Greater Sudbury Hydro Inc.

Conservation and Demand Management

2012 Annual Report

Submitted to:

Ontario Energy Board

Submitted on September 30, 2013

TABLE OF CONTENTS

Executive Summary

This annual report is submitted by GSHI in accordance with the filing requirements set out in the Conservation and Demand Management (CDM) Code (Board File No. EB-2010-0215) and is a progress report and modification to GSHI's strategy. Accordingly, this report outlines GSHI CDM activities for the period of January 1, 2012 to December 31, 2012. It includes net summer peak demand and net energy savings achieved from 2011 and 2012, discussion of the current/future CDM framework, CDM program activities, successes and challenges, as well as forecasted savings to the end of 2014.

GSHI did not apply for any Board-Approved CDM Programs during 2012; however, as noted in the CDM guidelines, released April 26, 2012, the Ontario Energy Board (OEB) has deemed Time-of-Use (TOU) pricing a Province-wide Board-Approved CDM Program. The Ontario Power Authority (OPA) is to provide measurement and verification on TOU. At the time of this report the OPA has not released any verified results of TOU savings to GSHI Inc. (GSHI). In addition, GSHI delivered a suite of pre-2011 programs that have achieved incremental savings within the 2011-2014 period.

In 2011, GSHI contracted with the Ontario Power Authority (OPA) to deliver a portfolio of OPA-Contracted Province-Wide CDM Programs to all customer segments including residential, commercial, institutional, industrial and low income. These programs were rolled-out by the OPA in June 2011. In 2011, program activities were centered on building a foundation for full program execution over the next three years of the program term, including staffing, procurement, and program delivery.

In 2012, GSHI focused on reaching out the business sector to achieve a higher proportion of savings from these customers and wrapping up its OEB Approved pre-2011 program portfolio. GSHI's programs provided customers with a regional alternative to the Province-Wide program. GSHI staff focused on customer support, providing one-on-one assistance with the application processes of both GSHI OEB Approved programs and OPA programs. Surveys completed received very positive feedback on this support and attention to customers. GSHI has also focused on cross-promoting GSHI OEB Approved programs and OPA programs to help its customers save electricity in as many ways as possible.

To date, GSHI has achieved 1.49 MW of net annual peak demand savings and 27.2 GWh of net cumulative energy savings. Please note that the energy savings achievement will not align with OPA reports due to the inclusion of GSHI OEB Approved pre-2011 programs with incremental savings in the 2011–2014 period. A summary of GSHI's achievements towards the CDM peak demand and energy targets is shown in tablesTable 1 andTable 2, respectively:

Table 1: Peak Demand Savings Achieved to Target (MW)

Implementation Period	Annual (MW)			
	2011	2012	2013	2014
2011	0.9	0.7	0.7	0.7
2012		0.9	0.8	0.8
2013				
2014				

Verified Net Annual Peak Demand Savings in 2014:	**1.49**
GSHI 2014 Annual CDM Capacity Target:	**8.2**
Verified Portion of Peak Demand Savings Target Achieved (%):	**18.1%**

Table 2: Energy Savings Achieved to Target (GWh)

Implementation Period	Annual (GWh)				Cumulative (GWh)
	2011	2012	2013	2014	2011-2014
2011	3.9	3.9	3.9	3.8	15.5
2012		4.6	4.6	4.6	13.8
2013					
2014					
Verified Net Cumulative Energy Savings 2011-2014:					**27.2**
GSHI 2011-2014 Cumulative CDM Energy Target:					**43.7**
Verified Portion of Cumulative Energy Target Achieved (%):					**62.3%**

The updated forecast prepared for this report shows that there will be a shortfall of approximately 5 MW versus GSHI's 2014 peak demand reduction target. Although, the peak demand savings are below target, GSHI expects to achieve within 10 percent of the 2011-2014 cumulative energy savings target. Given the expected shortfall, GSHI continues to work actively on participant engagement. In addition, GSHI has partnered with other Local Distribution Companies (LDCs) and has been working with the Ontario Power Authority (OPA) and the Electrical Distribution Association (EDA) to improve program effectiveness. However, it is GSHI's position that our utility will not fully overcome the forecasted peak demand savings shortfall.

Background

GSHI is the local distribution company serving the City of Greater Sudbury, the Town of Capreol, the Town of Coniston, the Township of Falconbridge and the Municipality of West Nipissing. GSHI has been an active and committed participant in CDM since 2005 and has engaged its customers and the community in CDM programs and a conservation ethic. GSHI's leadership in CDM is well recognized.

On March 31, 2010, the Minister of Energy and Infrastructure of Ontario, under the guidance of sections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998*, directed the Ontario Energy Board (OEB) to establish Conservation and Demand Management (CDM) targets to be met by electricity distributors. Accordingly, on November 12, 2010, the OEB amended the distribution license of GSHI to require, as a condition of its license, to achieve 43.7 GWh of cumulative energy savings and 8.2 MW of annual summer peak demand savings, over the period beginning January 1, 2011 through December 31, 2014.

In accordance with the same Minister's directive, the OEB issued the CDM Code for Electricity Distributors (the Code) on September 16, 2010. The code sets out the obligations and requirements with which electricity distributors must comply in relation to the CDM targets set out in their licenses. To comply with the Code requirements, GSHI submitted its CDM Strategy on November 1, 2010 which provided a high level of description of how GSHI intended to achieve its CDM targets. On November 12, 2010 the Board posted updated CDM targets for LDCs. GSHI's CDM targets were modified from 8 MW to 8.22 MW of annual summer peak demand savings and from 44 GWh to 43.71 MW of cumulative energy savings. An addendum was filed by GSHI on June 13, 2011 in response to a letter from the Board Secretary directing GSHI to file an addendum to its CDM Strategy to include estimated prospective budgets for planned programs.

The Code also requires a distributor to file annual reports with the Board. This is the second Annual Report by GSHI and has been prepared in accordance with the Code requirement and covers the period from January 1, 2012 to December 31, 2012. During this period, GSHI served a municipal population of 174,423, with a total of 42,424 residential customers, 3,917 General Service (<50kW), and 538 General Service (50-4999 kW) customers. GSHI is a winter peaking utility, with a summer peak in 2012 of 145,185 kW, a winter peak of 180,332 kW and an average peak of 149,064 kW.

GSHI submitted its 2011 Annual Report on September 30, 2012 which summarized the CDM activities, successes and challenges experienced by GSHI for the January 1, 2011 to December 31, 2011 period. The OEB's 2011 CDM Results Report identified that the delay in the full suite of CDM Programs being made available by the OPA, and the absence of some programs negatively impacted the final 2011 results for LDCs. This issue was also highlighted in Volumes I & II of the Environmental Commissioner's Report on Ontario's Annual Energy Conservation Progress.

On December 21, 2012, the Minister of Energy directed the Ontario Power Authority (OPA) to fund CDM programs which meet the definition and criteria for OPA-Contracted Province-Wide CDM Programs for an additional one-year period from January 1, 2015 to December 31, 2015.

The Ministerial Directive did not amend the timelines for LDCs to achieve their energy savings and demand savings targets. Therefore, the main focus of the LDCs remains the achievement of CDM targets by December 31, 2014.

1 Conservation Framework

1.1 Current Framework

Ontario's current CDM framework is a key step towards creating a culture of conservation in the Province. The Government's Directive to the OEB to establish CDM targets that would be met by electricity distributors recognizes the importance of CDM for both electricity customers and the electricity system. CDM helps customers manage rising energy costs, supports the provincial integrated supply plan, and addresses local distribution and transmission supply constraints. The current framework was intended to enable customers to benefit from a suite of both Board-Approved and OPA-Contracted Province-Wide CDM programs to meet both broad and specific customer needs.

The state of Board-Approved programs and the current suite of OPA-Contracted Province-Wide CDM programs have limited offerings to customers. This has produced limited savings and has restricted the associated opportunity for LDCs to meet their targets. The process to introduce changes to current programs or to pilot new initiatives has been challenging, taking considerable cost and effort and has resulted in limited benefits to customers and CDM savings.

Moving forward, the future CDM framework should address the challenges of the current framework and build on its strengths. Currently overbuilt governance and excessive legal requirements results in a slow, bureaucratic process, with a burdensome administrative process. There is a misalignment of control and risk where LDCs have the accountability to achieve their respective CDM targets as a condition of distribution license, but the authority for design and funding are controlled substantially by the OPA.

The Ministerial Directive (December 21, 2012) provides continuity of conservation programs and associated compensation for participants. However, the subsequent savings would not be attributed to any LDC target and in effect would be 'lost' due to misalignment of the current CDM framework and LDC targets. In addition, the establishment of defined administrative funding for 2015 is required to avoid a "stop and start" process.

1.2 Future Framework

LDCs are supportive of government's renewed commitment for CDM in Ontario. LDCs are committed to working with the government and other stakeholders to develop the next framework for CDM in the Province.

Long-term commitment for CDM funding and a confirmation of the role of the LDC are needed. This will allow LDCs to maintain current program infrastructure, including LDC staff and third party contracts, through 2015.

Providing clarity and continuity into the next framework is critical for all customers. To ensure a seamless and smooth transition that maintains and builds upon CDM momentum beyond 2014, a new CDM framework should be in place well before the expiry of the current one. Work involving key parties including LDCs, government, customer groups and OEB should begin in 2013 to allow for a new framework to be in place by early 2014. The remainder of 2014 would be utilized for program development and design, economic analysis, procurement and launch of new CDM programs.

2 Board-Approved CDM Programs

2.1 Introduction

In its Decision and Order dated November 12 2010 (EB-2010-0215 & EB-2010-0216), the OEB ordered that, (to meet its mandatory CDM targets), "Each licensed electricity distributor must, as a condition of its license, deliver Board-Approved CDM Programs, OPA-Contracted Province-Wide CDM Programs, or a combination of the two".

At this time, the implementation of Time-of-Use (TOU) Pricing has been deemed as a Board-Approved CDM program that is being offered in GSHI's service area.

2.2 TOU Pricing

2.2.1 Background

In its April 26, 2012 CDM Guidelines, the OEB recognizes that a portion of the aggregate electricity demand target was intended to be attributable to savings achieved through the implementation of TOU Pricing. The OEB establishes TOU prices and has made the implementation of this pricing mechanism mandatory for distributors. On this basis, the OEB has determined that distributors will not have to file a Board-Approved CDM program application regarding TOU pricing. The OEB has deemed the implementation of TOU pricing to be a Board-Approved CDM program for the purposes of achieving the CDM targets. The costs associated with the implementation of TOU pricing are recoverable through distribution rates, and not through the Global Adjustment Mechanism (GAM).

In accordance with a Directive dated March 31, 2010 by the Minister of Energy and Infrastructure, the OEB is of the view that any evaluations of savings from TOU pricing should be conducted by the OPA for the province, and then allocated to distributors. GSHI will report these results upon receipt from the OPA.

At the time of preparation of this report the OPA had retained the Brattle Group as the evaluation contractor and will be working with an expert panel convened to provide advice on methodology, data collection, models, etc. The initial evaluations were conducted with 5 LDCs – Hydro One Inc., Toronto Hydro Electric System Limited, Ottawa Hydro, Thunder Bay Hydro and Newmarket-Tay Power. Preliminary results from these 5 LDCs were issued to the participating LDCs in August 2013.

As of September 30, 2013, the OPA has not released any verified results of TOU savings to GSHI. Therefore, GSHI is not able to provide any verified savings related to LDC's TOU program at this time.

2.2.2 TOU Program Description

Target Customer Type(s): Residential and small business customers (up to 250,000 kWh per year)

Initiative Frequency: Year-Round

Objectives: TOU pricing is designed to incent the shifting of energy usage. Therefore, peak demand reductions are expected and energy conservation benefits may also be realized.

Description: In August of 2010, the OEB issued a final determination to mandate TOU pricing for Regulated Price Plan (RPP) customers by June 2011, in order to support the Government's expectation for 3.6 million RPP consumers to be on TOU pricing by June 2011, and to ensure that smart meters funded at ratepayer expense are being used for their intended purpose.

