toronto hydro
electric system

Toronto Hydro-Electric System Limited

Conservation and Demand Management Strategy 2011-2014

Submitted to:

Ontario Energy Board

Submitted on October 22, 2010

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1 Introduction

This strategy document is hereby submitted by Toronto Hydro-Electric System Limited ("THESL") to the Ontario Energy Board (the "Board"), in accordance with the requirements of the "Conservation and Demand Management Code for Electricity Distributors" (EB-2010-0215) issued on September 16 of 2010, and the associated "Electricity Conservation and Demand Management Targets" (EB-2010-0216).

THESL has been allocated a provisional target of 286 MW of summer peak demand savings and 1,317 GWh of energy savings to be achieved over a four-year period beginning January 1, 2011 and ending December 31, 2014.

This document outlines THESL's strategy for achieving these Conservation and Demand Management (CDM) targets recognizing that this is based on the best available information given that program design and funding have not been concluded. Subsequently, THESL's strategy is by necessity fluid at this time and milestones are subject to change to ensure THESL meets CDM target objectives by 2014.

2 CDM Strategy

The Minister of Energy and Infrastructure issued a Directive under sections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998* (the "Directive") to the OEB dated March 31, 2010. The Directive sets out provincial CDM targets for certain LDCs which they should collectively meet during the period 2011 and 2014. These targets are 1,330 MW of provincial peak demand reduction persisting by the end of 2014 and 6,000 GWh of electricity consumption reduction accumulated over the four-year period.

THESL's share of the provincial target is 286 MW and 1,317 GWh by the end of 2014. The Directive allows LDCs to meet their target through both "OPA-Contracted Province-Wide CDM Programs" (or OPA Contracted Programs) and "OEB Approved CDM Programs" (or Potential Board-Approved Programs). The OPA has indicated that its Programs are expected to achieve 1,037 MW of the 1,330 MW provincial targets leaving the difference to be addressed by other CDM initiatives and/or programs.

THESL plans to meet its CDM targets by delivering both OPA-Contracted Province-Wide (Tier 1) and Potential Board-Approved (Tier 2 and 3) CDM programs during the four year period starting January 1, 2011. The table below summarizes the annual milestones that THESL plans to achieve.

	2011	2012	2013	2014	**Total**
OPA-Contracted Province-Wide Programs					
MW	42.9	56.7	63.5	56.0	**219.0**
GWh	267.2	291.4	301.5	280.7	**1,140.8**
Total Budget (millions)	$ 60.1	$ 66.7	$ 67.0	$ 58.2	**$ 252.0**
Potential Board-Approved CDM Programs					
MW	6.7	13.4	20.1	26.8	**67.0**
GWh	17.6	35.2	52.9	70.5	**176.2**
Total Budget (millions)	$ 7.5	$ 15.0	$ 22.5	$ 30.0	**$ 75.0**
Grand Total for All CDM Programs					
MW	49.6	70.1	83.6	82.8	**286.0**
GWh	284.8	326.6	354.4	351.1	**1,317.0**
Total Budget (millions)	$ 67.6	$ 81.7	$ 89.5	$ 88.2	**$ 327.0**

The total budget shown in the above table is a "best estimate" for new OPA-Contracted Province-Wide Programs and Potential Board-Approved Programs to be launched on or after January 1, 2011. At the time of THESL's OEB submission, the OPA-Contracted Province-Wide Program funding formula had not been finalized. Therefore the budget has been estimated and the budget includes THESL's program administration costs, participant based funding and customer incentives.

The OPA-Contracted Province-Wide Programs have been developed to be implemented over a four-year period by OPA sponsored working groups and are not envisioned as separately deployed year by year plans. THESL has evaluated this four-year program and provided the projected program milestones on an annual basis.

The above table also includes electricity demand and energy savings as well as post-project processing costs resulting from the transition of OPA approved programs "in flight" during 2010 where project applications were approved in 2010 but will only be completed in 2011.

Demand and energy savings from the implementation of Time of Use (TOU) and smart meters are excluded from the above targets. It is THESL's expectations that when final savings results from TOU and smart meters become available from the OPA, these will be counted towards THESL's overall targets, and as such, either supplement savings shortfalls or contributes to overachievement of savings.

The achievement of THESL's targets is dependent on the following factors:

- Net to gross ratios established by the OPA Contracted Province-Wide Programs have been used to develop THESL's strategy. These ratios have significant impact on actual demand and energy consumption savings that will be counted towards LDCs targets and are expected to remain consistent with the ratios factored by the OPA in each of their Province-Wide Programs.
- This strategy is based on the expectation that funding from the OPA for province-wide programs will be sufficient and consistent with the OPA Board-approved program designs and will be adequate to cover all actual customer participation and associated liabilities specific to the participant base funding and customer incentives without restrictions of OPA imposed caps.
- It is expected that THESL will be allowed to recover costs from OPA and/or OEB for costs incurred in 2010 associated with the planning of OPA-Contracted Province-Wide Programs and its market soft launch events/activities planned for November 2010.
- The OPA will extend the current *peaksaver* program into 2011 as a result of delays in the new consumer DR (Demand Response) program. The incremental DR capacity results in 2011 from the peaksaver program will be counted towards THESL's target.
- The OPA's Province-Wide Low Income program will form part of THESL strategy once approved and launched. It is expected the Low Income program will be allocated based on market share and be supported by the appropriate budgets to achieve results in Toronto.
- THESL assumes that OEB approval will be timely and reasonable allowing for sufficient time to operationalize identified strategies prior to January 2011.

THESL will transition OPA approved legacy projects already "in flight" such as the Business Incentive Program (BIP) and the Data Centre Incentive Program (DCIP). It will also transition projects from the "BOMA CDM" and the City of Toronto's "Better Building Partnership" (BBP) programs, which will be completed in 2011 beyond their program end date. These projects will be transitioned into the OPA-Contracted Province-Wide Programs.

