are eliminated from the system. As stated in (b), only the Rear Lot and Box Construction business cases would possess an applicable savings for O&M costs. The remaining business cases would not see any associated O&M savings.

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INTERROGATORY 31:

Reference(s): Tab 4, Schedule B1, page 2

a) As of 2006 how many kilometers of direct burled cable did THESL have?

RESPONSE:

a) As the end of year 2006, there were 1,358 conductor kilometres of direct buried cable in the system.

b) Please provide a schedule that sets out the kilometers of direct buried cable that were replaced each year between 2007 and 2011.

RESPONSE:

b) Please see the response to AMPCO interrogatory 10 e (Tab 6F, Schedule 2-10, part e).

c) Was all of this direct buried cable replaced with cable in concrete-encased ducts and, if not, why not?

RESPONSE:

c) In planned projects since 2007, all direct buried cables were replaced with cable in concrete-encased ducts. However, in emergency repairs, direct buried cables are usually replaced with direct buried cables because replacing the failed direct buried cable with cable in concrete-encased ducts would significantly lengthen the outage duration.

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d) Over the same 2007-2011 period, was there any replacement of air-insulated pad-mounted switchgear units? If so, were they all replaced with SF6-insulated pad-mounted switch gear units and, if not, why not?

RESPONSE:

d) Yes, air-insulated pad-mounted switchgear units were replaced over this period. Not all air-insulated pad-mounted switchgear units were replaced with SF_6-insulated pad-mounted switchgear units when repairs were made on a reactive basis. During emergency repairs, replacement air-insulated pad-mounted switchgear units were installed when installing SF_6-insulated pad-mounted switchgear would have significantly prolonged the outage. In some cases this was because the existing cable was not long enough to allow for the connection to SF_6-insulated pad-mounted switchgear units, which require longer cable than air-insulated pad-mounted switchgear units in order to make the proper terminations.

e) Based on the timing of the jobs set out in Table 1, how many kilometers of direct buried cable will be replaced in each year 2012-2014?

RESPONSE:

e) The total conductor kilometres of direct buried XLPE cable proposed for replacement in 2012 and 2013 are 237 and 49, respectively.

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer

/U

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 2.2

consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application. **/U**

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INTERROGATORY 37:

Reference(s): Tab 4, Schedule B2, pages 1-2

a) Given that the issues identified with PILC cable have existed since 1990, please provide a schedule that sets out the annual capital spending on PILC cable over the period 2007-2011 and the kilometres of PILC cable replaced each year.

RESPONSE:

a) The table below highlights the capital spending (rounded to nearest $1,000) and kilometres of PILC cable replaced pertaining only to piecing out congested cable chambers and repairing leaking PILC cable from 2007 to 2011.

	2007	2008	2009	2010	2011
Capital Spending	$0	$799,000	$234,000	$732,000	$344,000
Kilometres of PILC cable replaced	0.0	9.7	9.6	11.5	7.7

Note that as per Appendix A in reference document Tab 4, Schedule B2, page 29, the average piece out or leaker PILC segment is 0.157km.

b) Please provide a similar schedule for the period 2011-2014 based on THESL's proposed spending.

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RESPONSE:

b)

	2011	2012	2013
Capital Spending (estimated)	$344,000	$2,430,003	$3,030,579
Kilometres of PILC cable replaced (estimated)	7.7	24.0	10.2

/U

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESLs obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application.

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INTERROGATORY 57:

Reference(s): Tab 4, Schedule B6, pages 5 and 9

a) What are the reductions in O&M cost for each year 2012-2014 as a result of removing the rear lot service in the targeted areas and moving to underground service?

RESPONSE:

a) The maintenance savings from 2012 to 2014 are expected to be approximately $12,400 in total, which include $400 in savings realised due to 2012 projects, and $12,000 in savings realised due to 2013 projects respectively. Note that station maintenance savings (due to the eventual removal of station equipment) have not been included because these are not expected within the specified time frame. /U

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INTERROGATORY 87:

Reference(s): **Tab 4, Schedule B17, pages 4-5 and 30**

a) Please confirm that the Brenner TS is expected to be in-service Q3 of 2014.

RESPONSE:

a) The originally anticipated in-service date for Bremner TS was Q3 2014, but it currently appears more likely that the project will be in service in Q4 2014. This date is based on the same sequence of events, but anticipates that construction will begin in January 2013.

b) Does THESL include spending on the Bremner TS in its ICM-based revenue requirement calculations for years prior to the station's in-service date? If yes, please explain why.

RESPONSE:

b) Yes, THESL includes spending on the Bremner TS in its ICM-based revenue requirement calculations for years prior to the station's in-service date. THESL understands that this is in accordance with the ICM filing guidelines, and that the true up process will resolve the matter of when the assets go into service.

c) What is the impact on the annual ICM rate-riders, if the spending on Brenner (plus capitalized interest) is only included in the rate rider calculations once the station is in-service.