The RPP TOU price is adjusted twice annually by the OEB. A summary of the RPP TOU pricing is provided below:

Table 3: RPP TOU Rates

RPP TOU	Rates (cents/kWh)		
Effective Date	**On Peak**	**Mid Peak**	**Off Peak**
November 1, 2010	9.9	8.1	5.1
May 1, 2011	10.7	8.9	5.9
November 1, 2011	10.8	9.2	6.2
May 1, 2012	11.7	10.0	6.5
November 1, 2012	11.8	9.9	6.3
May 1, 2013	12.4	10.4	6.7

Delivery: The OEB set rates; LDCs install and maintain the smart meters; LDCs convert customers to TOU billing.

Initiative Activities/Progress:

GSHI's original intent was to implement TOU rates in July 2011. This date was deferred due to Measurement Canada's legislation. Measurement Canada legislated that by January 2012, register reads must appear on the customer's bill. However, the provincial data management system (MDMR) required an upgrade to its software to enable this. The upgrade was expected to be completed in 2011, but was deferred by the Province. On April 16, 2012 the province went live with the upgrade.

GSHI was in the process of converting to TOU rates effective May 1, 2012. Since GSHI bills bi-monthly, it took two months to convert all our customers. Depending on when the area was billed, billing began between May 1, 2012 and June 30, 2012.

As of December 31st, 2012, 46,551 TOU meters were installed servicing 42,654 Residential Class customers and 3,897 General Service Less Than 50kW Class. All GSHI customers with TOU meters were on TOU billing with the exception of those customers signed with Retailers.

GSHI takes education and outreach very seriously and as such, used several mediums to educate customers about TOU rates including public engagements, print material, television campaigns, corporate web site and social media.

2.3 Greater Sudbury Hydro Inc.'s Programs (EB-2008-0147)

GSHI confirms that, in addition to the generic TOU Pricing program noted earlier in this report, it did not have any Board-Approved CDM Programs up to and including December 31, 2012. However, there are pre-2011 programs approved by the Board prior to the current 2011-2014 cycle that were still delivering incremental savings in 2011 and 2012. These were approved by the Board in 2008 (EB-2008-0147) and are detailed in subsequent sections.

2.3.1 Background

On June 18, 2008 GSHI applied to the OEB to deliver a suite of custom programs from 2008 to 2010 (EB-2008-0147). The OEB issued a decision on November 4, 2008. On March 23, 2012 GSHI filed a motion to, among several other items, extend the funding through the end of 2012 (EB-2012-0186). GSHI was granted this extension by the Board on April 11, 2012.

On April 26, 2012 the OEB issued Guidelines for Electricity Distributor Conservation and Demand Management (EB-2012-0003). Section 3 acknowledges initiatives from programs prior to 2011 that will be completed after 2011 and states:

> *"The Board is of the opinion that it is reasonable to allow distributors to count the new savings arising from the initiatives completed pursuant to the terms of the program in or after 2011 against their CDM targets. Distributors must still follow the OPA's EM&V Protocols in evaluating and verifying these savings, as outlined in the CDM Code. The Board will not consider any savings that persist from initiatives completed prior to 2011 against an LDC's CDM target."*

With the extension in funding granted by the Board (EB-2012-0186), customers were able to participate in the GSHI custom programs and achieve incremental savings in 2011 and 2012. An evaluation of the savings resulting from these programs is complete. As such, GSHI has included the incremental savings from installations occurring in 2011 and 2012 in this report. Savings resulting from installations prior to 2011 are not included in this report.

2.3.2 Greater Sudbury Hydro Inc. Program Descriptions

Community Awareness Program

Target Customer Type(s): Residential customers

Initiative Frequency: Year round

Objective: To change customer behavior through education, promote energy conservation efforts occurring throughout the city, and build awareness of GSHI and energy efficiency through community outreach.

Description: The Community Awareness Program included working with local schools to develop action plans for promoting energy conservation, providing energy information and "Kill-A-Watt" monitors to consumers, attending public events and a pilot Smart Meter education program. This program is not designed to achieve savings and is only intended to build awareness.

Targeted End Uses: Residential end uses

Delivery: GSHI delivered

Electric Thermal Storage (ETS) Program

Target Customer Type(s): Residential electrically heated customers

Initiative Frequency: Year round

Objective: Reduce distribution system peak load by shifting electrical home heating energy use to off-peak hours. Utilities of the north experience a much higher peak in winter than summer (opposite of the trend in the south). Diverting and/or shifting electrical usage to off peak periods has long term potential that will ultimately help transmission assets remain in service.

Description: ETS heating is an off-peak electric heating system that stores low cost electricity in the form of heat for use in heating needs throughout 24 hours a day. ETS equipment utilizes a storage medium to store heat during off-peak hours, as defined in the OEB Regulated Price Plan, and releasing it consistently throughout the day during the mid-peak and on-peak hours. In addition thereto, ETS also has the ability to control electric water heaters off-peak. The benefits of the project were significant in terms of: (i) reducing energy demand at critical peak periods when Ontario's electricity system is most strained; and, (ii) providing the customer with considerable savings on their heating bill.

Targeted End Uses: Conventional electric heat in residential applications

Delivery: GSHI delivered

Initiative Activities/Progress:

The program was approved by the Board in late 2008 and has technically been in-market since 2009. There were 40 ETS units installed in 2011 and 214 ETS units installed in 2012.

Full roll-out of this program was significantly delayed from original plans. The program is premised on TOU rates providing a direct financial incentive for participants with electrically-heated homes to want to time-shift their heating load. TOU rates did not come into effect during 2011 in the GSHI service territory as originally planned. Once TOU rates were in place, participation began to climb. From 2009 until 2011 there were only 98 ETS units installed, but after TOU rates were in place, participation was over 200 in each year (214 ETS units in 2012 and an additional 305 ETS units in 2013).

Additional Comments:

- TOU rates were/are an essential driver of this program.
- Initial feedback from prospective customers suggests some negative reaction to the aesthetics of the ETS units (that must be positioned in the rooms/areas affected).
- On the upside, consumers who did install ETS and were placed on TOU rates in a pilot exercise realized considerable energy shifts, using 70% to 80% of energy off-peak. Once these results were learned and bill savings apparent, customers were further motivated to shift more load through behavioural change (e.g., laundry and dishwasher use off-peak).

Commercial Parking Lot Plug Controller Program

Target Customer Type(s): Commercial and multi-unit residential facilities that contain parking lots that provide plugs for block heaters

Initiative Frequency: Year round

Objective: Achieve energy and demand savings by allowing building and property managers to effectively manage their electricity usage for block heaters in outdoor parking lots during the winter months.

Description: Parking lot controllers are electronic devices that control the amount of electricity used by an outdoor plug, allowing building and property managers to effectively manage their electricity usage for block heaters in outdoor parking lots during the winter months. Studies have shown that block heater plug load could be reduced by as much as 50% with no adverse effect on vehicle starts for users through intelligent control.

This program offers a $175 financial incentive per device to encourage building and property managers to install controllers at their sites. The participant purchases the unit directly from GSHI and then arranges installation with a certified electrical contractor. Once the units are installed and operating, the participant calls GSHI to arrange an installation inspection. If the unit has been correctly installed the participant is rebated the full cost of the unit, plus a portion of the installation costs. The participant will receive actual costs of material and labour up to a maximum of $175.00.

Targeted End Uses: Commercial and multi-unit residential facilities that contain parking lots that provide plugs for block heaters.

Delivery: GSHI delivered

Initiative Activities/Progress:

The program was approved by the Board in late 2008 and has been actively in-market since 2009. After two successful years with more than 500 participants per year, the program, as-designed, likely reached market saturation. There were 204 parking lot controllers installed in 2011 and an additional 564 installed in 2012.

Consideration will be given to promoting these controllers as part of broader retrofit projects sponsored under the Province-Wide program.

Additional Comments:

- Retrofit installations are significantly more challenging than new additions where older technology did not already exist
- Multi-residential and construction/transportation were the primary sectors interested in this program

Vending Machine and Self Service Coolers Efficiency Program

Target Customer Type(s): Commercial Customers with vending machines and self-serve coolers

Initiative Frequency: Year round

Objective: Achieve energy and demand savings by monitoring usage of vending machines and self-serve coolers and curtailing operation when customers are not present.

Description:

Vending machines and self-serve coolers present an excellent opportunity for energy conservation. They operate 24/7 and consume six times the amount of energy of a household refrigerator. By installing power controllers, energy savings in the 20% - 40% range can be achieved. The vending machine or cooler is plugged into a power controller, which consists of a passive infrared motion sensor and control unit. The device monitors the presence of people in the room using infrared technology. If no one is present for 15 minutes, the device automatically powers off the vending machine, but maintains the temperature of the product. Once powered off, the device monitors the temperature of the room and will power the machine on in 1.5 to 3 hour intervals. The device allows the machine to run a complete cycle before shutting down.

This program offers program participants a $175 financial incentive per device. Participants can purchase the devices directly from GSHI. Once installed the participant call GSHI to arrange an installation inspection. If installed correctly, the participant receives an incentive.

Targeted End Uses: Vending machines and self-service coolers

Delivery: GSHI delivered

Initiative Activities/Progress:

The program was approved by the Board in late 2008 and has been actively in-market since 2009. The program has slowly gained traction and there were 170 units installed in 2011 and 149 units installed in 2012. GSHI has stock remaining and will continue to offer the devices to customers until the stock has run out. Thus, there will be additional participation in 2013 and potentially in 2014.

Additional Comments:

- Leased equipment presents two problems for this type of program:
    - Operators are not sure if they are permitted to install a controller within their lease agreement with the vendor
    - Reluctance to invest in a piece of equipment to be attached to an item not owned, which indicates a misunderstanding regarding the operating cost of electricity not being part of the lease
- Business owners in this sector are generally very busy but are highly focused on saving electricity but have little time to seek out opportunities. Because significant potential exists to provide opportunities to save energy with low free-ridership levels, Greater Sudbury Hydro staff has worked closely to assist this sector with education and installs.

Led Traffic Light Conversion Program

Target Customer Type(s): Municipalities

Initiative Frequency: Year round

Objective: Achieve energy and demand savings by converting traffic lights to LED technology.

Description: Besides being more energy efficient, LED heads are more durable, require less maintenance once installed, are brighter and eliminate the need for coloured lenses. However, costs are still substantially higher and municipalities are often unable to justify the capital expenditure to council members with many other competing priorities on budgets.

Targeted End Uses: Traffic lighting

Delivery: GSHI delivered

Initiative Activities/Progress: The City of Greater Sudbury began installations in 2009. Over the life of the program (2009 – 2011) 1,458 street lights were converted with 1,251 installations occurring in 2011 and 2012.

Additional Comments:

- Energy efficiency projects in smaller municipalities often do not move pass the council approval process as capital costs are often high and without an incentive energy efficiency projects of this scale would not occur

LED Street Light Conversion Program

Target Customer Type(s): Municipalities

Initiative Frequency: Year round

Objective: Achieve energy and demand savings by converting street lights to LED technology.

Description: Municipalities typically use high pressure sodium (HPS) street light fixtures ranging in size from 100W to 400W. The maintenance and operating costs for these inefficient fixtures are much higher their efficient counterpart, however budget constraints have delayed the conversion to more efficient lighting. This program has been designed to encourage more efficient purchase decisions.

Street light technology is changing at a rapid pace; and, the overall performance of LED luminaries is quickly advancing in efficiency. Conversions are not as straightforward as with some other lighting applications, so GSHI has been conducting studies on LED street and roadway lighting to determine the applicability of the technology by monitoring light level output, energy and power usage as well as economic factors. Preliminary tests indicated that the light output was lower than minimum operating requirements. A breakthrough occurred in late 2010, with municipal agreement to proceed with a pilot of 11 fixtures to enable the monitoring of light levels.