This transition will avoid stranding customer projects that otherwise match the conservation objectives of the Conservation and Demand Management Strategy. Moreover, this approach will maintain market momentum and align with the overarching

principle of steady multi-year program support and continuity as a basis of the future program.

Under the transition plan, project savings from the BOMA CDM, BBP, and THESL's own carryover projects will accrue to THESL's 2011-2014 CDM targets.

Customer and Market Based Knowledge

Conservation is part of THESL's strategic fabric, as it promotes and facilitates efficient electricity usage, which is an important element of our business. In fact, the 2014 end-date imposed by the Ministry Directive represents an interim milestone for THESL whose goals are in alignment with the company's own integrated 2010-2020 conservation and generation objectives for the City of Toronto.

THESL's CDM strategy relies on the extensive customer knowledge that stems from our long experience and ongoing dialogue with our customer base, including the business and municipal communities. The development of our CDM strategy has been profoundly influenced by these relationships.

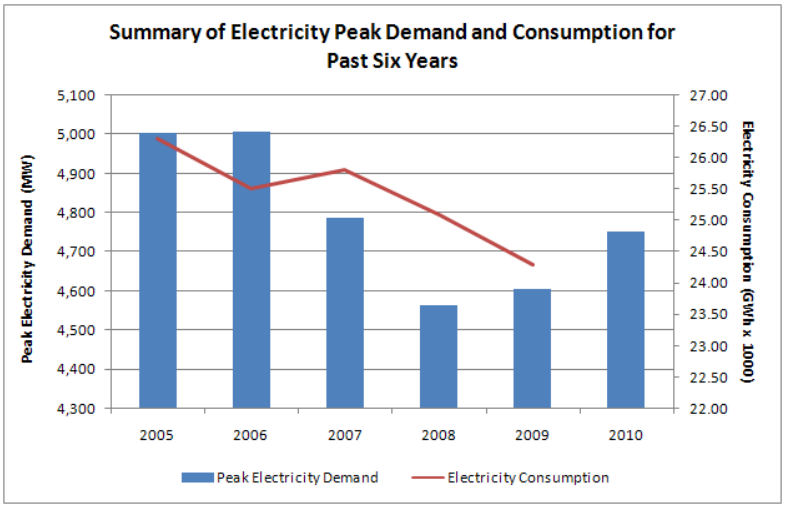
In the sections immediately following, we demonstrate how this distinct characteristic and position within Ontario's electrical consumption landscape drives a CDM strategy that may be different from other LDCs. THESL respectfully asks the OEB to consider this submission in the light of these circumstances.

Market Analysis

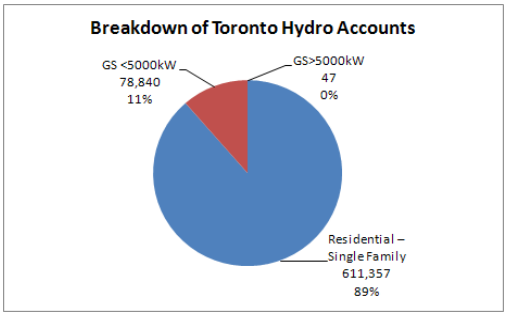
THESL has undertaken comprehensive market research to understand its customer base. This review, in conjunction with collective THESL staff experience in the related fields, has allowed us to extract relevant market conclusions that guided our decisions in building THESL's CDM strategy.

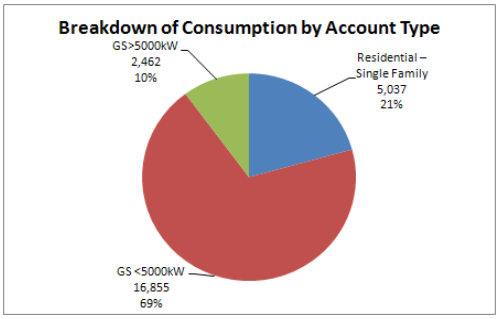
The research has been completed at macro and micro levels and includes analysis of customer market sector and related segment data, energy end-use information, demographics, buying behaviours, market studies and OPA data.

The following chart summarizes the amount of electricity consumed and the peak demand in Toronto over the last six years. It shows how demand and electricity consumption has decreased in THESL's service territory recently due to a contraction in the economy and the impact of conservation measures.

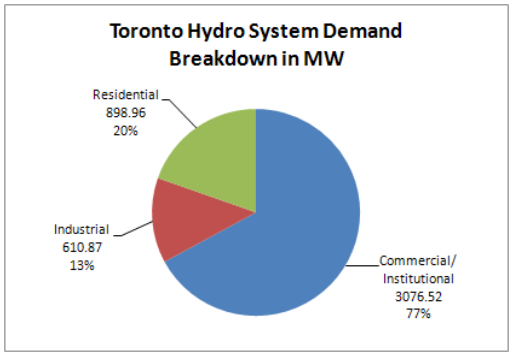


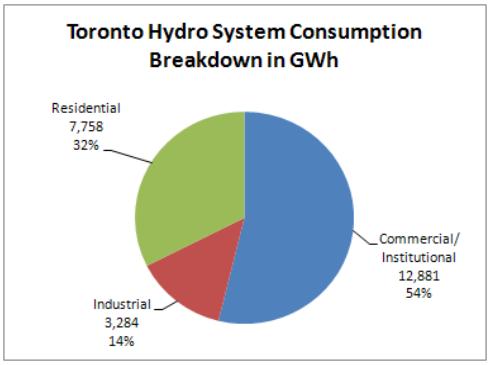
THESL services over 690,000 customers with the accounts and consumption distributed as indicated below.





OPA-led working groups have separated the electricity conservation market into three groupings: Residential, Commercial/Institutional (including Multi-Unit Residential) and Industrial. The figures below illustrate the total consumption and connected demand load for each of these sectors.