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RESPONSE:

c) The updated capital expenditures for Bremner are $8.5M in 2012 and $81.0M in 2013. Under the ICM standard methodology, the amounts translate into revenue requirements of approximately $0.8M in 2012 and $7.6M in 2013. The impact on the calculated ICM rate adders of including these revenue requirements only upon station in-service is an approximate reduction of $0.04 on the monthly fixed portion, and $0.00003 on the variable portion for the updated 2012 Residential class ICM rate adders. The impact on the 2013 Residential rate adder would be an approximate reduction of $0.26 on the fixed portion, and $0.00022 on the variable portion. **/U**

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INTERROGATORY 28:

Reference(s): none provided

Has the Applicant begun any of the projects to date? If so, please provide details.

RESPONSE:

Yes, YTD August 2012, THESL has begun work on the following projects from Schedule B: /U

ICM Projects begun in 2012
Metering
Network Infrastructure and Equipment
Overhead Infrastructure and Equipment
Plant Relocations
Station Infrastructure and Equipment
Underground Infrastructure and Cable
Bremner TS
Hydro One Capital Contributions

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Within these projects, work has commenced on the following jobs: /U

ICM Projects begun in 2012	Specific Jobs begun in 2012
Metering	22138_001 2012 RC4250 Grid Supply Points CapEx
	25047_001 Smart Meter Conversion
	25315_001 2012 RC4250 Reseal of Meter Asbestos
	25316_001 ICM 2012 Reverification/Reseal of Meters CAPEX
Network Infrastructure and Equipment	X11487 Vault Rebuild Locn #4312 King ST. W.
	X12207 Simcoe St. Abandon Vault
	X12652 Victoria and Shuter Loc 4252 & 4308 TOA64A
Overhead Infrastructure and Equipment	E11088 NY OH SCADA INSTALL "A"
	E11088 NY Panacomm Repl "D" Replacing North York Panacomm RTUs
	E11374 Scada Installations (8 switches) (NY34M6)
	E12104 CHIPPING CROSSBURN OH REBUILD POLE & ELECTRICAL INSTALLATION
	W10275 Manby TS Load Transfer to Horner TS ET38M12
	W11168 Albion MGF1 Silverstone VC
	W11219 Rathburn UG VC Phase III
	W12397 Queensway/Lakeshore SMD-20 Switch Replace
	W12561 Rexdale Colony RL VC Phase I Electrical
	X11293 Forest Hill Phase V (Civil + Cable Pulling, by contractor)
	X12113 Forest Hill VC Phase IV Electrical
	X12182 Brentcliffe-Eglinton Repl. SCADA Sw's (34M5)
	X12453 FESI George Anderson / Culford OH (NY35M12)

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ICM Projects begun in 2012	Specific Jobs begun in 2012
	X12460 Arrowsmith Ave OH Rebld (NY35M12)
Plant Relocations	W10498 Weston Tunnel GO Xing Relocn ET88M12
	W10508 Hwy427/Eglinton MTO Relocn
	W12545 MTO Keele St. Bridge - HWY 401 Ph 2
	W12663 Beecroft Road Extension (11NY-01RD)
	X10492 Strachan Av Grade Separation UG Crossing Ph 1
	X11602 Relocate feeders serving Dafoe MS
	X11603 Relocate B11T/B9T/B2T/B3T/B6T
	X11604 Relocate A22T/A49T/A53T
	X11605 Relocate A25T/A27T/A29T/A31T
	X11606 GO Strachan Crossing Feeder Relocate - Civil
Station Infrastructure and Equipment	S11118 Finch TS: Replace KSO CB 55M27
	S11121 Finch TS: Replace KSO CB 55M28
	S11130 Bathurst TS: Replace KSO CB 85M24
	S12031 Improve SONET Redundancy: Malvern TS to Sheppard TS
	S12048 Strachan TS: A7-8 Switchgear replacement
	S12554 Etobicoke replace 15 MOSCAD RTU's
	S12557 Carlaw TS:Commission Switchgear A10-11E
	X11620 Electrical cable and switch in
Underground Infrastructure and Cable	A10395 1420 12&18" HW Lids Phase 2 Maps 147-162,207-362
	A10395-Handwell Stdzn MAP 129ABC
	A10395-Handwell Stdzn MAP- 179C,188C Gerrard
	A10395-Handwell Stdzn MAP-132CD
	A10395-Handwell Stdzn MAP-146A
	A10395-Handwell Stdzn MAP-146B 170A

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ICM Projects begun in 2012	Specific Jobs begun in 2012
	A10395-Handwell Stdzn MAP-146C 170D
	A10395-Handwell Stdzn MAP-146C
	A10395-Handwell Stdzn MAP-147AB
	A10395-Handwell Stdzn MAP-160B North
	A10395-Handwell Stdzn MAP-160B South
	A10395-Handwell Stdzn MAP-161D
	A10395-Handwell Stdzn MAP-169A,179A,188A Danforth
	A10395-Handwell Stdzn MAP-169AB Adelaide
	A10395-Handwell Stdzn MAP-169B Lakeshore
	A10395-Handwell Stdzn MAP-179C&188D
	A11498 HW Replacement Map #153D, 153C,VAR
	A11498 HW Replacement Map 128A, 138D, 151AB
	A11498 HW Replacement Map 137A&B
	A11498 HW Replacement Map 137C
	A11498 HW Replacement Map 138A&B
	A11498 HW Replacement Map 138CD
	A11498 HW Replacement Map 139A,B,C,D
	A11498 HW Replacement Map 139D, 156EFH,164D
	A11498 HW Replacement Map 148A,B,D
	A11498 HW Replacement Map 151 B&C
	A11498 HW Replacement Map 151A
	A11498 HW Replacement Map 151B
	A11498 HW Replacement Map 151C (Partial)
	A11498 HW Replacement Map 152D
	A11498 HW Replacement Map 153AB
	A11498 HW Replacement Map 153D Part 1
	A11498 HW Replacement Map 154ABCD,163B
	A11498 HW Replacement Map 161A,170ABC