Targeted End Uses: Street lighting

Delivery: GSHI delivered

Initiative Activities/Progress: The program was approved by the Board in late 2008 and has been actively in-market since 2009. Significant time and resources for technology testing and courting the municipality

were invested by GSHI in 2009 and 2010. Installations began in 2011 with the majority of the activity not happening until 2012. 63 installations occurred in 2011 and an additional 1,188 installations occurred in 2012. There are additional installations expected in 2013 as the City works to complete the project.

Additional Comments:

- LED lighting economics and technology is still evolving rapidly, so it is challenging for utilities to time market opportunities optimally—the trends have to be monitored and the right incentive offered at the right time to influence decision-making before LED eventually becomes the market standard
- Energy efficiency projects in smaller municipalities often do not move pass the council approval process as capital costs are often high and without an incentive energy efficiency projects of this scale would not occur

3 OPA-Contracted Province-Wide CDM Programs

3.1 Introduction

Effective February 2, 2011, GSHI entered into an agreement with the OPA to deliver CDM programs extending from January 1, 2011 to December 31, 2014. These programs are listed below. Program details are included in Appendix A. In addition, results include projects that began prior to 2011 and completed within the program period, similar to the GSHI programs (EB-2008-0147) described in section 3.3.

Table 4: OPA Program Initiative Information

Initiative	Schedule	Date schedule posted	Customer Class
Residential Program			
Appliance Retirement	Schedule B-1, Exhibit D	*Jan 26,2011*	*All residential rate classes*
Appliance Exchange	Schedule B-1, Exhibit E	*Jan 26, 2011*	*All residential rate classes*
HVAC Incentives	Schedule B-1, Exhibit B	*Jan 26, 2011*	*All residential rate classes*
Conservation Instant Coupon Booklet	Schedule B-1, Exhibit A	*Jan 26, 2011*	*All residential rate classes*
Bi-Annual Retailer Event	Schedule B-1, Exhibit C	*Jan 26, 2011*	*All residential rate classes*
Retailer Co-op	n/a	*n/a*	*All residential rate classes*
Residential Demand Response	Schedule B-3	*Aug 22, 2011*	*All general service classes*
New Construction Program	Schedule B-2	*Jan 26, 2011*	*All residential rate classes*
Commercial & Institutional Program			
Efficiency: Equipment Replacement	Schedule C-2	*Jan 26, 2011*	*All general service classes*
Direct Install Lighting	Schedule C-3	*Jan 26, 2011*	*General Service < 50 kW*
Existing Building Commissioning Incentive	Schedule C-6	*Feb 2011*	*All general service classes*
New Construction and Major Renovation Initiative	Schedule C-4	*Feb 2011*	*All general service classes*
Energy Audit	Schedule C-1	*Jan 26, 2011*	*All general service classes*
Commercial Demand Response (part of the Residential program schedule)	Schedule B-3	*Jan 26, 2011*	*All general service classes*
Demand Response 3 (part of the Industrial program schedule)	Schedule D-6	*May 31, 2011*	*General Service 50 kW & above*
Industrial Program			
Process & System Upgrades	Schedule D-1	*May 31, 2011*	*General Service 50 kW & above*
Monitoring & Targeting	Schedule D-2	*May 31, 2011*	*General Service 50 kW & above*
Energy Manager	Schedule D-3	*May 31, 2011*	*General Service 50 kW & above*
Key Account Manager ("KAM")	Schedule D-4	*May 31,2011*	*General Service 50 kW & above*
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	Schedule C-2	*May 31, 2011*	*General Service 50 kW & above*

Initiative	Schedule	Date schedule posted	Customer Class
Demand Response 3	Schedule D-6	*May 31, 2011*	*General Service 50 kW & above*
Home Assistance Program			
Home Assistance Program	Schedule E-1	*May 9, 2011*	*All residential rate classes*

In addition, results were realized towards LDC's 2011-2014 target through the following pre-2011 programs:

Table 5: Pre-2011 Programs

Initiative	Schedule	Date schedule posted	Customer Class
Pre-2011 Programs			
Electricity Retrofit Incentive Program	n/a	*n/a*	*All general service classes*
High Performance New Construction	n/a	*n/a*	*All general service classes*
~~Toronto Comprehensive~~	~~n/a~~	~~*n/a*~~	~~*All general service classes*~~
Multifamily Energy Efficiency Rebates	n/a	*n/a*	*All general service classes*
~~Data Centre Incentive Program~~	~~n/a~~	~~*n/a*~~	~~*All general service classes*~~
~~EnWin Green Suites~~	~~n/a~~	~~*n/a*~~	~~*All general service classes*~~

As per the table below, several program initiatives are no longer available to customer or have not been launched in 2012.

Table 6: Initiatives Not In-Market

Initiative Not in Market in 2012	Objective	Status
Residential Program		
Midstream Electronics	The objective of this initative is to encourage retailers to promote and sell high efficency televisions, and for distributors to distribute high efficiency set top boxes.	Never launched and removed from Schedule in Q2, 2013.
Midstream Pool Equipment	The objective of this initiative is to encourage pool installers to sell and install efficient pool pump equipment in residential in-ground pools.	Never launched and removed from Schedule in Q2, 2013.
Aboriginal Conservation Program	First Nations programs are delivered by the OPA and results are attributed to LDCs for reporting.	Launched in 2013 by OPA.
Home Energy Audit Tool	This is a provincial online audit tool to engage customers in conservation and help drive customer participation to CDM programs.	Never launched and removed from Schedule in Q2, 2013.
Commercial & Institutional Program		
Direct Service Space Cooling	The objective of this initiative is to offer free servicing of air conditioning systems and refrigeration units for the purpose of achieving energy savings and demand reduction.	Not launched to market in 2011/2012. As per the OPA there no plans to launch this Initiative in 2013.

Initiative Not in Market in 2012	Objective	Status
Demand Response 1 (DR1)	This initiative allows distribution customers to voluntarily reduce electricity demand during certain periods of the year pursuant to the DR 1 contract. The initiative provides DR payment for service for the actual electricity reduction provided during a demand response event.	No customer uptake for this initiative. As a result this Initiative was removed from the Schedule in Q4, 2012.
Industrial Program		
DR1	As above	No customer uptake for this initiative. Removed in Q4, 2012.

The Master CDM Program Agreement includes program change management provision in Article 3. Collaboration between the OPA and the LDCs commenced in 2011, and continued in 2012, as the change management process was implemented to enhance the saveONenergy program suite. The change management process allows for modifications to the Master Service Agreement and initiative schedules. The program enhancements give LDCs additional tools and greater flexibility to deliver programs in a way that meets the needs of customers and further drives participation in the Initiatives.

3.2 Program Descriptions

Full OPA-Contracted Province-Wide CDM Program descriptions are available from the OPA and additional initiative information can be found on the saveONenergy website at https://saveonenergy.ca. The targeted customer types, objectives, and individual descriptions for each Program Initiative are detailed in Appendix A.

3.2.1 Residential Programs

Description: Provides residential customers with programs and tools to help them understand and manage the amount of energy they use throughout their entire home and help the environment.

Objective: To provide incentives to both existing homeowners and developers/builders to motivate the installation of energy efficiency measures in both existing and new home construction.

Discussion:

GSHI has promoted the residential program offerings through in-store events, social media, television, print media, and local events, such as the Sudbury Home Builders Home Show. Through these efforts, GSHI has influenced a minimum of 5,300 potential participants. In addition, GSHI continues to deliver custom pre-2011 programs, providing educational energy efficiency technology and behavior information to customers and leveraging the contact with customers as an opportunity to cross-promote OPA programs.

GSHI maintains a Facebook account and a Twitter page. Both Facebook "likes" and Twitter followers were tracked monthly over the second half of 2012. GSHI saw a 20% increase in Twitter followers and a 40% increase in Facebook "likes" over this period.

The inclusion of LED technology into the Biannual Retailers events in 2012 and the annual coupons in 2013, as well as some LDC custom coded coupons, has had a positive effect on consumer engagement.

With the exception of the custom OEB Approved pre-2011 programs delivered solely by GSHI, the OPA Residential Program Portfolio is predominately a carryover of Initiatives from previous programs. It is mostly driven by retailers and contractors who many not have fully delivered what was anticipated. Three new initiatives were never launched and subsequently removed from schedule in 2013 with no new additions. Delays in communication with regards to Initiative offerings and results reporting have hampered LDCs abilities to engage customers and promote participation. Province-wide advertising has provided limited value due to inconsistency and non-specific messaging.

Work to revitalize and increase the effectiveness and breadth of the Initiatives through the Residential Program needs to be a high priority. There are opportunities within the Residential marketplace that need to be identified, developed and offered to customers. A revised home audit and other Initiatives which could engage an average residential customer could be considered. Increased control by the LDCs such as 100% attributable coupons for LDCs and/or LDC hosted exchange events may present an opportunity for improved saving.

3.2.1.1 Appliance Retirement Initiative (Exhibit D)

Initiative Activities/Progress:

GSHI has been offering this OPA Initiative to its customers since 2007. GSHI has effectively no control over the pick-up scheduling and operations of this initiative. In 2012, 1,175 appliances were retired through the program. Given the market saturation trend, year-over-year declines in savings are expected to continue to the end of 2014.

GSHI marketed this Initiative at many local community events that took place in the service territory in 2012, including the local home show. The Initiative was cross-promoted during the Appliance Exchange events. The Initiative was also promoted in local media, in trade publications and on the GSHI Website. Television ads through CTV (seven in July and nine in November) resulted in a successful increase in pick-up requests when aired. A promotion with Sears for a 10% discount on a new Energy Star fridge continues to draw awareness and boost participation.

Additional Comments:

- With the increase in appliance age to 20 years in 2013, many LDCs increased marketing and outreach throughout 2012 in an effort to increase uptake and achieve savings.
- Due to the duration of the program, and the revised eligibility requirements to a minimum of 20 years old, this Initiative appears to have reached market saturation and has been under consideration for removal from the Portfolio.
- Rather than strictly remove this Initiative from the schedules, the OPA and LDCs could review what opportunities there are to include other measures such as stoves, dishwashers, washers and dryers. The framework of this Initiative may be a suitable foundation for a more holistic residential appliance retirement program. As such, the Residential portfolio could be straightened through program evolution rather than weakened through diminished program offerings.
- As results are very responsive to province wide advertising OPA provincial marketing should continue to play a key role.
- The OPA and LDCs can continue working to establish partnerships with Independent retailers and municipalities.

3.2.1.2 Appliance Exchange Initiative (Exhibit E)

Initiative Activities/Progress:

GSHI participated in an A/C and dehumidifier exchange event at the two Canadian Tire locations in June. GSHI has effectively no control over this initiative. GSHI assures their presence at all retailer events of eligible retailer locations.

Additional Comments:

- This Initiative, eligible measures and incentive amounts are influenced by the retail partner with no direct involvement from the LDCs. The restrictive, limited and sometimes non-participation of local stores can diminish the savings potential for this Initiative.

- To date there has only been one retailer participant in the Appliance Exchange Initiative. The Fall events have not had retailer participation, therefore savings budgeted by the LDCs have not materialized.

- Evaluation, Measurement, and Verification (EMV) results indicated that the value of savings for retired room AC has dropped resulting in the retail participant not accepting window a/c's during the Spring 2013 event.

- Notification regarding retailer participation and eligible measures continues to be delayed. Improved communications will aid in appropriate resource allocation and marketing of the Initiative.

- This Initiative may benefit from the disengagement of the retailer and allowing LDCs to conduct these events, possibly as part of a larger community engagement effort, with the backing of ARCA for appliance removal.

- The initiative appears to require more promotion from retailers and LDCs.

3.2.1.3 HVAC Incentives Initiative (Exhibit B)

Initiative Activities/Progress:

GSHI effectively has no control over this initiative. The OPA contracts centrally for the delivery of the program and LDCs are encouraged to convince local contractors to participate in the Initiative.

GSHI shares joint jurisdiction with Hydro One. It has been found that the HVAC Contractors are identifying the incorrect LDC for GSHI customers. LDCs have no means to verify/confirm the savings attributable to GSHI with the OPA, but would be open to working towards correcting any attribution challenges. In 2012, GSHI was credited with 537 incentives offered through this program.