THESL's Residential Sector

Based on OPA segmentation, this sector includes single family residences and the tenant spaces of multi-unit residences. The Residential sector consists of over 610,000 single residential accounts and approximately 200,000 condominium units as well as 450,000 apartment units.

The electricity usage for this sector peaks later in the evening hours, past the THESL system peak period, which leads to an interesting mismatch between the residential demand and consumption in relation to other sectors. It contributes approximately 20% of the peak demand and 32% of the annual consumption. These numbers include an allowance for the Multi-Unit Residential Building (MURB) sector as this consumption and demand is not explicitly metered.

THESL's C&I Sector

This sector includes offices, retail, hospitality, data centres, warehouses, the common areas of MURB buildings and all institutional and municipal facilities.

Within this sector, the key constituents are Large Offices, Large Retail, MURB and Institutional buildings, which make up 74% of the total electricity consumption of this group.

The combined C&I sector peak electricity use coincides with the system peak. This sector contributes 77% to the system demand and 65% of the consumption

THESL's Industrial Sector

The industrial sector remains a large contributor to the overall consumption and peak demand. However, the percentage of this contribution has decreased from 19% of the annual consumption in 2005 to approximately 13% in 2009.

The key types of manufacturing in this sector are Plastics and Rubber, Chemical and Food that together comprise 47% of the peak demand and 51% of the consumption in the Industrial sector.

The combined industrial peak electricity use coincides with the system peak. This sector contributes 13% to the THESL system peak demand and accounts for 14% of THESL's total annual electricity consumption.

CDM Program and Market Experience

Our strategy leverages the market information summarized above leading to a construction of viable measures that THESL believes will meet its CDM objectives as described in this document.

Based on THESL's past experience and customer market knowledge, THESL recognizes the challenge of achieving the next 2011-2014 tranche of CDM targets. With the largest assigned target in the Province, the effort is exacerbated by the previous success of THESL's past CDM programs (as well as those of BOMA and the City of Toronto operating within the Toronto area).

Since many electricity customers have already undertaken conservation measures in response to earlier CDM programs, THESL's experience suggests that indiscriminate

promotion of new CDM programs will not ensure optimal uptake of additional conservation activities in support of THESL CDM targets. For example, residential consumers pre-disposed to conservation have likely been converted. Convincing those less committed will require a consistent and compelling argument. As well, a greater focus on the business segment is now necessary as it represents the largest share of electricity consumption in the Toronto market.

In order to be successful, THESL believes the CDM program deployment must be based on CDM market data intelligence, as summarized above. Our analysis employed a "bottom-up" analysis to identify the various segments with remaining conservation potential and specific conservation measures that are relevant to these segments. Moreover, our analyses recognize and leverage Toronto's distinctiveness as the largest urban center in Canada to identify and address barriers and behaviours that influence how residential, commercial/institutional, and industrial customers participate in programs. Indeed, some of the obstacles may not be directly related to financial incentives and will require enabler programs to overcome hurdles.

As a result of this unique situation in Toronto, there will be market segments that are not addressed by the OPA-Contracted Provincial Programs. Potential Board-Approved Programs will need to be developed to serve these market segments.

Marketing and Sales

In order to foster a culture of conservation, THESL must ingrain itself into the public's awareness as the primary conduit and enabler of electrical conservation. This requires consistent and uniform messaging to reinforce that positioning with sufficient weight to ensure the message is retained. Changing consumer behaviour takes time, effort, an emotional connection, and a convincing rationale. It is important that THESL's messaging moving forward achieve these requirements in a consistent manner that builds on previous efforts and momentum.

The complexities of targeting businesses, financial investment criteria, long sales cycles, unique segment needs, competition for capital budget, approval and stakeholder hierarchies will require a strong integrated communications plan incorporating a variety of direct to customer marketing targeted at specific market segments with the most promising conservation potentials. The communications plan will include events, sponsorships, workshops/seminars, and advertising with relevant and qualified messaging. It is also critical to develop and coordinate the channel/ally network in support of the marketing plan and build relationships in alignment with the sales planning. A strategic customer contact strategy, combining and coordinating all of these elements is essential.

Direct face-to-face sales activities enhancing customer relationships will be important for the Commercial/Institutional and Industrial market sectors. CDM sales personnel equipped with skills relating to buildings, technologies, financial and operational savvy will be necessary to assist decision makers in building cases for energy efficiency projects. CDM business relationships that act as a trusted and impartial resource working in the clients' best interest will add value and carve out a special role for THESL as efficiency experts in the marketplace.

Education and Pilot Projects

Educating the marketplace on CDM programs will be undertaken in tandem with marketing and communication efforts where promotional material and businesses cases with an educational focus will be featured. Education and training will be focused on wide array of groups including customers, consultants, contractors, distributors, OEMs, supply chain allies and channel partners in alignment with our marketing strategy where messaging around specific CDM programs will resonate highly with the particular target membership.

THESL will organize information and training sessions in the form of seminars and workshops, sometimes in conjunction with key industry events to maximize the accessibility of training and information sessions. In addition, a key activity for the sales teams will include CDM program promotion and instruction through speaking engagements to target groups and associations.

Potential Board-Approved consumer educational programs on conservation will also target customer segments not addressed by the OPA-Contracted Province-Wide Programs. This will include participation in community outreach events and face-to-face interactions in partnership with other stakeholders, as well as strategies to connect with hard-to-reach customer segments that are disengaged from the mainstream by economic, language and cultural barriers.

In addition to educating consumers about conservation programs, THESL will also make various tools available, such as a 'web energy portal' which is particularly important in light of the Time-of-Use rates regime. THESL plans to provide tools, information and a link to available conservation and demand management programs, to help customers conserve and/or shift usage to help manage their bills.

Pilot projects will be used to test new products, services and technologies in order to assess potential CDM opportunities for inclusion as new measures in existing programs or for the development of new programs.