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ICM Projects begun in 2012	Specific Jobs begun in 2012
	A11498 HW Replacement Map 161B & 178A
	A11498 HW Replacement Map 162ABC
	A11498 HW Replacement Map 162D, 178B, 199AE
	A11498 HW Replacement Map 163D + Various Areas
	A11498 HW Replacement Map 215ABC
	A11498 HW Replacement Maps 180D, 172D, 204A 213A Var
	A11498 HW Replcmt Maps 147CD
	A11498 HW Replcmt Maps 152A
	A11498 HW Replcmt Maps 152B
	A11498 HW Replcmt Maps 152C
	A11498 HW Replcmt Maps 161C
	A12236 Contact Voltage HW area 100ACD
	A12236 Contact Voltage HW area 106,109,117
	A12236 Contact Voltage HW Area 128CD
	A12236 Contact Voltage HW Remediation 83ABCD&90D
	A12236 Contact Voltage HW Remediation 92AD
	A12236 Handwell Standaridization 128A-B (PLP)
	A12236 HW Rep Areas 130,140,141,155,156,164,165
	A12236 HW Replacement Maps 180D, 172D, 204A, 203C, 213A
	A12236 HW Replacement Maps 198A, 189D
	A12236 HW Replacement Maps 203B, 204B, 204C
	A12236 HW Replacement Maps 221A, 187A, 179E
	E11072 Bridletowne U/G Rebuild
	E11087 Grand Marshall Cable Repl SCNT47M1
	E11191 FESI-12 McLevin/Alford UG rebuild (SC47M3)

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ICM Projects begun in 2012	Specific Jobs begun in 2012
	E11301 FESI-12 Hupfield UG rebuild Phase 1 (SC47M3)
	E11356 FESI-12 Pennyhill UG rebuild (SC47M3)
	E11372 FESI-12 Hupfield UG rebuild Phase 2 (SC47M3)
	E11380 FESI-12 Empringham/McLevin UG rebuild (SC47M3)
	E11421 Glamorgan/Dundalk UG Rebuild (SC51M29) -Civil
	E11472 Rebuild Ingleton UG SCNT63M12 Main (Civil) - Ph A
	E11483 Rebuild Ingleton 63M12 - Ph 1 - Civil
	E11484 Rebuild Ingleton SCNT63M12 Ph 2 (Civil)
	E11592 FESI-12 NY51M6 Leslie/Nymark UG Cable Rehab Prt2
	E11593 FESI-12 NY51M6 Leslie/Nymark UG Cable Rehab Ph1
	E11618 Rebuild Ingleton UG SCNT63M12 Main (Civil) - Ph B
	E12157 Morningside/OldFinch UG Rehab -Civil (26M23 / 47M3)
	E12275 Muirbank UG Rebuild Ph 2 - Civil
	E12319 Morningside/OldFinch UG Rehab -Electrical (26M23 / 47M3)
	E12494 Revlis Ph2 Civil
	E12520 Conlins Milner NT47M1 - Civil
	E12529 FESI Braymore West Ph2 SCN47M14 UG Rebuild Civil SCNA47M14
	E12656 Harrison Garden PH 1

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ICM Projects begun in 2012	Specific Jobs begun in 2012
	W11455 FESI-12 Yonge St UG Fdr Cable rehab (NY80M30/M27)
	W11460 FESI-12 NY80M30 Johnston/Yonge UG Fdr Cable rehab
	W11615 FESI Keegen Cr. DB Cable Replace (SS58F1)
	W12077 Hoggs Hollow Ph2 (Plymbridge/Maytree) Civil

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INTERROGATORY 112:

Reference(s): **Tab 2, page 8, lines 19-30**
Tab 4, Schedule A, Appendix 1, page 1
EB-2009-0139, Exhibit D1, Tab 8, Schedule 10, Appendix A

a) Please provide a table that breaks down THESL's actual capital spending for the years 2009-2011 using the same project/segment designations as in the Tab 4 reference.

RESPONSE:

a) It is not possible to perform the comparison requested by this interrogatory. Please see THESL's response to SEC interrogatory 6 (Tab 6E, Schedule 10-6).

b) Please restate spending projections provided for 2012-2014 in EB-2009-0139 using the same project/segment designations as in the Tab 4 reference and contrast with the current proposed spending.

RESPONSE:

b) The table below summarizes the spending projections for 2012 to 2013.