GSHI continues to work with the HVAC contractors to promote this initiative and build both contractor and customer awareness.

Additional Comments:

- Incentive levels appear to be insufficient to prompt Participants to upgrade HVAC equipment prior to end of useful life. It is hoped that the introduction of an Air Miles incentive in 2013 may help with this.

- This Initiative is contractor driven with LDCs responsible for marketing efforts to customers. More engagement with the HVAC contractor channel should be undertaken to drive a higher proportion of furnace and CAC sales to eligible units.

- Channel partners require timeliness of the Rebate process to maintain a positive relationship between consumers, contractors, the OPA, and the participating LDC. Due to a contracting delay no applications were processed from approximately the end of October 2012 to February 2013.

- LDC HVAC reports have been delayed and are not as complete and accurate as are required by LDCs to make adjustments to their marketing strategies.

- In an effort to build capacity, mandatory training has been instituted for all participating HVAC contractors. This could present too much of a barrier for participation for some contractors as the application process already presents a restriction to contractor sales. It has been noted that there are approximately 4500-5000 HVAC contractors in the Province, however only 1500 are participating in program.

- There are cases where non-participating contractors are offering their own incentives (by discounting their installations to match value of the OPA incentive) to make the sale. As this occurs outside of the Initiative, these installations should be attributed to the appropriate LDC.

3.2.1.4 Conservation Instant Coupon Initiative (Exhibit A)

Initiative Activities/Progress:

The OPA contracts centrally for the distribution of the coupon booklets. The LDC effectively has no control over this initiative. The couponed products have not changed since the inception of this Initiative, thus resulting in a decline in participation from 5,386 incentives in 2011 to 317 incentives in 2012.

This Initiative was marketed at community events in 2012 and was promoted in local media and on the GSHI website.

Additional Comments:

- This Initiative was ineffective for most of 2012 as the Instant coupons (annual) were not available to consumers until September 2012. As such, savings budgeted by LDCs did not materialize.

- The timeframe for retailer submission of redeemed coupons vary from retailer to retailer and in some cases has been lengthy. The delays and incomplete results reporting limits the ability to react and respond to Initiative performance or changes in consumer behaviour. This also resulted in the delayed launch of the Initiative in 2012.

- Coupon booklets were not printed and mailed out in 2012. As such, Coupons were not widely available to consumers without the ability to download and print them.

- Without Provincial coupon distribution, and delay in Initiative launch, consumers may not have been aware of the online coupons. This Initiative could benefit from provincial marketing as a substitute to distribution.

- LDCs should be able to custom code all coupons to provide 100% allocation and push specific coupons based on localized needs.

- The product list could be distinctive from the Bi-Annual Retailer Event Initiative in order to gain more consumer interest and uptake.

- Program evolution, including new products and review of incentive pricing for the coupon Initiatives, should be a regular activity to ensure continued consumer interest.

3.2.1.5 Bi-Annual Retailer Event Initiative (Exhibit C)

Initiative Activities/Progress:

As in prior years, for 2012, events took place in the spring and the fall. LDCs effectively had no control over this Initiative. Uptake depends on the type of coupons available and the number of events held and the marketing of the Initiative. In 2012, 10,902 coupons were credit to GSHI.

GSHI had an opportunity to directly promote the coupon program to customers by participating in several in-store retailer events and other outreach activities throughout 2012. Events include, but are not limited to a retailer event at Home Depot in April and October and promoting coupons at Lowes, Home Hardware locations and Canadian Tire locations s in October.

Additional Comments:

- This Initiative is strongly influenced by the retail participants and has no direct involvement from the LDCs.

- The Product list has changed very little over the past four years.

- Limited engagement of local retailers can restrict the savings potential for this Initiative.

- Program evolution, including new products and review of incentive pricing for the coupon Initiatives, must be a regular activity to ensure continued consumer interest.

- The Product list could be distinctive from the Conservation Instant Coupon Initiative in order to gain more consumer interest and uptake.

- A review conducted by the Residential Working Group in Q4 2011 identified three areas of need for Initiative evolution: 1) introduction of product focused marketing; 2) enhanced product selection and 3) improved training for retailers as retail staff tend not to be knowledgeable regarding the products or promotion.

- LDCs should be able to custom code all coupons to provide 100% allocation and push specific coupons based on localized needs.

- Communications regarding retailer participation continues to be delayed. Improved communications will aid in appropriate resource allocation and marketing of the Initiative.

- This Initiative may benefit from a more exclusive relationship with a retailer appropriate to the program. There should be a value proposition for both the retailer and LDC.

3.2.1.6 Retailer Co-op

Initiative Activities/Progress:

GSHI effectively has no control over this initiative.

Additional Comments:

- This is a retailer Initiative with no direct benefit to the LDCs
- Limited engagement of local retailers can restrict the savings potential for this Initiative.
- The availability of retailer and/or LDC staff with product knowledge and the ability to conduct demonstration in store during the events would be an asset. This could be a valuable role for LDCs, however many LDCs are limited by available resources and unable to participate

3.2.1.7 New Construction Program (Schedule B-2)

Initiative Activities/Progress:

Due to technical difficulty with mandatory TRC calculations required for custom applications, GSHI has had no uptake on custom applications where much of the opportunity for customers exists. In fact, GSHI still has an outstanding custom application with a GSHI customer from 2011 that is pending OPA assistance for resolution. GSHI had minimal uptake (five applications) in 2012 on prescriptive applications.

Additional Comments:

- This Initiative provides incentives to home builders for incorporating energy efficiency into their buildings. To support this, LDCs need to provide education to the consumers regarding the importance of choosing the energy efficient builder upgrade options without an immediate benefit to the consumer.
- Following limited participation in 2011, the application process was revisited in 2012 to streamline administration in response to builder feedback. Participation levels are expected to grow but there will be a lag to when results materialize as homes pre-approved could take a year or more to be completed.
- Administrative requirements, in particular individual home modeling, must align with perceived stakeholder payback. As per the Electricity Distributors Association ("EDA") Working Groups, changes are being processed through change management for 2012. However, the lengthy change management process has resulted in continued non-participation from builders.

3.2.1.8 Residential Demand Response Program (Schedule B-3)

Initiative Activities/Progress:

GSHI's decision is to offer this Initiative using the AMI technology. Due to the technical issues related to the compatibility between the smart meter technology selected by GSHI and the IHDs currently available

in the marketplace, GSHI cannot yet offer this Initiative as the IHD is an integral component thereof. As such, GSHI is not in market with the program and continues, along with other LDCs, to work through these technical issues.

Additional Comments:

- The schedule for ***peaksaverPLUS®*** was posted in August 2011, but this did not provide adequate time for product procurement for 2011, and part of 2012. The product procurement process uncovered that the In Home Display units that communicate with installed smart meter technology were still in development and not ready for market deployment. Consequently, LDCs could not be in market with the ***peaksaverPLUS®*** program until 2012, or later which has resulted in delayed savings.

- Smart Meters installed by most LDCs do not have the capability to communicate directly to an In Home Display. When proposing technical Initiatives that rely on existing LDC hardware or technology there should be an extensive consultative process.

- Introduction of new technology requires incentives for the development of such technology. Appropriate lead times for LDC analysis and assessment, product procurement, and testing and integration into the Smart Meter environment are also required. Making seemingly minor changes to provincial technical specifications can create significant issues when all LDCs attempt to implement the solution in their individual environments.

- The variable funding associated with installing a load controllable thermostat is not sufficient unless it is combined with an In Home Display (IHD) which might not be possible all the time and when IHD is optional.

- This is the main Initiative within the Residential portfolio that drives savings for LDCs.

- Given the different LDCs smart meter environments, and needs, each LDC is positioning the Initiative slightly different. As such, greater program flexibility is required to address unique LDC needs.

- Provincial wide marketing needs to be sensitive to the variations of the Initiative and provide solid, consistent messaging.

- There currently is not an avenue for participants without the ability to provide demand response capabilities to obtain an IHD and gain energy saving benefits.

3.2.2 Commercial and Institutional (C&I) Program

Description: Provides commercial, institutional, agricultural and industrial organizations with energy-efficiency programs to help reduce their electricity costs while helping Ontario defer the need to build new generation and reduce its environmental footprint. C&I programs to help fund energy audits, to replace energy-wasting equipment or to pursue new construction projects that exceed our existing codes and standards. Businesses can also pursue incentives for controlling and reducing their electricity demand at specific times.

Targeted Customer Type(s): Commercial, Institutional, Agricultural, Multi-family buildings, Industrial

Objective: Designed to assist building owners and operators as well as tenants and occupants in achieving demand and energy savings, and to facilitate a culture of conservation among these communities as well as the supply chains which serve them.

Discussion:

Throughout 2011 and 2012 the Commercial and Institutional (C&I) Working Group has strived to enhance the existing C&I programs and rectify identified program and system deficiencies. This has proven to be a challenging undertaking, normally taking months to complete sometimes relatively minor changes due to the current CDM framework. Overbuilt governance, numerous initiative requirements, complex program structure and lengthy change management have restricted growth without providing the anticipated improved Measurement and Verification results. In addition, Evaluation, Measurement and Verification (EM&V) has not yet achieved transparency. LDCs are held accountable for these results yet are mostly completely removed from the process.

LDC program management has been hampered by varying rule interpretation, limited marketing ability, a somewhat inflexible online system of checks and balances and revolving OPA support personnel.

LDCs have outstanding Waivers with the OPA that ultimately affect the Peak Demand and Energy savings not attributed, including persistence in energy savings from year to year.

Despite these challenges the C&I Working Group, working in cooperation with the OPA, have managed to iron out many of the issues which could be rectified. In particular, an accomplishment of 2012 was the advent of the expedited change management as means to accelerate certain program changes.

GSHI has continued to successfully deliver the current suite of C&I programs amidst the challenges that the programs may face. In previous years' evaluations of many commercial programs, evaluators noted the importance of trade allies and contractors in promoting the program. In 2012, GSHI reached out to an engineering firm to educate the staff with direct contact with customers in northern Ontario about commercial programs. This will help not only GSHI, but any customer in northern Ontario that interacts with the engineers in this company.

Past CDM experience shows that GSHI customers respond positively to one-on-one outreach and expertise. GSHI verifies all installations within their territory, which provides an opportunity for GSHI account representatives to cross-promote to customers that are already aware of one program. When contacting these existing CDM program participants, account representatives take the opportunity to directly interact with customers to provide customized information based on a walk-through of the business with the customer to suggest how they can reduce their electricity use and what programs would help them do so. Feedback from customers when evaluating the GSHI custom programs was overwhelming positive. In addition, through the same evaluation, feedback from customers has shown a frustration with application processes and paperwork associated with OPA-Contracted Province-Wide CDM programs. To combat this frustration, GSHI account representatives provide support to customers throughout the entire process from initial contact to receiving an incentive and post-installation verification.

Looking ahead there is minimal opportunity to make valuable changes to the current program suite and have these changes reflected in LDC 2014 results. LDCs and the OPA should look beyond the current Initiatives and work to launch new programs, built on the strengths of the 2011-2014 programs, which will meet the needs of the industry and consumers.

Fortunately, GSHI has had the ability to continue to offer its customers programs that are designed to meet the needs of the region. Please see section 3.2 for more information regarding the additional programs delivered to GSHI customers and customer feedback.

3.2.2.1 Efficiency: Equipment Replacement Incentive (ERII) (Schedule C-2)

Initiative Activities/Progress:

In 2012, GSHI allocated the largest proportion of spending towards the marketing and outreach efforts associated with ERII. Two different commercials were run on CTV: one in June and July and another in September and October. A full page, inside cover ad was placed in "Earth Care Magazine – Northern Life." GSHI provided "Waste-not, Watt-not" bags to 250 customers with information about the ERII program. The "Waste-not, Watt-not" program is an umbrella marketing, awareness and promotion initiative that is part of the GSHI custom program suite (EB-2008-0147). GSHI has used this campaign to promote both the custom programs and OPA-Contracted Province-Wide CDM programs. GSHI processed 74 new applications in 2012. Due to the complexity of the application process and feedback from customers, GSHI staff completes all applications on behalf of the customer.