Collaboration and Partnerships

THESL will continue to investigate and pursue collaborative programming with the Coalition of Large Distributors (CLD).

An underlying principle of our collaboration recognizes the need for a customer centric approach in THESL's approach to doing business. This means that CDM and Demand-Side Management (DSM) programs would be synergized to deliver a more comprehensive and ultimately more valuable "energy" solution to the single end client. This would simplify and improve the overall customer experience with utilities and avoid duplication of effort through a single point of contact for conservation initiatives.

Another important objective of this effort is to explore alternative delivery models that leverage the strengths and efficiencies of each organization to reduce program delivery costs. Under this model, electrical or natural gas savings achieved through DSM programs are attributed to the appropriate utility, irrespective of the delivery agent or which organization actually established the initial account relationship.

3 OPA–Contracted Province–Wide Programs

THESL will participate in all OPA-Contracted Province-Wide Programs for the four year period starting January 1, 2011 which include:

- Consumer Program
- Low Income Single Family Housing Program
- Commercial, Institutional and Multi-Family Program
- Industrial Program

An outline for each program is provided in the following sections and the projected savings for demand/energy consumption have been derived using a bottom-up assessment of the potential for each program in THESL's service territory. Program details are found on OPA's website:

http://icon.powerauthority.on.ca/nonsec/2011-conservation-programs.htm

The projected budgets for the OPA-contracted Province-Wide Programs (excluding the Low Income Program and the first six months of the Residential Demand Response or *peaksaver* in 2011) are based on the OPA Board-Approved program funding which includes LDC Program Administration Budget, Participant Based Funding and Customer Financial Incentives. At the time of this CDM Strategy submission, the OPA funding formula has not yet been finalized. The budget estimates in this CDM Strategy may be adjusted when the final funding formula is available.

THESL is unable to provide details on Province-Wide Low Income Program at this time. This program is still under development by the OPA. However it is THESL's intention to deliver this program once the program details becomes available.

A new residential DR program is expected to be introduced in July of 2011 pending completion of pilots being conducted by the OPA in 2010-2011. It is the OPA's plan to continue to separately fund the extension of the existing *peaksaver* program into the first six months of 2011.

3.1 Consumer Program

Program Name	Consumer Program
Years of Operation	2011-2014
Program Description	The Consumer Program will provide incentives to both existing home owners to motivate the installation of energy efficiency measures and homebuilders to encourage the construction of energy efficiency single family homes. The consumer program also includes the tenant or suite owner space in multi-unit residential buildings. The key components of the Consumer Program include: - appliance retirement and exchange programs for room air conditioners and dehumidifiers - instant rebates in store for high efficiency equipment - midstream incentives to retailers and supply chain - enabling tools including online audits and training The new construction aspect of the program seeks to incent builders to construct single family homes that meet the Energuide 80 standard, and eventually the Energuide 83 standard, through the installation of energy efficient measures and better design. In addition, the consumer program is offering a demand response (DR) initiative that will offer consumers a few choices (two to three) to allow the local utility to control some consumer loads. These choices will combine higher value technology and/or incentive options to attract higher value loads based on the following main end uses that will be targeted in 2011: - central air-conditioners - window air-conditioners - electric water heaters - pool pumps
Projected Budget	$53.9 million
Projected Reduction in Peak Demand	37,789 kW
Projected Reduction in Consumption	233,137 MWh

3.2 Low Income Single Family Housing Program

Program Name	Low Income Single Family Housing Program
Years of Operation	2011-2014
Program Description	The Low Income Program targets low income residents living in single family housing and social housing properties; and building owners and social housing providers by offering education and tenant engagement support as well as financial incentives to improve the energy efficiency of homes and energy end use assets.
Projected Budget	TBD – pending program approval by OPA
Projected Reduction in Peak Demand	TBD
Projected Reduction in Consumption	TBD

3.3 Commercial, Institutional and Multi-Family Program

Program Name	Commercial, Institutional & Multi-Family Program
Years of Operation	2011-2014
Program Description	The Commercial and Institutional ("C&I") Program is designed to assist building owners, operators, tenants and occupants in identifying energy saving opportunities and financial incentives to support conservation and demand management investment. The program is also designed to facilitate a culture of conservation in these market segments as well as the supply chains that serve them. The C&I program umbrella encompasses the following market segments: - commercial - retail - hospitality - municipal, university, schools and hospitals - multi-unit residential (common area elements only) The C&I program offers incentives for the primary end-use measures that represent the greatest potential for reduced electricity use including but not limited to: lighting, space cooling and ventilation, auxiliary plug load, as well as space and water heating.

	The C&I program components are summarized below: *1) Existing Building Retrofits – Small Buildings* a. Direct Installed Lighting b. Direct Serviced Space Cooling c. Small Commercial DR (*peaksaver*) *2) Existing Building Retrofits – Medium and Large Buildings* a. Pre-Project Assessments b. Equipment Replacement c. Retro-commissioning *d.* Demand response (DR1 and DR3) *3) New Construction Program* *4) Capability Building* a. Building operator training b. Energy *manager* certification THESL will deploy these program components as they apply to the customer segments in THESL's service territory with the focus on customer segments that have the largest demand reduction and energy savings potential.
Projected Budget	$137.5 million
Projected Reduction in Peak Demand	122,777 kW
Projected Reduction in Consumption	765,871 MWh