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Summary of Capital Program

Schedule Number	Projects	Segments	Cost Estimates ($M) 2012 Forecast *	2013 Budget	2014	Total for 2012 and 2013 **
B1	Underground Infrastructure and Cable	Underground Infrastructure	28.75	58.94	~~74.92~~	87.70
B2		Paper Insulated Lead Covered Cable - Piece Outs and Leakers	0.08	5.42	~~1.47~~	5.50
B3		Handwell Replacement	13.65	16.65	~~7.17~~	30.30
B4	Overhead Infrastructure and Equipment	Overhead Infrastructure	9.07	55.88	~~20.11~~	64.95
B5		Box Construction	0.58	23.04	~~27.76~~	23.62
B6		Rear Lot Construction	16.36	29.43	~~11.03~~	45.78
B7		Polymer SMD-20 Switches	-	1.53	~~2.94~~	1.53
B8		SCADA-Mate R1 Switches	-	1.43	~~2.69~~	1.43
B9	Network Infrastructure and Equipment	Network Vault & Roofs	2.84	18.76	~~15.57~~	21.60
B10		Fibertop Network Units	1.48	7.71	~~9.36~~	9.19
B11		Automatic Transfer Switches (ATS) & Reverse Power Breakers (RPB)	-	3.26	~~3.23~~	3.26
B12	Station Infrastructure and Equipment	Stations Power Transformers	0.38	3.48	~~0.87~~	3.86
B13.1 & 13.2		Stations Switchgear - Muncipal and Transformer Stations	1.73	21.81	~~20.31~~	23.54
B14		Stations Circuit Breakers	0.76	0.55	~~1.38~~	1.31
B15		Stations Control & Communicaton Systems	0.14	1.00	~~1.34~~	1.14
B16		Downtown Station Load Transfers	0.68	2.14	~~3.59~~	2.82
B17	Bremner TS	Bremner Transformer Station	8.50	81.00	~~23.02~~	89.50
B18	Hydro One Capital Contributions	Hydro One Capital Contributions	22.98	48.12	~~36.00~~	71.10
B19	Feeder Automation	Feeder Automation	2.30	20.66	~~7.38~~	22.97
B20	Metering	Metering	4.74	8.40	~~10.03~~	13.14
B21	Plant Relocations	Externally-Initiated Plant Relocations and Expansions	10.16	24.84	~~13.34~~	35.00
B22	Grid Solutions	Grid Solutions	-	-	~~0.96~~	-
C1	Operations Portfolio Capital		120.51	121.63	~~121.60~~	242.14
C2	Information Technology Capital		22.00	15.00	~~15.00~~	37.00
C3	Fleet Capital		0.80	2.00	~~2.00~~	2.80
C4	Buildings and Facilities Capital		5.00	5.00	~~5.00~~	10.00
	Allowance for Funds Used During Construction		1.20	1.40	~~1.40~~	2.60
Total			**274.68**	**579.09**	~~439.47~~	**853.78**

* The sum of actual spending to August 31, 2012 and estimated spending to year end.
** THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date.

For the reasons set out in THESL's response to SEC interrogatory 6 (Tab 6E, Schedule 10-6), it is not possible to provide THESL's spending projections in the form requested.

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or

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intervenors to provide information on the 2014 work program in response to this interrogatory during the first phase of this application.

c) With respect to the response to part (b), please explain any material (>10%) variances (by project/segment category) between the total projected spending over the three years per EB-2009-0139 and that projected for the three years in the current Application.

RESPONSE:

c) It is not possible to perform the comparison requested by this interrogatory. Please see THESL's response to SEC interrogatory 6 (Tab 6E, Schedule 10-6).

d) Please provide a schedule that for the two-year period 2010-2011 contrasts the actual spending by project/segment with that projected in EB-2009-0139.

RESPONSE:

d) The table below shows THESL's historical spend from 2010 to 2011. Note that THESL's actual capital work program was not tracked in the manner presented in EB-2009-0139, Exhibit D1, Tab 8, Schedule 10, Appendix A.

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	2010 Actual	2011 Actual
OPERATIONAL INVESTMENTS		
Grid System Investments		
Underground System	111.6	99.0
Overhead System	31.7	39.3
Network System	7.4	4.8
Stations	17.0	18.2
Total Grid System Investments	167.7	161.4
Reactive Work	25.1	28.6
Customer Connections	42.6	58.2
Customer Capital Contribution	(26.6)	(29.8)
Externally Initiated Plant Relocations	-	7.8
Capital Contributions to HONI	1.1	27.8
Engineering Capital	34.5	23.6
AFUDC	3.5	5.2
Other	12.3	(4.2)
Total Distribution Plant Capital	260.3	278.6
CORPORATE OPERATIONAL INVESTMENTS		
Fleet &Equipment Services	10.6	11.8
Facilities	12.1	25.3
Other	-	-
Total Corporate Operational Investments	22.7	37.1
CUSTOMER SERVICES		
Wholesale Metering	1.8	-
Smart Metering	0.4	10.1
Suite Metering	6.4	10.2
Other	0.2	0.0
Total CUSTOMER SERVICES	8.8	20.3
Total INFORMATION TECHNOLOGY	33.0	32.4
Total OPERATIONAL INVESTMENTS	324.7	368.4
CRITICAL ISSUES		
Standardization	30.2	44.6
Downtown Contingency	1.1	4.7
FESI / WPF	16.7	19.3
Stations System Enhancements	5.8	4.7
Secondary Upgrade	2.6	3.9
Total CRITICAL ISSUES	56.4	77.1
TOTAL CAPITAL	381.1	445.5

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e) With respect to the response to part (d), please explain any material (>10%) variances (by project/segment category) between the total projected spending over the two years per EB-2009-0139 and the actual spending.