There are outstanding Waivers with the OPA that ultimately affect progress towards peak demand and energy savings target. Savings from these projects and the associated persistence have not yet been attributed to GSHI's results.

There is expectedly significant conservation potential remaining to be tapped in the commercial and institutional sectors in GSHI service territory. The greatest opportunities for kW and kWh are in LED lighting, compressed air, motors, refrigeration and HVAC.

Because of the importance of this Initiative to achieving the energy and demand savings required to meet the CDM targets, in 2012 GSHI increased its marketing strategies to tap this market and will continue to increase exposure throughout 2013.

Additional Comments:

- It appears that the marketplace largely understands the programs now and a large proportion of LDC savings are attributed to ERII.
- The centralized process review used for 2012 project payment has been streamlined by the OPA and payments for projects were greatly improved – faster and more consistent compared to 2011.
- Capability building programs from Industrial programs have had very positive contributions to ERII program.

- This Initiative is limited by the state of the economy and the ability of commercial/institutional facility to complete capital upgrades.

- A number of customer facing issues in CRM (the OPA centralized application system) have been resolved; however key LDC administrative back office processing issues continue to be a challenge.

- Applicants and Applicant Representatives continue to express dissatisfaction and difficulty with the online application system. This issue has been addressed by LDCs through application training workshops, Key Account Managers, channel partner/contractor training and LDC staff acting as customer Application Representatives. Although this has been an effective method of overcoming these issues and encouraging submissions, it also reflects on the complexity and time consuming nature of the application process. As such, Applicant Representatives continue to influence the majority of applications submitted. Continued development of Channel Partners is essential to program success.

- Lighting is still the most popular measure. Other market sectors are not as engaged yet, specifically the mechanical world. There continues to be significant barriers to program participation from HVAC (Unitary AC) and compressed air channel partners

- Prescriptive and Engineered worksheets provide a much needed simplified application process for customers. However, the eligible measures need to be updated and expanded in both technology and incentive amounts to address changing product costs and evolution of the marketplace.

- Expanding the capacity of the engineered applications can offer customers an opportunity to maximize savings and incentives. Recognizing this, Toronto Hydro and London Hydro worked together to develop and provide the OPA with compressed air engineered worksheets for inclusion in the Initiative in Q3, 2012. To date, these have not been accepted and provided to LDCs for use.

- An identified deficiency in the various renditions of the equipment replacement is the “hard stop” of the program as of a specific date. Without a streamlined transition into a new program, many customers become frustrated and refused to participate. LDCs struggle to repair customer and channel partner relationships and gain momentum in the market place once again.

- While the Ministerial Directive provides continuality of the conservation programs for the participant, unclear direction on LDC administrative funding could result in many LDCs ‘ramping down’ programs in 2015. The establishment of defined administrative funding for 2015 is required to avoid a “stop and start” process.

3.2.2.2 Direct Install Initiative (DIL) (Schedule C-3)

Initiative Activities/Progress:

GSHI put a hard stop on the program July 3, 2012 pending the increased incentive from $1,000 to $1,500 which was to become effective on or about mid- August 2012. This was necessary course of action in order to provide our contractors with reasonable notice of change. Problems with the Change Management Process resulted in several deferrals thereafter. The eligible cost level increase eventually

came to fruition on December 4, 2012. With only a half year in market, GSHI still saw 433 projects completed in 2012 which was a considerable increase over 2011.

GSHI promoted this Initiative through a variety of mediums including local home shows, in-store events, social media (Facebook and Twitter), corporate website and provided "Waste-not, Watt-not" bags to 250 customers with information pamphlets. Moreover, GSHI used a 3rd party call centre to promote the program and hired contractors to perform on-site assessments and installations.

Additional Comments:

- Successful execution of the previous rendition of this Initiative has resulted in diminished potential for the 2011-2014 Initiative in some LDC's territories.
- The inclusion of a standard incentive for additional measures increased project size and drove higher energy and demand savings results in some situations.
- Electrical contractor's margins have been reduced due to no labour rate increase, increase cost of materials, greater distances between retrofits, more door knocking required before a successful sale and no funding for lifts. This has led to a reduction in vendor channel participation in some regions.
- Ambiguity with regard to eligibility resulted in large lists of customers rejected following installation due to preserved ineligibility. Due to this, some LDCs were forced to carry considerable financial burden while this was worked through.
- The eligibility requirements have now been revamped and expanded however there has been limited communication and documentation of this to the marketplace.
- Currently LDCs are unable to offer these standard incentives to prior participants. The ability to return to prior participants and offer a standard incentive on the remaining measures has potential to provide additional energy and demand savings.

3.2.2.3 Existing Building Commissioning Incentive Initiative (Schedule C-6)

Initiative Activities/Progress:

There was no up-take of the Initiative in 2012, but GSHI continues to market and identify any building commissioning opportunities through its ERII program.

Additional Comments:

- Initiative name does not properly describe the Initiative.
- There was minimal participation for this Initiative. It is suspected that the lack of participation in the program is a result of the Initiative being limited to space cooling and a limited window of opportunity (cooling season) for participation.
- Participation is mainly channel partner driven, however the particulars of the Initiative have presented a too significant of a barrier for many channel partners to participate.

- The customer expectation is that the program be expanded to include a broader range of measures for a more holistic approach to building re-commissioning and chilled water systems used for other purposes should be made eligible and considered through Change Management.

- This initiative should be reviewed for incentive alignment with ERII, as currently a participant will not receive an incentive if the overall payback is less than 2 years.

3.2.2.4 New Construction and Major Renovation Initiative (HPNC) (Schedule C-4)

Initiative Activities/Progress:

GSHI had no uptake on this Initiative in 2012. The reasons for such are related to the requirements of the program such as:

1. ability to meet with the contractor / consultant prior to the issuance of a building permit
2. the lengthy lead time from the application to the completion date of the project
3. the relatively low incentive levels

GSHI continues to promote the project but with the unknown landscape of the CDM future, leaves it difficult to engage eligible customers.

Additional Comments

- There is typically a long sales cycle for these projects, and then a long project development cycle. As the program did not launch until mid-2011 and had limited participation, results did not appear in 2011. Minimum results are expected to appear in 2012. The majority of the results are expected in 2013-2014, with a reduced benefit to cumulative energy savings targets.

- With the Ministerial Directive facilities with a completion date near the end of 2014 currently have some security that they will be compensated for choosing efficient measures.

- Participants estimated completion dates tend to be inaccurate and are usually 6 months longer. This could result in diminished savings towards target when facilities are not substantially completed by December 31, 2014.

- The custom application process requires considerable customer support and skilled LDC staff. As there has been no defined administrative funding beyond 2014, many LDCs are unsure how these project applications will be finalized.

- The effort required to participate through the custom stream exceeds the value of the incentive for many customers.

- This Initiative has a very low Net-to-Gross ratio, which results in half the proposed target savings being 'lost'.

3.2.2.5 Energy Audit Initiative

Initiative Activities/Progress:

GSHI marketing of this Initiative includes an outreach approach. In 2012, three audits were processed. There is a tremendous amount of work undertaken by the LDC to ensure that the Audit report meets the requirements set forth in the OPA schedule. It is unknown to the LDC how the savings identified in the audit report will be attributed to the LDC once the customer enacts upon the identified measures (net-to-gross, free ridership).

Additional Comments:

- Customer uptake was limited in 2011, however improved throughout 2012 especially with the new audit component for one system (i.e. compressed air).
- The energy audit Initiative is considered an 'enabling' Initiative and 'feeds into' other saveONenergy Initiatives. There are no savings attributed to LDC targets from an audit.
- Audit reports from consultants vary considerably and in some cases, while they adhere to the Initiative requirements, do not provide value for the Participant. A standard template with specific energy saving calculation requirements should be considered.
- Customers look to the LDCs to recommend audit companies. A centralized prequalified list provided by the OPA may be beneficial.
- Participants are limited to one energy audit which restricts enabling and direction to the other Initiatives. This Initiative should be evaluated for additional customer participation when presented with a new scope of work.

3.2.3 Industrial Program

Description: Large facilities are discovering the benefits of energy efficiency through the Industrial Programs which are designed to help identify and promote energy saving opportunities. It includes financial incentives and technical expertise to help organizations modernize systems for enhanced productivity and product quality, as wells as provide a substantial boost to energy productivity. This allows facilities to take control of their energy so they can create long-term competitive energy advantages which reach across the organization.

Targeted Customer Type(s): Industrial, Commercial, Institutional, Agricultural

Objective: To provide incentives to both existing and new industrial customers to motivate the installation of energy efficient measures and to promote participation in demand management.

Discussion:

The Industrial Program Portfolio has been able to provide valuable resources to large facilities such as Energy Managers and enabling Engineering Studies. The Engineering Studies in particular provide a unique opportunity for a customer to complete a comprehensive analysis of an energy intensive process that they would not otherwise be able to undertake. Energy Managers provide customers with a skilled individual whose only role is to assist them with conservation initiatives. To date these Energy Managers have played a key role in customer participation.

Due to the size, scope and long lead time of these Initiatives and associated projects, the Ministerial Directive provides some security for the continuation of the conservation programs and associated compensation for the participant; however the subsequent savings would not be attributed to any LDC target.

Extensive legal documents, complex program structure, and lengthy change management have restricted change and growth of this Portfolio. While the expedited change management has benefited the Commercial Portfolio, the Industrial Portfolio has not seen the same results due to the narrow scope of the process. For 2013, a change to the threshold for small capital projects and a new small capital project agreement are expected to improve the number of projects and savings achieved within PSUI. Likewise, a decision to proceed with natural gas load displacement generation projects will also increase uptake although results may not be counted towards LDC targets due to in-service dates beyond 2014. Looking ahead there is minimal opportunity to make additional valuable changes to the current program suite and have these changes reflected in LDC 2014 results.

3.2.3.1 Process & Systems Upgrades Initiative (PSUI) (Schedule D-1)

Initiative Activities/Progress:

There are effectively no industrial customers in GSHI territory that would be able to achieve the savings mandated by the program. In late 2012, GSHI commenced discussions with the Municipality about preliminary engineering studies and detailed engineering studies of their main wastewater treatment plant. As a result, the Municipality proceeded with the studies in 2013.

GSHI will continue to work with the Municipality and other larger organizations in 2013 to identify any potential opportunities.

Additional Comments:

- Approximately 100 engineering study applications have been submitted. This is a strong indication that there is the potential for large projects with corresponding energy savings. Most of these studies have been initiated through the Energy Manager and KAM resources.
- This Initiative is limited by the state of the economy and the ability of a facility to complete large capital upgrades.
- There is typically a long sales cycle for these projects, and then a long project development cycle. As such, limited results are expected to be generated in 2012. The majority of the results are expected in 2013-2014, with a much reduced benefit to cumulative energy savings targets.
- Delays with processing funding payments have caused delayed payments to Participants beyond contract requirements. In some cases, LDCs have developed a separate side agreement between the LDC and Participant acknowledging that the Participant cannot be paid until the funds are received.
- The contract required for PSUI is a lengthy and complicated document. A key to making PSUI successful is a new agreement for 'small' projects which is a simplified with less onerous conditions for the customer.

- To partially address this, changes were made to the ERII Initiative which allowed smaller projects to be directed to the Commercial stream. . Most industrial projects to-date have been submitted as ERII projects due to less onerous contract and M&V requirements.

- A business case was submitted by the Industrial Working Group in July 2012 which would change the upper limit for a small project from 700 MWh to 1 million dollars in incentives. This would allow more projects to be eligible for the new small capital project agreement and increase participant uptake, while still protecting the ratepayer. To date this change has not been implemented. (OR the small capital project agreement was finalized through change management in XX 2013).