3.4 Industrial Program

Program Name	Industrial Program
Years of Operation	2011-2014
Program Description	The Tier 1 program for the industrial sector includes the following components: *1) Industrial Accelerator* *2) Industrial ERIP* 3) *Demand Response 1 and 3* *Industrial Accelerator* – this program is based on the rules and provisions of the OPA developed program for "direct connect customers". This program provides incentives per kWh of annualized savings up to 70% of project cost or a one year payback. This program applies to projects that have annualized savings greater than 100MWh and requires applicants to provide a declining security deposit to ensure sustained performance. This program is designed to motivate process improvements and is structured to overcome the barriers that industrial energy efficiency traditionally has faced, which include short payback thresholds and long periods between project implementation and incentive receipt. Within the Industrial Accelerator program there are provisions for capability building that include training, metering loan service, monitoring and targeting and provision for up to 60 energy managers to be funded via the program. *Industrial ERIP* – projects that fall below the savings threshold of the Industrial Accelerator program will be eligible for incentives based on the ERIP process. The OPA is developing a list of specific industrial prescriptive measures that will be eligible for incentives. *Demand Response DR1/DR3* - The commercial and industrial DR program includes two initiatives: DR1 and DR3. DR1 is available for industrial and commercial customers, of 50kW or greater and with interval meters, to reduce the amount of power being used during certain periods of the year. This initiative has a schedule of 1600 hours per year where activations of up to 100 hours may occur with no customer participation obligation. The program provides payments to the customer for actual load reduction only. The DR3 Initiative includes specific contractual obligations that

	require commercial and industrial participants to reduce their use of electricity for a 4-hour dispatch period based on OPA program and dispatch requirements. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year, depending on the specific contract signed by the participant. The DR3 initiative provides participants standby payments as well as energy payments for the actual energy reduction provided during a demand response event. Failure to comply with contractual requirements will result in financial offsets against any potential revenue from the initiative. Material non-performance could result in contract termination. THESL will not be acting as a DR3 aggregator, but will be forming relationship with the registered aggregators that are active in our service territory to develop demand response capability.
Projected Budget	$60.6 million
Projected Reduction in Peak Demand	58,469 kW
Projected Reduction in Consumption	141,790 MWh

4 Potential Board–Approved Programs

It is expected that OPA Contracted Province-Wide Programs will achieve approximately 76% of THESL's MW target and 86% of THESL's GWh target over the four-year period.

In order to achieve 100 % of THESL's allocated targets and mitigate any risk of OPA-Contracted Province-Wide Program shortfall, THESL will submit Potential Board-Approved Program applications for Board approval for implementations starting in January 2011 and throughout the 2011-2014 period. Potential Board-Approved CDM Programs include both Tier 2 Programs to be deployed with the Coalition of Large Distributors (CLD) to achieve economies of scale and other delivery efficiencies and Tier 3 Programs that are specific to the THESL service territory.

To date, THESL has identified four program applications for Board approval which will be submitted in November 2010. These programs are:

- Commercial Monitoring and Targeting (M&T) Program (Tier 2)
- Commercial Energy Management and Load Control (Tier 2)
- Commercial Balancing Program (Tier 3)
- Flat Rate Water Heater Conversion (Tier 3)

There are additional Potential Board-Approved Tier 2 and 3 Programs under development and consideration, including a potential associated CDM program to recognize TOU/smart meter savings as per OEB guidance provided on October 15, 2010.

In addition to the four programs noted above, THESL is undertaking an OPA sponsored evaluation of small scale thermal ice storage and may submit an application for a Potential Board-Approved Program in 2011 depending on the success of the pilot.

THESL also intends to submit applications for other pilot projects and education programs, which will be essential to allow THESL to achieve its mandated targets. Pilot projects will be used to test new products, services and technologies in order to assess potential CDM opportunities for inclusion as new measures in existing programs or for the development of new programs.

THESL will design and deploy educational programs to address the need for conservation education in targeted customer segments not covered by the OPA-Contracted Province-Wide Programs. A key to THESL's past success in delivering conservation programs has been its ability to connect one-on-one at the grassroots level with Toronto residents and businesses (i.e., connecting with them where they live, work and play). The benefits of this are multi-faceted: create broad awareness of programs, start a dialogue with customers, engage them in a face-to face manner, encourage them to participate in various programs, capitalize on Toronto's unique events and venues, answer their questions, and build rapport and trust.

Potential Board-Approved Programs which are to be submitted as applications to the Board in November 2010 are outlined in the following sections.

4.1 Potential Board-Approved CDM Tier 2 Programs (CLD)

Program Name	**Commercial Monitoring & Targeting (M&T) Program**
Years of Operation	2011 - 2014
Program Description	THESL's Commercial M&T, or Commercial Monitoring & Targeting, Program will provide incentives to participants to implement the necessary M&T systems and for verified demand and energy savings. It will target Commercial/Institutional customers over 200kW as well as Industrial customers over 200kW with annual consumption below 15GWh. These customer segments are not covered by the OPA Industrial Accelerator Program M&T. THESL will work with Hydro One to collaboratively deploy the program. M&T is an energy efficiency technique based on the standard management axiom "you cannot manage what you cannot measure". M&T techniques provide energy managers with feedback on operating practices and guidance on the level of energy use expected in a certain period. The goal of using M&T is to determine the relationship of energy use to key performance indicators, such as weather, production, etc., to help business managers analyze and understand their electricity usage and identify areas of energy wastage, in order to establish practical quantitative performance targets and to properly manage energy usage to achieve conservation. This program will partially fund the energy usage study and analysis based on American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) specifications, the installation of the necessary M&T software and hardware, including sub-metering, and the service of energy professionals to support the M&T activities. The last aspect of the program is important because the potential participants typically do not have resources dedicated to energy management. In order to ensure the demand and energy savings are delivered, an M&V plan will be required for each application and the participant will be provided an incentive for verified savings that can be sustained. It is anticipated that most of the conservation will be from energy savings, with some peak demand reductions.