RESPONSE:

e) As noted in response (d) above, THESL actual capital work program was not tracked in the manner presented in EB-2009-0139, Exhibit D1, Tab 8, Schedule 10, Appendix A.

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 2.4

INTERROGATORY 55:

Reference(s): **Tab 3, Appendix 3, Schedule C1.2, Sheet 19 and equivalent Sheets for 2013 (C2.2) and 2014 (C3.2)**

a) Please provide sheet 19 and similar Residential schedules in Active Excel Spreadsheet format and consolidate the base and 3 IRM years into one schedule and spreadsheet.

RESPONSE:

a) Energy Probe has advised that its reference to Sheet 19 in this interrogatory is incorrect. The correct reference is Tab 3, Schedule C1.2 (and C2.2 and C3.2).

THESL provides with this response an excel file which contains a summary of the updated Residential rates presented in the updated Tab 3, Schedules C1.2 and C2.2, which pertain to the years 2012 and 2013.

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide the 2014 information requested in this interrogatory during the first phase of this application. /U

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 2.4

b) Confirm that Sheet 19 is based on the Board Approved Average 2011 Rate base.

RESPONSE:

b) The distribution rates shown as "current", are THESL's 2011 OEB-approved rates. These rates were based on OEB-approved 2011 rate base, which is an average of opening and closing balances. The rates shown for 2012 through 2014 are based on the OEB's IRM and ICM models, as filed by THESL in Tab 3, Schedules C1.1, C2.1, and C3.1, and Tab 3 Schedules E1.1, E2.1, and E3.1.

c) If not, also provide a spreadsheet version with the average 2011 rate base. Please list all assumptions and sources of data for each line.

RESPONSE:

c) Please see the response in part b).

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 2.4

INTERROGATORY 115:

Reference(s): Tab 2, page 13, Table 1

a) Please provide references as to specifically where in the Application the various values presented in Table 1 are calculated and can be found. If there are no supporting calculations, please provide.

RESPONSE:

a) The values shown for the Standard Methodology Revenue Requirements can be found at Tab 4, Schedule E1.1, E2.1, and E3.1, page 12. The values shown for the Standard Methodology Rate Adders can be found at Tab 4, Schedules E1.3, E2.3, and E3.3, page 1.

The values shown for the Alternative Methodology Revenue Requirement and Rate Adders use exactly the same ICM models, but remove the deadband from the Threshold calculation, and apply the half year rule to the ICM amounts.

THESL is providing the updated 2012 and 2013 ICM models and related schedules in live excel format with this interrogatory response.

ICM Alternative Models (live excel models):

- Appendix A, 2012 Alternative Model ICM Workform
- Appendix B, 2012 Alternative Model Threshold
- Appendix C, 2012 Alternative Model ICM Rates – Days of Service
- Appendix D, 2013 Alternative Model ICM Workform

/U

RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES ON ISSUE 2.4

- Appendix E, 2013 Alternative Model Threshold
- Appendix F, 2013 Alternative Model ICM Rates – Days of Service

/U

RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES ON ISSUE 4.2

INTERROGATORY 25:

Reference(s): none provided

Please provide a schedule setting out an average annual THESL residential bill for each year 2006-2011. Please provide a forecast for 2012, 2013 and 2014, assuming THESL's proposals are approved.

RESPONSE:

a) The table below presents the estimated annual residential bill amounts for 2006 to 2013. /U

Estimated Annual Residential Bills		
Calendar Year	Distribution (including rate/riders)	Total Bill (before tax)
2006	$337.36	$1,130.20
2007	$333.66	$1,109.24
2008	$344.93	$1,097.68
2009	$338.45	$1,153.53
2010	$356.74	$1,244.94
2011	$360.17	$1,300.66
2012	$368.63	$1,373.45
2013	$408.27	$1,434.14

Notes:
1. Average residential RPP customer using 800 kWh/month (830 kWh TLF adjusted).
2. Distribution includes Rate Riders
3. Energy prices are tiered RPP. The prices and the threshold amount (600 and 1000 kWh) change twice per year.

RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES ON ISSUE 4.2

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide the 2014 information requested in this interrogatory during the first phase of this application. **/U**

RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES ON ISSUE 4.2

INTERROGATORY 29:

Reference(s): Tab 2

Please provide a schedule setting out THESL's approved and actual ROE for each year 2006-2011. Please provide the most current estimate of its expected ROE for 2012.

RESPONSE:

Please see the table below.