- While there is considerable customer interest in on-site Load Displacement (Co-Generation) projects, in 2012 the OPA was accepting waste heat/waste fuel projects only. Natural gas generation projects were on hold awaiting a decision on whether PSUI will fund these types of projects. In June 2013, a decision was made to allow natural gas load displacement generation projects to proceed under PSUI. It is expected that a number of projects will proceed although results may not be counted towards LDC targets due to in-service dates beyond 2014.

3.2.3.2 Monitoring & Targeting Initiative (Schedule D-2)

Initiative Activities/Progress:

There are effectively no industrial customers in GSHI territory that would be eligible for this Initiative. Only the Municipality and other larger organizations could possibly qualify. As a result of GSHI's discussions with the Municipality about preliminary engineering studies and detailed engineering studies of their main waste water treatment plant under the PSUI Initiative, there may be opportunity for monitoring and targeting under this Initiative in 2013.

Additional Comments:

- The M&T initiative is targeted at larger customers with the capacity to review the M&T data. This review requires the customer facility to employ an Energy Manager, or a person with equivalent qualifications, which has been a barrier for some customers. As such, a limited number of applications have been received to date.

- The savings target required for this Initiative can present a significant challenge for smaller customers.

- Through the change management process in 2013, changes are being made to ERII to allow smaller facilities to employ M&T systems.

3.2.3.3 Energy Manager Initiative (Schedule D-3)

Initiative Activities/Progress:

No GSHI customers qualify for this initiative.

Additional Comments:

- The Energy Managers have proven to be a popular and useful resource for larger customers. There are approximately 70 Embedded Energy Managers (EEMs) and 25 Roving Energy Managers (REMs) being utilized by customers across the province.

- LDCs that are too small to qualify for their own REM are teaming up with other utilities to hire an REM to be shared by the group of utilities.

- At the beginning, it took longer than expected to set up the energy manager application process and unclear communication resulted in marketing and implementation challenges for many LDCs.

- Some LDCs and Customers are reporting difficulties in hiring capable Roving and Embedded Energy Managers (REM/EEM), in some instances taking up to 7 months to have a resource in place.

- New energy managers require training, time to familiarize with facilities and staff and require time to establish "credibility". Energy Managers started filling their pipeline with projects but few projects were implemented in 2012.

- Delays with processing EEM payments causing LDCs to delay payments to Participants beyond contract requirements.

- There have been a number of studies identified by Energy Managers and they have been able to build capacity and deliver energy saving projects within their respective large commercial/industrial facilities.

- Requirement that 30% of target must come from Non-incented projects is identified as an issue for most REMs, although final targets not due to 2013. Working group has proposed to remove this requirement for REM's only as they are not resident full time at a customer facility to find the non-incented savings.

- A decision on extending funding for EM's is required in 2013 for this important Initiative, which should continue beyond 2014, failing which these expert resources will be lost in favour of full-time employment elsewhere.

3.2.3.4 Key Account Manager (Schedule D-4)

Initiative Activities/Progress:

GSHI has a limited and well-known set of large customers who remain in contact with GSHI staff regarding CDM programs and opportunities.

Additional Comments

- Customers appreciate dealing with a single contact to interface with an LDC, a resource that has both the technical and business background who can communicate easily with the customer and the LDC.

- Finding this type of skill set has been difficult. In addition, the short-term contract and associated energy targets discourage some skilled applicants resulting in longer lead times to acquire the right resource.

- This resource has been found by some LDCs to be of limited value due to the part-time nature of the position and limited funding. In addition, the position role has been too narrow in scope to provide assistance to the wider variety of projects LDCs may be struggling with.

- A decision on extending funding for KAM's is required in 2013 for this important Initiative, which should continue beyond 2014, failing which these expert resources will be lost in favour of full-time employment elsewhere.

3.2.3.5 Demand Response 3 (D-6)

Initiative Activities/Progress:

There is one C&I customer in this program in 2012. GSHI continues to offer and market this Initiative at all events and on a one-on-one basis with its customers. However, this Initiative is delivered under contract by the OPA and there is no means for the LDC to confirm/verify enrollment and/or savings.

Additional Comments:

- Until early 2013 customer data was not provided on an individual customer basis due to contractual requirements with the aggregators. This limited LDCs' ability to effectively market to prospective participants and verify savings.

- No program improvements were made in 2012 however, it was accepted that prior participants who renew their DR3 contract within the 2011-2014 term will contribute to LDC targets.

- As of 2013, Aggregators are able to enter into contracts beyond 2014. This has allowed them to offer a more competitive contract price (5 year) than if limited to 1 or 2 year contracts.

- Metering and settlement requirements are expensive and complicated and can reduce customer compensation amounts, and present a barrier to smaller customers.

- Compensation amounts for new contracts and renewals have been reduced from the initial launch of this program (premium zones and 200 hour option have been discontinued) and subsequently there has been a corresponding decrease in renewal revenue.

3.2.4 Low Income Initiative (Home Assistance Program) (Schedule E-1)

Initiative Activities/Progress:

This Initiative was not launched in 2012. GSHI executed a procurement process in Q3 2011 but did not hire a contractor at that time due to lack of readiness of the program. It was not until late 2012, that GSHI awarded the Request for Proposal to a 3rd party service provider to launch program in Q1 2013.

Additional Comments:

- Awareness of the program amongst social agencies took time to develop. Benefits started to become evident in late 2012.

- Centralized payment processes were not developed in 2011. The payment process was established in 2012.

- The process for enrolling in social housing was complicated and time consuming. This was addressed in late 2012 and is showing benefits in 2013.

- The financial scope, complexity, and customer privacy requirements of this Initiative are challenging for LDCs and most have contracted this program out. This Initiative may benefit from an OPA contracted centralized delivery agent.

3.2.5 Pre-2011 Programs

Savings were realized towards LDC's 2011-2014 target through pre-2011 programs. The targeted customer types, objectives, descriptions, and activities of these programs are detailed in Appendix B.

4 2012 LDC CDM Results

4.1 OPA-Contracted Province-Wide CDM Programs

4.1.1 Participation and Savings

Table 8 on the following page outlines the peak demand and energy savings achieved through OPA-Contracted Province-Wide CDM programs in 2011 and 2012. In 2012 GSHI achieved approximately 25 percent of savings from residential programs and approximately 70 percent of savings from C&I programs. Industrial programs remain a small proportion of total savings achieved. GSHI's achievement of peak demand savings to-date is in line with the majority of the LDC community (between 15 percent and 20 percent of target). GSHI's achievement of energy savings to-date, not including GSHI custom programs, is below the majority of the LDC community by approximately 10 percent. GSHI achieves majority of its savings from the following initiatives: Retrofit, Direct Install Lighting, Appliance Retirement, and HVAC Incentives.

Table 7: Participation, Peak Demand, and Energy Savings from OPA Programs

Initiative	Unit	Incremental Activity (new program activity occurring within the specified reporting period)				Net Incremental Peak Demand Savings (kW) (new peak demand savings from activity within the specified reporting period)				Net Incremental Energy Savings (kWh) (new energy savings from activity within the specified reporting period)				Program-to-Date Verified Progress to Target (excludes IDR)	
		2011	2012	2013	2014	2011	2012	2013	2014	2011	2012	2013	2014	2014 Net Annual Peak Demand Savings (kW)	2011-2014 Net Cumulative Energy Savings (kWh)
Consumer Program															
Appliance Retirement	Appliances	1,070	1,175			75	88			427,371	404,997			151	2,915,293
Appliance Exchange	Appliances	41	39			4	4			1,109	7,429			8	40,023
HVAC Incentives	Equipment	930	537			279	143			555,312	266,601			421	3,021,060
Conservation Instant Coupon Booklet	Items	5,308	317			12	2			200,793	14,366			15	346,274
Bi-Annual Retailer Event	Items	8,843	10,902			17	25			301,901	275,204			52	2,053,556
Retailer Co-op	Items	0	0			0	0			0	0			0	0
Residential Demand Response (part/peak)	Devices	330	0			73	0			109	0			0	109
Residential Demand Response (HD)	Devices	0	0			0				0					
Residential New Construction	Homes	0	5			0	0			0	4,154			0	12,461
Consumer Program Total						461	261			1,486,854	972,753			636	8,448,665
Business Program															
Retrofit	Projects	52	37			190	305			1,080,238	1,804,769			487	9,553,490
Direct Install Lighting	Projects	87	433			61	258			207,531	515,976			308	3,264,735
Building Commissioning	Buildings	0	0			0	0			0	0			0	0
New Construction	Buildings	0	0			0	0			0	0			0	0
Energy Audit	Audits	0	3			0	18			0	75,528			18	226,508
Small Commercial Demand Response	Devices	1	0			1	0			1	0			0	1
Small Commercial Demand Response (HD)	Devices	0	0			0				0				0	0
Demand Response 3	Facilities	1	1			58	57			3,576	3,281			0	6,856
Business Program Total						367	643			1,291,345	2,399,554			820	12,900,459
Industrial Program															
Process & System Upgrades	Projects	0	0			0	0			0	0			0	0
Monitoring & Targeting	Projects	0	0			0	0			0	0			0	0
Energy Manager	Projects	0	0			0	0			0	0			0	0
Retrofit	Projects	25				11				67,778				11	271,114
Demand Response 3	Facilities	0	0			0	0			0	0			0	0
Industrial Program Total						11	0			67,778	0			11	271,114
Home Assistance Program															
Home Assistance Program	Homes	0	0			0	0			0	0			0	0
Home Assistance Program Total						0	0			0	0			0	0
Pre-2011 Programs completed in 2011															
Electricity Retrofit Incentive Program	Projects	0	0			26	0			149,161	0			26	596,644
High Performance New Construction	Projects	1	1			11	14			55,941	66,561			25	427,796
Toronto Comprehensive	Projects	0	0			0	0			0	0			0	0
Multifamily Energy Efficiency Rebates	Projects	0	0			0	0			0	0			0	0
LDC Custom Programs	Projects	0	0			0	0			0	0			0	0
Pre-2011 Programs completed in 2011 Total						37	14			204,902	66,561			51	1,024,440
Other															
Program Enabled Savings	Projects	0	0			0	0			0	0			0	0
Time-of-Use Savings	Homes														
Other Total							0				0			0	0
Adjustments to Previous Year's Verified Results							-80				-80,060			-80	-344,777
Energy Efficiency Total						715	822			3,051,065	3,630,407			1,508	23,029,779
Demand Response Total (Scenario 1)						180	87			3,567	1,281			0	4,827
OPA-Contracted LDC Portfolio Total (inc. Adjustments)						895	909			3,054,632	3,631,606			1,508	23,340,606
													Full OEB Target:	8,220	83,710,000
													% of Full OEB Target Achieved to Date (Scenario 1):	17.7%	52.1%

Activity & savings for Demand Response resources for each year and quarter represent the savings from all active facilities or devices connected since January 1, 2011.

Due to the limited timeframe of data, which didn't include the summer months, 2012 HD results have been deemed inconclusive. The HD line item on the 2012 annual report will be left blank. Once a full year of data is available (2013 evaluation), and the savings are quantified, 2012 results will be updated to reflect the quantified savings.

4.1.2 Evaluation Findings

The following section provides a summary of the 2012 EM&V findings for all of the evaluated saveONenergy initiatives. This information was provided by the OPA.