Program Name	**Commercial Energy Management and Load Control (CEMLC)**
Years of Operation	2011-2014
Program Description	THESL's CEMLC, or Commercial Energy Management and Load Control, Program will combine direct load control Demand Response with Energy Management, and will target 79,000 Commercial, Institutional and Industrial customers with an average monthly demand below 200kW. An Energy Management system will be provided to the customers to allow them to actively manage their energy usage, in addition to responding to demand response activations from THESL. The Energy Management system as a conservation measure in conjunction with the direct load control is not offered by any OPA program. THESL will deploy the program collaboratively with Hydro One to achieve economies of scale and other delivery efficiencies. Significant summer peak Demand Response (DR) capacity can be achieved with the participants' cooling systems. Demand reductions are activated as and when needed through THESL-initiated load control events. The Energy Management system is offered as an incentive to the participants to enable their loads to be controlled by THESL through a standard interface, and, just as importantly, to enable them to actively monitor and manage their own energy usage in order to achieve energy savings. This initiative is different from the OPA-Contracted Residential DR program in that the main feature of this program is to provide the participants a full-fledged Energy Management System in return for the right to activate load control on the participants when needed by THESL. The participant will be provided a financial incentive, in addition to the Energy Management system, to enrol in the program, and will be paid a load control incentive for each activation event based on the number of air-conditioner units connected.

4.2 Potential Board-Approved CDM Tier 3 Programs (Toronto)

Program Name	**Commercial Balancing Program**
Years of Operation	2011-2014
Program Description	The balancing program provides the Commercial/Institutional sector with the opportunity to access a trained mechanical systems balancing company/contractor to evaluate some of the more commonly overlooked quick payback measures that can be achieved by applying variable frequency drives and/or new pump technology. The areas that are to be targeted are: - chilled and hot water distribution pumps - domestic cold water booster pumps - variable volume control using inlet vanes or pressure relief The program will pay up to $2,000 for a balancer to check the main distribution pumps, main air systems and domestic booster pump to determine the potential cost and savings for the application of variable frequency drive technology. This report will be provided to the customer and any actual work will receive incentives based on the achieved consumption or demand savings. This program is needed because these measures are rarely if ever captured in a traditional audit or study and represent an opportunity to target quick low risk savings to achieve some momentum for electricity incentive programs. The initial target market will be large property owners and institutional clients to maximize market penetration.

Program Name	Flat Rate Water Heater Conversion
Years of Operation	2011-2014
Program Description	THESL has a legacy of 11,000 electric water heater customers with an installed element capacity of approximately 25 MW that remain on a flat rate billing structure. This water heater load was installed on a separate unmetered circuit and was controlled by THESL to manage peak demand. However, over time this system was taken out of service with the customers having a monthly flat fee for hot water use. Due to the absence of metering, hot water consumption is typically up to 20% higher than metered hot water tank consumption and unmetered services are also vulnerable to power theft by the occupants as they are only responsible for paying a fixed flat rate. The intent of this program is to encourage the owner to convert these tanks to a metered service by offering an incentive based on the element size of the converted tanks. The incentives will be based on $0.10 per annualized kWh of savings using average consumption reductions. Typically these hot water tanks are 2kW which would see a saving of 1560kWh making the customer eligible for an incentive of $156 in this case. The target market for this program is the estimated 6,000 remaining flat rate residential tanks. The program will also provide easy access and coordination, for eligible customers, to the OPA-Contracted Residential Load Control program so that this load can be dispatched during periods of high demand.

4.3 Potential Board-Approved Pilot Programs

The pilot programs listed below include technologies and concepts that THESL strongly believes will contribute to the demand and consumption targets when fully developed as future programs. However, it is premature to introduce these as full-fledged programs until the acceptance and application of the technology/concept has been tested. The cost effectiveness of the pilot programs must also be understood fully before the programs concerned are submitted for Board approval.

Where identified below, the stated demand and consumption savings are based on an estimated "achievable" savings for the entire sector being targeted.

Program Name	**Automated Demand Response (ADR) Pilot**
Pilot Timeline	January 2011 - August 2011
Program Timeline	2012-2014
Pilot Description	The purpose of this pilot is to test automated demand response (ADR) in the Commercial/Institutional sector for a selection of test sites with over 200kW in peak demand. This segment of the market has not significantly participated in demand response due to the lack of resources and the difficulty in integrating demand response triggers into existing building automation systems. To address these shortcomings there is ongoing research and development in the United States to fully automate demand response triggers with building automation systems. This research has resulted in the Open ADR standard that facilitates the interface between utility DR systems and customer's building automation systems. The automation of DR would mean that the participants do not have to allocate resources to DR activities, as all activities related to DR would be performed automatically by the utility DR system in conjunction with the participants' building automation system. This pilot will test the functional and technical capabilities of two potential ADR systems in a subset of selected commercial buildings and institutional facilities to better prepare THESL for the deployment of demand response in this customer segment.
Estimated Pilot Budget	$203,000

Program Name	Social Benchmarking/Monitoring and Targeting
Pilot Timeline	January 2011 - August 2011
Program Timeline	2012-2014
Pilot Description	The pilot program is to test the concept of social benchmarking in conjunction with a Residential Monitoring & Targeting program concept. In essence the pilot will test the enabling of participants to: - compare their electricity use with similar residences based energy usage parameters and not just geographical vicinity - accumulate conservation credits (with some inherent value) based on better performance versus a normalised baseline consumption - access their profile data and apply standard conservation measures to forecast potential savings The target market for this program will be single family residence accounts. The pilot will include the following: - development and integration of customer billing into a customer benchmarking interface - methodology development for residence type, billing period and weather normalization - testing customer response to both aspects of the program and incorporate their feedback into the program design - calculating the cost effectiveness and incentives needed to achieve customer savings results Based on the results of the pilot the intent would be to offer customers a future program that has the ability to compare the normalized consumption of their residence to similar residences, accumulate conservation credits for maintaining a performance level below base line consumption and provide the user tools with which to project the impact of standard conservation measures. The pilot will involve a representative sample of both customer classes will run for a period from March to October 2011.
Target Market	Single Unit Residential Accounts
Estimated Pilot Budget	$495,000