Period	Rate Mechanism	Approved ROE	Actual ROE[2]	Projected
2006	COS	9.00%	11.32%	n/a
2007[1]	IRM	9.08%	9.29%	n/a
2008	COS	8.57%	10.12%	n/a
2009	COS	8.01%	6.35%	n/a
2010	COS	9.85%	7.44%	n/a
2011	COS	9.58%	9.94%	n/a
2012[3]	IRM	9.58%	n/a	8.77%

[1] 2007 implicit ROE based on 2006 approved ROE (9.00%) increased by "Price Cap Index" of 0.9%

[2] As per THESL published financial statements

/U

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 4.2

INTERROGATORY 56:

Reference(s): **Managers Summary Tab 2, Page 27**

Please provide a Summary Schedule that shows by rate class the following Components of rates for 2011 base rates through to 2014 (prefer Excel Spreadsheet):

1. 2012 price cap adjustment
2. adjusted Retail Transmission Service Rates
3. rate rider to refund shared tax savings
4. rate rider for disposition of account balances in accounts 1521 Special Purpose Charge and account 1562 PILs Deferral Account
5. rate adder for incremental capital projects

RESPONSE:

Please see the attached Attachment A which summarizes the information provided in Exhibits Tab 3, C1.2 and C2.2.

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide the 2014 information requested in this interrogatory during the first phase of this application. **/U**

Residential

Rate component	2011	2012 Interim	2013
2012 price cap adjustment			
Service Charge (fixed)	$ 18.25	$ 18.25	$ 18.50
Distribution Volumetric Rate	$ 0.01520	$ 0.01520	$ 0.01527
Rate rider to refund shared tax savings	n/a	n/a	n/a
Deferral Account rate rider	-$ 0.00232	n/a	-$ 0.00043
Rate adder for incremental capital projects			
2011 Unfunded Capex Rate Rider (fixed)	n/a	n/a	$ 0.65
2012 Foregone IRM Rate Rider (fixed)	n/a	n/a	$ 0.06
2012 ICM Rate Adder (fixed)	n/a	n/a	$ 0.52
2013 ICM Rate Adder (fixed)	n/a	n/a	$ 1.36
2011 Unfunded Capex Rate Rider (variable)	n/a	n/a	$ 0.00054
2012 Foregone IRM Rate Rider (variable)	n/a	n/a	$ 0.00005
2012 ICM Rate Adder (variable)	n/a	n/a	$ 0.00043
2013 ICM Rate Adder (variable)	n/a	n/a	$ 0.00114
Adjusted Retail Transmission Service Rates			
Network Service Rate	$ 0.00703	$ 0.00703	$ 0.00807
Line and Transformation Connection Service Rate	$ 0.00513	$ 0.00513	$ 0.00561

Multi-unit residential

Rate component	2011	2012 Interim	2013
2012 price cap adjustment			
Service Charge (fixed)	n/a	n/a	$ 17.23
Distribution Volumetric Rate	n/a	n/a	$ 0.02600
Rate rider to refund shared tax savings	n/a	n/a	-$ 0.00010
Deferral Account rate rider	n/a	n/a	-$ 0.00047
Rate adder for incremental capital projects			
2011 Unfunded Capex Rate Rider (fixed)	n/a	n/a	$ 0.60
2012 Foregone IRM Rate Rider (fixed)	n/a	n/a	$ 0.05
2012 ICM Rate Adder (fixed)	n/a	n/a	$ 0.48
2013 ICM Rate Adder (fixed)	n/a	n/a	$ 1.27
2011 Unfunded Capex Rate Rider (variable)	n/a	n/a	$ 0.00092
2012 Foregone IRM Rate Rider (variable)	n/a	n/a	$ 0.00008
2012 ICM Rate Adder (variable)	n/a	n/a	$ 0.00073
2013 ICM Rate Adder (variable)	n/a	n/a	$ 0.00194
Adjusted Retail Transmission Service Rates			
Network Service Rate	n/a	n/a	$ 0.00807
Line and Transformation Connection Service Rate	n/a	n/a	$ 0.00561

GS<50 kW

Rate component	2011	2012 Interim	2013
2012 price cap adjustment			
Service Charge (fixed)	$ 24.3	$ 24.30	$ 24.63
Distribution Volumetric Rate	$ 0.02247	$ 0.02247	$ 0.02277
Rate rider to refund shared tax savings	n/a	n/a	n/a
Deferral Account rate rider	-$ 0.00223	n/a	-$ 0.00032
Rate adder for incremental capital projects			
2011 Unfunded Capex Rate Rider (fixed)	n/a	n/a	$ 0.86
2012 Foregone IRM Rate Rider (fixed)	n/a	n/a	$ 0.07
2012 ICM Rate Adder (fixed)	n/a	n/a	$ 0.69
2013 ICM Rate Adder (fixed)	n/a	n/a	$ 1.81
2011 Unfunded Capex Rate Rider (variable)	n/a	n/a	$ 0.00081
2012 Foregone IRM Rate Rider (variable)	n/a	n/a	$ 0.00007
2012 ICM Rate Adder (variable)	n/a	n/a	$ 0.00064
2013 ICM Rate Adder (variable)	n/a	n/a	$ 0.00170
Adjusted Retail Transmission Service Rates			
Network Service Rate	$ 0.00680	$ 0.00680	$ 0.00780
Line and Transformation Connection Service Rate	$ 0.00463	$ 0.00463	$ 0.00506