Consumer Program

Bi-Annual Retailer Event

- 15% lower net savings due to a change in the net-to-gross factors (increased free-ridership, less participant behavior spillover, and less non-participant like spillover)
- Majority of participation, energy, & demand savings are from standard CFLs
- 15% of net savings due to ~73,000 coupons for new LED measures

Conservation Instant Coupon Booklet

- The number of coupons associated with the redemption of 2012 Annual Coupons was 90% lower than 2011 Instant Coupon Booklet. Key factors for the decrease include:
    - Shorter duration of available coupons (September 2012 – December 2012)
    - In 2012, only online coupons were available
        - 2011 had both online coupons AND coupon mailing booklets

HVAC Incentives

- Small decrease (10%) in per unit savings assumptions for furnace with ECM due to change in 2012 customer mix and furnace fan usage
- Small increase (10%) in free-ridership related to the furnace with ECM measure
- Participation remains relatively steady once 2011 true-up values are included

Appliance Retirement

- Decrease in 2012 participation by 39% compared to 2011
- In-site metering provided updated per unit assumptions:
    - Small decrease (3.5%) in savings for refrigerators
    - Sizeable increase (17.5%) in savings for freezers

Appliance Exchange

- Increase of 30% for exchanged dehumidifiers over 2011, leading to an increase of 4% in overall participation
- Higher per unit savings for dehumidifiers drove the overall increase in 2012 savings

*peaksaver*PLUS®

- Province-wide per-unit ex ante estimates for a 1-in-10 August peak day were determined to be 0.50 kW for residential CACs and 0.64 kW for small commercial CACs

- Evaluation to date has indicated savings from in-home displays (IHDs) are not statistically significant (in and around zero)
    - However, since 2012 evaluation did not include full year analysis (specifically the summer months), these results have been deemed inconclusive
- The IHD offer had a positive influence on enrollment and re-enrollment with between 20 to 35% of new enrollees said they wouldn't have enrolled without the IHD offer

Residential New Construction

- All projects are opting for the prescriptive or performance path - there have been no custom project applications to date

Business Programs

Efficiency: Equipment Replacement

- Reported savings for prescriptive lighting projects continue to be overstated:
    - Verified wattage reductions were 15% higher than assumed
    - Verified operating hours were 11% higher than assumed
- A lower realization rate in the engineered measure track can be partially explained by overstated lighting operation hour assumptions reported on the application
- Net-to-gross ratios for the initiatives were above 75% in 2012, which is consistent with 2011

Direct Installed Lighting

- Reported hours of usage continue to be inaccurate - only 12% of site visits had verified annual hours of use within +/-10% of the assumed value
- The saturation of eligible customers and preferred business types are resulting in participation from building types that may not fully operate during the summer peak period
    - This trend contributes to lower realization rates for demand savings in 2012
- Due to changing regulations in lighting measures, the assumed baseline technology will eventually be phased out. This regulation impacts the persistence of savings over the lifetime of lighting measures

Existing Building Commissioning (EBC)

- There were no applications in 2012
- Market feedback suggests that EBC's focus on chilled-water space-cooling systems may be too narrow, and participation could be expanded by incenting a wider range of measures

New Construction and Major Renovation Initiative

- Custom projects account for 66% of program savings, with the remainder coming from the prescriptive track

Audit Funding Program

- Through Audit Funding, 280 projects were completed in 2012 based on recommendations from the auditors, resulting in1.4 MW and 7 GWh of Program Enabled Savings
- Office buildings represented the largest portion of applicants for 2012

Industrial Programs

Process and Systems Upgrade Initiative

- Energy managers are seen as important drivers of Program Enabled savings projects
    - 88% of survey respondents indicated that the assistance provided by energy managers was "somewhat" or "very" important to implementing projects
- Energy Managers indicated that additional support (additional training and guides) may further help influence the adoption of energy efficiency measures by the participants
- Documentation for Program Enabled Savings projects varied substantially by LDC
    - More guidance on documentation requirements would be beneficial to all parties

Demand Response 3

- 2012 saw improvements in the performance of DR-3 participants resulting higher ex ante realization rates, particularly for the industrial participants

Home Assistance Program

- Participation in the initiative ramped up in 2012, with over 5,000 homes participating in the initiative
- Majority of energy savings (62%) comes from lighting measures, while 21% of energy savings resulting from refrigerator and freezer replacements

4.1.3 Spending

Tables 8 and 9 outline GSHI's spending both in 2012 and cumulative spending from 2011 to 2012. GSHI diverted spending in 2012 to the ERII and DIL initiatives and as a result saw a 50 percent increase in savings from ERII and almost 400 percent increase in DIL.

Table 8: 2012 Spending

Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
Consumer Program	***$64,913***				***$64,913***
Appliance Retirement	*$20,520*				*$20,520*
Appliance Exchange	*$2,140*				*$2,140*
HVAC Incentives	*$5,570*				*$5,570*
Conservation Instant Coupon Booklet	*$2,228*				*$2,228*
Bi-Annual Retailer Event	*$4,572*				*$4,572*
Retailer Co-op	*$0*				*$0*
Residential Demand Response	*$21,785*				*$21,785*
New Construction Program	*$8,098*				*$8,098*
Business Program	***$154,776***				***$154,776***

Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
Efficiency: Equipment Replacement	*$88,600*				*$88,600*
Direct Installed Lighting	*$46,414*				*$46,414*
Existing Building Commissioning Incentive	*$1,114*				*$1,114*
New Construction and Major Renovation Initiative	*$9,582*				*$9,582*
Energy Audit	*$9,066*				*$9,066*
Small Commercial Demand Response (part of the Residential program schedule)	*$0*				*$0*
Demand Response 3 (part of the Industrial program schedule)	*$0*				*$0*
Industrial Program	***$14,224***				***$14,224***
Process & System Upgrades	*$0*				*$0*
a) preliminary engineering study	*$4,327*				*$4,327*
b) detailed engineering study	*$1,114*				*$1,114*
c) program incentive	*$1,114*				*$1,114*
Monitoring & Targeting	*$1,114*				*$1,114*
Energy Manager	*$2,228*				*$2,228*
Key Account Manager ("KAM")	*$1,114*				*$1,114*
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	*$0*				*$0*
Demand Response 3	*$3,213*				*$3,213*
Home Assistance Program	***$11,664***				***$11,664***
Home Assistance Program	*$11,664*				*$11,664*
Pre 2011 Programs	***$0***				***$0***
Electricity Retrofit Incentive Program	*$0*				*$0*
High Performance New Construction	*$0*				*$0*
Toronto Comprehensive	*$0*				*$0*
Multifamily Energy Efficiency Rebates	*$0*				*$0*
Data Centre Incentive Program	*$0*				*$0*
EnWin Green Suites	*$0*				*$0*
Initiatives Not In Market	***$3,342***				***$3,342***
Midstream Electronics	*$0*				*$0*
Midstream Pool Equipment	*$0*				*$0*
Direct Service Space Cooling	*$1,114*				*$1,114*
Demand Response 1 (Commercial)	*$0*				*$0*
Demand Response 1 (Industrial)	*$2,228*				*$2,228*
Home Energy Audit Tool	*$0*				*$0*
TOTAL Province-wide CDM PROGRAMS	***$248,918***				***$248,918***

** Totals may not add due to rounding*

Table 9: Cumulative Spending (2011-2014)

Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
Consumer Program	***$148,177***				***$83,265***
Appliance Retirement	*$46,535*				*$46,535*
Appliance Exchange	*$2,693*				*$2,693*
HVAC Incentives	*$5,570*				*$5,570*
Conservation Instant Coupon Booklet	*$4,991*				*$4,991*
Bi-Annual Retailer Event	*$13,465*				*$13,465*
Retailer Co-op	*$0*				*$0*
Residential Demand Response	*$63,653*				*$63,653*
New Construction Program	*$11,271*				*$11,271*
Business Program	***$237,111***				***$237,111***
Efficiency: Equipment Replacement	*$133,034*				*$133,034*
Direct Installed Lighting	*$76,537*				*$76,537*
Existing Building Commissioning Incentive	*$1,667*				*$1,667*
New Construction and Major Renovation Initiative	*$13,492*				*$13,492*
Energy Audit	*$9,618*				*$9,618*
Small Commercial Demand Response (part of the Residential program schedule)	*$1,105*				*$1,105*
Demand Response 3 (part of the Industrial program schedule)	*$1,658*				*$1,658*
Industrial Program	***$17,539***				***$17,539***
Process & System Upgrades	*$0*				*$0*
a) preliminary engineering study	*$4,880*				*$4,880*
b) detailed engineering study	*$1,667*				*$1,667*
c) program incentive	*$1,667*				*$1,667*
Monitoring & Targeting	*$1,667*				*$1,667*
Energy Manager	*$3,333*				*$3,333*
Key Account Manager ("KAM")					*$1,114*
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	*$0*				*$0*
Demand Response 3	*$3,213*				*$3,213*
Home Assistance Program	***$23,959***				***$23,959***
Home Assistance Program	*$23,959*				*$23,959*
Pre 2011 Programs	***$0***				***$0***
Electricity Retrofit Incentive Program	*$0*				*$0*
High Performance New Construction	*$0*				*$0*
Toronto Comprehensive	*$0*				*$0*
Multifamily Energy Efficiency Rebates	*$0*				*$0*
Data Centre Incentive Program	*$0*				*$0*
EnWin Green Suites	*$0*				*$0*

Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
Initiatives Not In Market	***$3,894***				***$3,894***
Midstream Electronics	*$0*				*$0*
Midstream Pool Equipment	*$0*				*$0*
Direct Service Space Cooling	*$1,667*				*$1,667*
Demand Response 1 (Commercial)	*$0*				*$0*
Demand Response 1 (Industrial)	*$2,228*				*$2,228*
Home Energy Audit Tool	*$0*				*$0*
TOTAL Province-wide CDM PROGRAMS	***$430,681***				***$430,681***

** Totals may not add due to rounding*

4.2 Greater Sudbury Hydro Inc. Programs

4.2.1 Participation and Savings

Tables 10, 11 and 12 below outline the participation, net summer peak demand, and energy savings achieved through GSHI programs 2011 and 2012. In 2012 GSHI achieved approximately 20 percent of total energy savings from GSHI programs. Most programs did not achieve summer peak demand savings because the measures were winter peaking to better reflect the needs of the region. GSHI's achievement of energy savings to-date, including the GSHI programs, is in line with the majority of the LDC community.

Table 10: Participation GSHI Programs

Program	Unit	Incremental Activity			
		2011	2012	2013	2014
GSHI Programs					
Electric Thermal Storage	Units	40	214		
Parking Lot Conversion (diesel)	Devices	4	117		
Parking Lot Conversion (gas)	Devices	205	447		
Street Lighting	Lamps	63	1,188		
Traffic Light Conversion	Lamps	128	269		
CoolerMiser	Devices	33	64		
VendorMiser	Devices	136	92		

Table 11: Net Summer Peak Demand Savings GSHI Programs

Program	Net Incremental Summer Peak Demand Savings (kW)				2014 Net Annual Peak Demand Savings (kW)
	2011	2012	2013	2014	
GSHI Programs					
Electric Thermal Storage	n/a	n/a			n/a
Parking Lot Conversion (diesel)	n/a	n/a			n/a

Program	Net Incremental Summer Peak Demand Savings (kW)				2014 Net Annual Peak Demand Savings (kW)
	2011	2012	2013	2014	
Parking Lot Conversion (gas)	n/a	n/a			n/a
Street Lighting	n/a	n/a			n/a
Traffic Light Conversion	10	22			
CoolerMiser	n/a	n/a			
VendorMiser	n/a	n/a			
Total	10	22			

Table 12: Net Energy Savings GSHI Programs

Program	Net Incremental Energy Savings (kWh)				2011-2014 Net Cumulative Energy Savings (kWh)
	2011	2012	2013	2014	
GSHI Programs					
Electric Thermal Storage	n/a	n/a			n/a
Parking Lot Conversion (diesel)	3,455	89,475			282,245
Parking Lot Conversion (gas)	133,162	270,296			1,343,536
Street Lighting	29,407	459,404			1,495,840
Traffic Light Conversion	45,404	144,557			615,287
CoolerMiser	14,595	28,305			143,295
VendorMiser	93,934	63,543			566,365
Total	319,957	1,055,580			4,446,568

4.2.2 Evaluation Findings

A third party evaluation was completed for the GSHI programs. The following section provides a summary of the 2012 EM&V findings for all of the evaluated GSHI programs. Additional insights, methodologies, and results can be found in the evaluation report in Appendix C of this report.