Program Name	**Multi-Unit Residential Building Demand Response (MURB DR)**
Pilot Timeline	January 2011 - August 2011
Program Timeline	2012-2014
Pilot Description	The multi-unit residential sector in the THESL's service territory represents a significant portion of the peak summer demand that is currently not addressed by the existing or proposed *Residential Demand Response* program. This sector is extremely important as the condominium sector alone consists of 1,300 buildings and approximately 200,000 units that contribute 412MW or 9% to THESL's summer peak demand. To impact this load requires the ability to remotely set suite temperatures and to control common area loads during periods of high demand. By raising the temperature settings of the thermostats in the residential units and in the common areas, the loading of the cooling and heating systems should be reduced. The pilot will test the following: - customer acceptance of technology - impact of in-suite temperature control on peak demand - customer acceptance of common area load control - technology capability (dispatching, two way communication, internal building infrastructure requirements) - demand and savings potential - program level cost effectiveness The results, if successful, will be used to apply for a Potential Board-Approved Program. THESL has identified a number of potential sites for this project. The pilot scope will be a single multi-tower complex with common recreational areas with the intent to control over 500 single suites. The proposed pilot timeline is from March to September 2011.
Estimated Pilot Budget	$235,000

Program Name	Air-Conditioner Efficiency Controller Pilot
Pilot Timeline	May 2011 - August 2011
Program Timeline	2012-2014
Pilot Description	Residential air conditioning units and commercial roof top cooling is a significant portion of summer electricity consumption and THESL peak demand. It is estimated that there are 250,000 residential air conditioning units and 120,000 commercial direct expansion cooling units in THESL's service territory. The combined electricity and demand contribution is significant. Programs are available to reduce this load either through direct load control or incentives to motivate the customers to upgrade to higher efficiency units. However, there will remain a significant portion of the market that will not participate in these programs. To address this segment of customers, THESL is proposing to test a control device that minimizes compressor run time. These devices detect the heat-exchanger saturation and turn off the compressor accordingly in order to avoid the wastage of energy. M&V field testing has demonstrated over 20% of energy savings. This pilot will carry out rigorous testing with a variety of air conditioners, including both residential units and commercial roof-top units. The objective of the pilot is to use the results from sufficiently extensive and rigorous testing to support the control devices to be deployed in a "direct install" program.
Target Market	Roof top air conditioning in the C&I sector
Estimated Pilot Budget	$39,000

4.4 Potential Board-Approved Education Programs

A critical success factor in helping THESL achieve its CDM targets will be the training and educating of our customer base as well as consultants, contractors, distributors, OEMs, supply chain allies and channel partners on the new CDM programs.

In this section, THESL is proposing a number of programs that blend marketing and promotional efforts with training and education events, recognizing that these are synergistic dovetailing activities that are highly effective in tandem.

At the time of THESL's OEB submission, the Master CDM Program Agreement between the OPA and THESL had not been finalized. Depending on the final form of the agreement regarding program marketing and communication, aspects of this proposed education program may need to be modified to avoid duplication with Tier 1 programs.

The Potential Board-Approved Programs are listed below:

Program Name	**Toronto Community Outreach & Education**
Years of Operation	2011-2014
Program Description	This program will focus on market segments that have not been reached by standard program marketing and will remain untouched without special attention. This program will involve the strategic selection of targeted events and partnerships unique to Toronto that connect and engage with THESL customers in a wide range of locations across the City. THESL will leverage the passion and enthusiasm for Toronto's sporting events with links to various conservation programs. Educational opportunities will involve a variety of platforms. THESL will also deliver in-store educational activities in conjunction with Toronto's business community. Knowledgeable "Brand Ambassadors' will be accessible to Toronto's diverse public through critical face-to-face interactions. This allows THESL to educate and engage customers on conservation and the tie-in with Time-of-Use rates and Smart Meters. This program will involve events such as the City's Environment Days, Metro Home Show, Junction Arts Festival, Taste of the Kingsway, shopping malls, and will include efforts to target the city's 'priority' neighbourhoods. The events selected have an estimated attendance of over one million people per year. Along with major Toronto events listed above to reach the broad, highly-populated City of Toronto, THESL will target critical smaller community events and work closely with the Toronto Association of Business Improvements Areas (TABIA) and Toronto Police Services (TPS) to deliver education to

	hard-to-reach Toronto customer segments. Working with TABIA, THESL will continue successful community outreach at outdoor lighting events throughout Toronto. Residents have the opportunity to engage with THESL at events and turn in old incandescent light strings for recycling. This program provides an ideal opportunity to educate specific Toronto communities (many ethnic communities) and demonstrate new technologies to build familiarity. For two sets of light strings turned in, residents receive a set of efficient LED light strings from THESL. THESL will partner with TPS and their Toronto Anti-Violence Intervention Strategy (TAVIS), and bring education and information to the high volume of hard-to-reach, at-risk neighbourhoods unique to the City of Toronto. Leveraging outreach already being undertaken by TPS, THESL is able to provide conservation and energy efficiency education effectively and efficiently. It is critical to engage these communities by providing the tools to enable them to conserve and better manage their electricity costs. With a high proportion of young families and seniors, many of these residents are home during the day, and using electricity at peak times, rather than off peak. Working with TPS and TAVIS and other organizations, THESL is able to leverage their outreach and overlay its own effort, speaking to vulnerable Torontonians about TOU and energy conservation. For many, English is a second language and face-to-face dialogue is critical as these community members are very much isolated and not currently engaged.

Project Name	**Business Outreach and Education Program**
Years of Operation	2011 - 2014
Project Description	This program is designed to allow THESL to actively and regularly participate in educational activities with the supply chain network, trade and other similar business associations in Toronto. This will allow THESL to efficiently reach and engage a broader audience of key decision makers including technical buyers, and budget holders to advance the case for conservation, as well as consultants, contractors, distributors, and OEMs. Outreach and education topics would be delivered as presentations, workshops on CDM programs, case study presentations, feature technology clinics and seminars, trade show presence, and lectures with the intent of increasing the knowledge and CDM program awareness levels for specific leadership groups.