GS 50-999 kW

Rate component	2011	2012 Interim	2013
2012 price cap adjustment			
Service Charge (fixed)	$ 35.6	$ 35.56	$ 36.05
Distribution Volumetric Rate	$ 5.59560	$ 5.59560	$ 5.67200
Rate rider to refund shared tax savings	n/a	n/a	-$ 0.0067
Deferral Account rate rider	-$ 0.79260	n/a	-$ 0.05390
Rate adder for incremental capital projects			
2011 Unfunded Capex Rate Rider (fixed)	n/a	n/a	$ 1.26
2012 Foregone IRM Rate Rider (fixed)	n/a	n/a	$ 0.11
2012 ICM Rate Adder (fixed)	n/a	n/a	$ 1.00
2013 ICM Rate Adder (fixed)	n/a	n/a	$ 2.65
2011 Unfunded Capex Rate Rider (variable)	n/a	n/a	$ 0.19880
2012 Foregone IRM Rate Rider (variable)	n/a	n/a	$ 0.01720
2012 ICM Rate Adder (variable)	n/a	n/a	$ 0.15800
2013 ICM Rate Adder (variable)	n/a	n/a	$ 0.41680
Adjusted Retail Transmission Service Rates			
Network Service Rate	$ 2.43510	$ 2.43510	$ 2.79470
Line and Transformation Connection Service Rate	$ 1.76300	$ 1.76300	$ 1.92860

GS 1,000-4,999 kW

Rate component	2011	2012 Interim	2013
2012 price cap adjustment			
Service Charge (fixed)	$ 686.5	$ 686.46	$ 695.83
Distribution Volumetric Rate	$ 4.44970	$ 4.44970	$ 4.51050
Rate rider to refund shared tax savings	n/a	n/a	-$ 0.0056
Deferral Account rate rider	-$ 0.90550	n/a	-$ 0.0421
Rate adder for incremental capital projects			
2011 Unfunded Capex Rate Rider (fixed)	n/a	n/a	$ 24.39
2012 Foregone IRM Rate Rider (fixed)	n/a	n/a	$ 2.11
2012 ICM Rate Adder (fixed)	n/a	n/a	$ 19.38
2013 ICM Rate Adder (fixed)	n/a	n/a	$ 51.13
2011 Unfunded Capex Rate Rider (variable)	n/a	n/a	$ 0.15810
2012 Foregone IRM Rate Rider (variable)	n/a	n/a	$ 0.01370
2012 ICM Rate Adder (variable)	n/a	n/a	$ 0.12560
2013 ICM Rate Adder (variable)	n/a	n/a	$ 0.33140
Adjusted Retail Transmission Service Rates			
Network Service Rate	$ 2.35270	$ 2.35270	$ 2.70020
Line and Transformation Connection Service Rate	$ 1.76130	$ 1.76130	$ 1.92680

Large Use

Rate component	2011	2012 Interim	2013
2012 price cap adjustment			
Service Charge (fixed)	$ 3,009.1	$ 3,009.11	$ 3,050.17
Distribution Volumetric Rate	$ 4.74060	$ 4.74060	$ 4.80530
Rate rider to refund shared tax savings	n/a	n/a	-$ 0.00590
Deferral Account rate rider	-$ 0.98110	n/a	-$ 0.0437
Rate adder for incremental capital projects			
2011 Unfunded Capex Rate Rider (fixed)	n/a	n/a	$ 106.92
2012 Foregone IRM Rate Rider (fixed)	n/a	n/a	$ 9.25
2012 ICM Rate Adder (fixed)	n/a	n/a	$ 84.96
2013 ICM Rate Adder (fixed)	n/a	n/a	$ 224.12
2011 Unfunded Capex Rate Rider (variable)	n/a	n/a	$ 0.16840
2012 Foregone IRM Rate Rider (variable)	n/a	n/a	$ 0.01460
2012 ICM Rate Adder (variable)	n/a	n/a	$ 0.13380
2013 ICM Rate Adder (variable)	n/a	n/a	$ 0.35310
Adjusted Retail Transmission Service Rates			
Network Service Rate	$ 2.68200	$ 2.68200	$ 3.07810
Line and Transformation Connection Service Rate	$ 1.95670	$ 1.95670	$ 2.14050

Street Lighting

Rate component	2011	2012 Interim	2013
2012 price cap adjustment			
Service Charge (fixed, per connection)	$ 1.3	$ 1.30	$ 1.32
Distribution Volumetric Rate	$ 28.72480	$ 28.72480	$ 29.11680
Rate rider to refund shared tax savings	n/a	n/a	-$ 0.0425
Deferral Account rate rider	-$ 0.93670	n/a	-$ 0.3877
Rate adder for incremental capital projects			
2011 Unfunded Capex Rate Rider (fixed)	n/a	n/a	$ 0.05
2012 Foregone IRM Rate Rider (fixed)	n/a	n/a	$ -
2012 ICM Rate Adder (fixed)	n/a	n/a	$ 0.04
2013 ICM Rate Adder (fixed)	n/a	n/a	$ 0.10
2011 Unfunded Capex Rate Rider (variable)	n/a	n/a	$ 1.02060
2012 Foregone IRM Rate Rider (variable)	n/a	n/a	$ 0.08830
2012 ICM Rate Adder (variable)	n/a	n/a	$ 0.81100
2013 ICM Rate Adder (variable)	n/a	n/a	$ 2.13950
Adjusted Retail Transmission Service Rates			
Network Service Rate	$ 2.16580	$ 2.16580	$ 2.48570
Line and Transformation Connection Service Rate	$ 2.10220	$ 2.10220	$ 2.29970

Unmetered Scattered Load

Rate component	2011	2012 Interim	2013
2012 price cap adjustment			
Service Charge (fixed, per connection)	$ 0.5	$ 0.49	$ 0.50
Service Charge (fixed, per customer)	$ 4.84000	$ 4.84000	$ 4.91000
Distribution Volumetric Rate	$ 0.06070	$ 0.0607	$ 0.06152
Rate rider to refund shared tax savings	n/a	n/a	-$ 0.00010
Deferral Account rate rider	-$ 0.0	n/a	-$ 0.00088
Rate adder for incremental capital projects			
2011 Unfunded Capex Rate Rider (fixed)	n/a	n/a	$ 0.17
2011 Unfunded Capex Rate Rider (fixed, per connection)	n/a	n/a	$ 0.02
2012 Foregone IRM Rate Rider (fixed)	n/a	n/a	$ 0.01
2012 ICM Rate Adder (fixed)	n/a	n/a	$ 0.14
2012 ICM Rate Adder (fixed, per connection)	n/a	n/a	$ 0.01
2013 ICM Rate Adder (fixed)	n/a	n/a	$ 0.36
2013 ICM Rate Adder (fixed, per connection)	n/a	n/a	$ 0.04
2011 Unfunded Capex Rate Rider (variable)	n/a	n/a	$ 0.00219
2012 Foregone IRM Rate Rider (variable)	n/a	n/a	$ 0.00019
2012 ICM Rate Adder (variable)	n/a	n/a	$ 0.00174
2013 ICM Rate Adder (variable)	n/a	n/a	$ 0.00458
Adjusted Retail Transmission Service Rates			
Network Service Rate	$ 0.00428	$ 0.00428	$ 0.00491
Line and Transformation Connection Service Rate	$ 0.00324	$ 0.00324	$ 0.00354

RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES ON ISSUE 4.2

INTERROGATORY 57:

Reference(s): **EB-2010-0142 Settlement Agreement Appendix B, Table 1**

a) Please Provide a version of the Referenced Table that projects the data from 2011-2014. (prefer Excel Spreadsheet)

b) Please provide any necessary explanatory notes

RESPONSE:

a) and b)

The referenced exhibit, which summarizes the components of Revenue Requirement for each year, is not applicable to the IRM/ICM application THESL has filed. Under the IRM/ICM framework, Revenue Requirement for components other than the ICM components is not derived. Nevertheless, THESL has produced a representative example of that table, based on the current IRM/ICM application, for the 2011-2013 period. Assumptions are contained in notes in Attachment A to this Schedule.

/U

As described in its cover letter, dated October 31, 2012, THESL has asked the OEB to consider the work programs identified for 2012 and 2013 together, and to defer consideration of the work program for 2014 to a later date. In light of this requested bifurcation of the proceeding and THESL's obligation to update the 2014 information for any material changes prior to it being reviewed, it would not assist the OEB or intervenors to provide the 2014 information requested in this interrogatory during the first phase of this application.

	2011 Board Approved	2011 Actual	2012	2013	Assumptions for 2012-13
Base Revenue Requirement	522.0	532.5	535.7	579.1	
Revenue Offsets	26.0	24.3	26.2	26.4	Applies PCI to 2011 Board Approved Revenue Offsets
Service Revenue Requirement	548.1	556.7	561.9	605.5	
OM&A Expenses	238.0	235.8	239.6	241.3	Applies PCI to 2011 Board Approved OM&A
Depreciation Expense	138.8	146.4	142.9	156.3	Applies PCI to 2011 Board Approved Depreciation, plus depreciation related to ICM amounts
Income Tax Expense	11.8	9.0	12.0	12.2	Applies PCI to 2011 Board Approved Income Tax expense, plus income tax expense related to ICM amounts
Cost of Capital	159.4	165.5	167.4	195.8	Applies PCI to 2011 Board Approved Return on Ratebase, plus return on Ratebase related to ICM amounts
Capital Expenditures	378.8	445.5	274.7	579.1	Total Capex as filed. See updated Tab 4, Schedule A, Appendix 1 for summary.

Notes:
- assumes PCI of 0.68% each year
- ICM incremental Depreciation, PILS and Return on Rate Base from updated Tab 4, Schedules E1.1, and E2.1, page 12