Project Name	Greening Greater Toronto (GGT) Sponsorship
Years of Operation	2011
Project Description	An initiative of the Toronto City Summit Alliance and supported by THESL, Greening Greater Toronto has launched the Commercial Building Energy Initiative to improve the energy efficiency of the building stock in the GTA by addressing the following barriers: • The lack of a measurement standard for energy performance • Difficulty in acquiring data to build business cases • Ineffective communication between tenants and building owners • Lack of broader education about energy efficiency Continued support of this initiative will build on its inaugural year momentum and allow the next phase of programming to proceed by: • Maintaining the Corporate Challenge administrative efforts through to its end of year conclusion to generate results. • Extend its membership base, and in so doing, magnify its reach and encourage new energy efficiency projects. • Creating additional case studies promoting energy efficiency best-practices. • Hosting building-specific “Greening Our Workplaces Tenant Series” events to showcase recent commercial tenant-led energy efficiency initiatives for neighbouring tenants of the same building. • Facilitating Owner/Tenant Working Groups at commercial buildings that have coalesced with the intent of undertaking new energy efficiency initiatives.

5 Program Mix

THESL will offer a mix of CDM programs, program initiatives and educational enablers that will encourage the widest cross sectional group of citizens and businesses possible to participate in conservation and demand management.

A diversified mix of program initiatives will provide conservation incentives to various sectors of the business and residential markets including low-income customers and community groups. The programs offered will include all OPA-Contracted Province-Wide Programs and future Potential Board-Approved Programs. In addition THESL will collaborate with Enbridge and its Demand Side Management (DSM) programs in order to offer "total energy conservation" solutions to customers. Together, these programs will produce a wide market reach to encourage the greatest level of participation with the objective to leave no opportunity untapped for conserving or reducing electricity load and energy consumption and create a persistent *conservation culture* legacy.

In the Consumer sector this includes the residential consumer market of tenants and property owners. The programs offered will include Province-Wide mass market coupon rebates, appliance retirement and new construction. In addition to the general mass market consumer program initiatives a Province-Wide Low-Income program will be offered to tenants, housing providers and home owners when it becomes available.

Commercial/Institutional and Industrial sectors will be offered a wide range of programs that will target small, medium and large business segments. These programs will offer customer benefits and value to various types of businesses and end-uses including offices, retail, restaurants, data centres and other industrial businesses. These programs include small commercial direct install programs as well as retrofit programs for the large business sector. Promotion and delivery of these programs will be industry and association specific and will include a variety of channel partner delivery tactics.

Accordingly, THESL will develop an integrated communications and marketing plan leveraging its deep understanding of its varied and unique customer base. Marketing plans and messaging across multiple media will promote program initiatives to specific target markets in Toronto that can best benefit from them.

Education and engagement will be an important consideration of the customer communication strategy. This will be achieved through the promotional material developed, event sponsorships and seminars, as well as specific training targeted at channel partners and ally organizations including contractors and distributors.

6 CDM Programs Co-ordination

THESL recognizes that cost effective delivery of programs is an important element of the overall CDM strategy, which will be measured and tracked on an ongoing basis by the OPA.

THESL will pursue meaningful administrative efficiencies that also leverage existing resources to build capacity through collaborative efforts and extend the reach of the CDM programs through the following activities:

A. As a member of the CLD, THESL along with other CLD members are exploring ways to develop potential cost efficiencies in program delivery while providing a more customer centric focus to its CDM and Demand Side Management (DSM) activities. Two distinct approaches have been explored independently:

   1) Common Delivery and Procurement Model – The CLD is exploring potential cost efficiencies by cooperating in the delivery of existing CDM and DSM programs. These process improvements could be achieved potentially by joint and competitively procured supply chain agents, co-authoring proposals and/or sharing of pre-project assessment results, and shared account management responsibilities and market intelligence. Simultaneously, a coordinated customer management approach will simplify customer interaction and add value to the relationship from the clients' perspective.

   2) Toronto Energy Office (TEO) – TEO is essentially a "one-stop-shop" concept applied over the business development efforts of otherwise independent organizations working within a common customer base. THESL and others will assess the benefits and practicality of co-locating business development activities from each constituent (THESL, BOMA, City of Toronto and Enbridge) to a team-centred sales unit. THESL believes this approach would facilitate synergies potentially resulting in cost efficiencies and improved customer focus. At the same time, the market penetration of conservation efforts would improve through more robust and comprehensive proposals.

B. THESL will be partnering with key channel partners such as BOMA and the City of Toronto. THESL recognizes the leadership roles these particular not-for-profit organizations hold within key market sectors. THESL's strategy is to build upon the existing relationship strengths and goodwill within the marketplace rather than re-tooling to duplicate the capabilities that have been meticulously built over the past few years.

C. THESL enjoys a special and productive relationship with the City of Toronto as its sole shareholder. Once additional details on the Low Income program are released, THESL proposes to rely on the City as a key partner to assist in targeting the program using its social assistance recipient databases. In this manner, program targeting efforts will be delivered more cost effectively.

D. As a high density jurisdiction, Toronto benefits from the existence of numerous environmental organizations working toward a common public good. Market research shows the public trusts environmental organizations in delivering environmental and

conservation messages. THESL intends to continue to leverage those relationships and take a community leadership role to extend the reach of our own marketing efforts into the various customer groups those organizations represent.

E. THESL recognizes that the private commercial sector in the form of consultants, contractors, distributors, business associations, and Original Equipment Manufacturers (OEM) will also play an important role as allies in supporting CDM programs. THESL can demonstrate that CDM programs add value to their products and services and should be routinely incorporated into their business development efforts. THESL will reach out to these organizations by participating in industry and trade association events to disseminate CDM program information, as well as provide energy efficiency training, workshops and seminars to engage the ally community and assist in program delivery.