Electric Thermal Storage

- Over half of the participants cited cost savings as their primary motivation for their initial interest in participating in the program
- Participants mentioned the demonstration at Greater Sudbury Hydro as a good way for them to understand what they were purchasing

Commercial Parking Lot Plug Controller Program

- Majority of diesel units were installed by business customers, while the majority of gas controllers were installed at multi-residential sites

- Many of the sampled companies were actively looking for incentive programs to save electricity and had participated in other rebate programs in Ontario, specifically lighting programs

LED Street Lighting

- Respondent indicated that the lead time for such projects is fairly long given the need for consideration and approval by City Council; which often has many competing budget priorities

LED Traffic Light Conversion

- Participant noted that it is often difficult for a municipality to undertake these types of high capital cost projects and that upgrades are often not done unless there is a significant financial motivation

Vending Machine and Self Service Coolers Efficiency Program

- Participants were very happy with this program, but found it difficult to assess whether it had resulted in an actual reduction on their utility bills
- Over 60 percent of the participants initially heard about the program on television, these participants were typically small businesses with half of the sampled participants having less than 20 employees

4.2.3 Spending

Details on the program costs and incentive costs for these programs for all years will be provided in the full report provided to the OEB.

5 Combined CDM Reporting Elements

5.1 Progress towards CDM Targets

GSHI continues to be concerned about the declining contribution expected from 2012 and onward from several previously solid performers due to the maturity of the markets for these Initiatives. In particular, the Appliance Retirement, HVAC Incentives and Direct Install Lighting Initiatives are all in precarious positions due mostly to past success. GSHI achieves majority of its savings from these initiatives and is concerned about the future potential in the coming years.

In addition, the lack of a large distribution-connected industrial customer base in GSHI places increased reliance on the Business Program to achieve the savings required to meet the CDM targets. Given this situation, the burden of most of the savings achievement in the final years of the framework resides with the Efficiency: Equipment Replacement Initiative, ERII, unless new and effective programs are brought on-stream very quickly.

Table 5: Net Peak Demand Savings at the End User Level (MW)

Implementation Period	Annual (MW)			
	2011	2012	2013	2014
2011 – Verified by OPA	0.9	0.7	0.7	0.7
2011 – Verified by GSHI	0.01	0.01	0.01	0.01
2012 – Verified by OPA		0.9	0.8	0.8

Implementation Period	Annual (MW)			
	2011	2012	2013	2014
2012 – Verified by GSHI		0.02	0.02	0.02
2013				
2014				
CDM Strategy Milestones	1.6	3.2	5.0	7.1
Verified Net Annual Peak Demand Savings in 2014:				**1.49**
GSHI 2014 Annual CDM Capacity Target:				**8.2**
Verified Portion of Peak Demand Savings Target Achieved (%):				**18.1%**

Table 6: Net Energy Savings at the End-User Level (GWh)

Implementation Period	Annual (GWh)				Cumulative (GWh)
	2011	2012	2013	2014	2011-2014
2011 – Verified by OPA	3.1	3.1	3.1	3.0	12.2
2011 – Verified by GSHI	0.3	0.3	0.3	0.3	1.3
2012 – Verified by OPA		3.6	3.6	3.6	10.6
2012 – Verified by GSHI		1.1	1.1	1.1	3.2
2013					
2014					
CDM Strategy Milestones	6.9	8.4	12.1	15.9	43.3
Verified Net Cumulative Energy Savings 2011-2014:					**27.2**
GSHI 2011-2014 Cumulative CDM Energy Target:					**43.7**
Verified Portion of Cumulative Energy Target Achieved (%):					**62.3%**

5.2 Variance from Strategy

As figure 1 illustrates, with almost all programs in-market and the verified results from GSHI's regionally focused programs, GSHI has recovered from its 2011 shortfall and is back on-track towards the milestones put forth in its CDM strategy. The value of the additional regionally focused, custom designed initiatives for GSHI is evident in the figure below. Without these custom programs tailored to fit the needs of GSHI customers, GSHI would not be on track towards its CDM Strategy. Figure 2 illustrates GSHI's progress towards peak demand savings milestones which were anticipated to be below target in GSHI's CDM Strategy. It is unlikely that GSHI will have the ability to meet its peak demand targets with the current program suite.

Figure 1: GSHI Progress against Milestones (Energy, GWh)

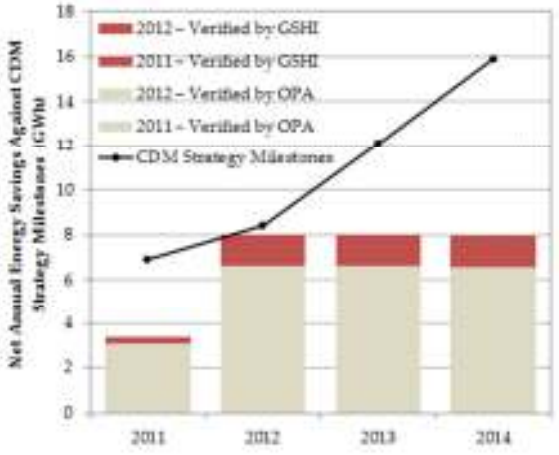
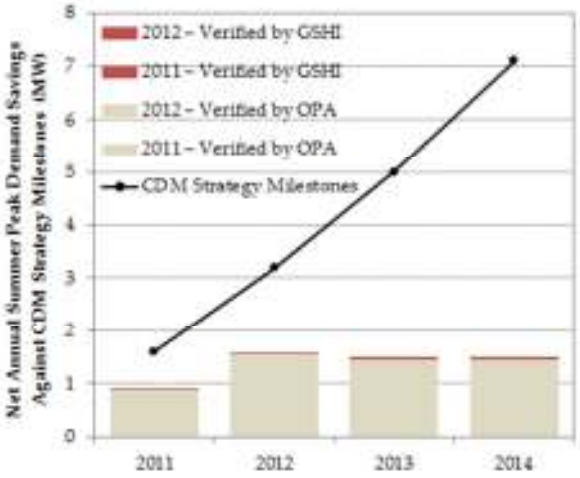


Figure 2: GSHI Progress against Milestones (Demand, MW)



5.3 Outlook to 2014 and Strategy Modifications

It will be extremely difficult for GSHI to achieve its demand savings target. GSHI has projected that even if 2011 and 2012 savings are maintained for 2013 and 2014, GSHI will fall well short of achieving its peak demand savings targets by approximately 5 MW. In a discounted Demand Response 3 zone, it is difficult to attract large demand savings without a significant amount of sales efforts and resources. For example, to achieve just one MW of net summer peak demand savings, based on average project sizes in 2011 and 2012, GSHI would need to procure over 130 ERII projects (over 300 percent increase in the number of projects in 2012) or install over 3,000 air conditioners and furnaces through the HVAC Incentives program (over 300 percent increase from 2011 projects and over 500 percent increase from 2012). With no Board-Approved Programs available in GSHI's territory and a drop-off in savings expected for several traditionally solid Initiatives, the situation is serious. GSHI's own programs, only due to unforeseen delays from their original timetables, have contributed significant savings in 2011 and 2012 towards energy savings targets but are mainly winter peaking programs and thus cannot contribute to peak demand targets. Even so, these programs are scheduled to cease operations at the end of 2012 with minimal savings expected in 2013 from remaining inventory clear-out.

GSHI is currently projecting to achieve within 10 percent of its cumulative energy target assuming GSHI's programs will be treated similar to other pre-2011 programs with incremental savings in 2011 and 2012. GSHI's programs contributed to 9 percent of total incremental energy savings in 2011 and 23 percent of total incremental energy savings in 2012. In 2012, GSHI has almost recovered its progress towards the annual milestones and will continue to build on this momentum in 2013 and 2014. If GSHI is able to double the amount of net incremental savings growth from OPA programs in 2013 and 2014, GSHI is expecting to meet approximately 95 percent of its cumulative energy target. However, there is a significant amount of incremental effort that GSHI will need to put forth to reach this goal. If GSHI is able to achieve the same amount of incremental net energy savings and growth from OPA programs in 2013 and 2014, GSHI will meet approximately 91 percent of its energy target.

In the last years of the framework, the focus for GSHI will be to continue to focus efforts and sales on the Business Program to achieve even greater savings through ERII by greater customer uptake, with

customers bringing forward more projects, and a significant uptick in projects with much larger savings per project. As part of the focus on ERII, there will be a redoubling of efforts with GSHI's largest customers to increase participation in and savings generated from ERII. GSHI will continue to work with existing customers and potential customers, helping them better understand their businesses' energy use and work through the OPA program administration process. The OPA must work with the CDM community to quickly address well known participation barriers that prevent a significant proportion of comprehensive, non-lighting projects from proceeding. As mentioned, larger projects must continue to be found or the performance of this foundation initiative may also slip downward in coming months and years. Lighting-based savings are at increasing risk as the market transforms in anticipation of new standards that affect most of the technologies incentivized in the OPA Programs.

GSHI's key risks in the final years of program delivery will be improvements to the ERII program, which will require forward-looking and sometimes difficult changes to be implemented, the availability of Board-Approved Programs to GSHI, either on its own and in collaboration with other LDCs, and the decision of the OEB regarding the inclusion of all pre-2011 programs with incremental savings in 2011 and 2012 (including GSHI's programs). GSHI remains committed to delivering CDM and a variety of programs. However, GSHI is concerned about its ability to achieve the prescribed target, particularly the summer peak demand target. GSHI looks forward to the OPA and LDCs working with GSHI to create new programs that will aid in addressing these concerns. GSHI also looks forward to a regulatory environment that will help encourage LDC's to come forward with their own programs and to collaborate with their neighbours on effective regional programs.

Conclusion

Over the course of 2012, GSHI has achieved 0.9 MW in peak demand savings and 4.6 GWh in energy savings, which represents 10.7 percent and 32 percent of GSHI 2014 target, respectively. At the end of 2012, GSHI achieved 18.1 percent of its annual peak demand savings target and 62.3 percent of its cumulative energy target. These results are representative of a considerable effort expended by GSHI, in cooperation with other LDCs, customers, channel partners and stakeholders to overcome many operational and structural issues that limited program effectiveness across all market sectors. This achievement is a success and the relationships built within the 2011-2014 CDM program term will aid results in a subsequent CDM term.

However, despite continuing improvements to existing programs, GSHI faces challenges in the remaining years of the current CDM framework. With the current slate of available OPA Programs, and the current forecast of implementation and projected savings, GSHI expects to meet within 10 percent its 43.7 GWh consumption target but will significantly struggle to meet its 8.2 MW summer peak demand savings target. GSHI expects a shortfall of approximately 5 MW towards its peak demand target by the end of 2014.

Looking ahead there is limited opportunity to make valuable changes to the current OPA program portfolio affecting the 2014 outlook of GSHI's results. However, LDCs and the OPA can build on the strengths and key successes of the 2011-2014 programs to launch new programs which will meet the needs of the industry and consumers both regionally and across the province.

Appendix A: Initiative Descriptions

Residential Program

Appliance Retirement Initiative (Exhibit D)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objectives: Achieve energy and demand savings by permanently decommissioning certain older, inefficient refrigeration appliances.

Description: This is an energy efficiency Initiative that offers individuals and businesses free pick-up and decommissioning of old large refrigerators and freezers. Window air conditioners and portable dehumidifiers will also be picked up if a refrigerator or a freezer is being collected.

Targeted End Uses: Large refrigerators, large freezers, window air conditioners and portable dehumidifiers

Delivery: OPA centrally contracts for the province-wide marketing, call centre, appliance pick-up and decommissioning process. LDC's provides local marketing and coordination with municipal pick-up where available.

Appliance Exchange Initiative (Exhibit E)

Target Customer Type(s): Residential Customers

Initiative Frequency: Spring and fall

Objective: The objective of this Initiative is to remove and permanently decommission older, inefficient window air conditioners and portable dehumidifiers that are in Ontario.

Description: This Initiative involves appliance exchange events. Exchange events are held at local retail locations and customers are encouraged to bring in their old room air conditioners (AC) and dehumidifiers in exchange for coupons/discounts towards the purchase of new energy efficient equipment.

Targeted End Uses: Window air conditioners and portable dehumidifiers

Delivery: OPA contracts with participating retailers for collection of eligible units. LDCs provide local marketing.

HVAC Incentives Initiative (Exhibit B)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage the replacement of existing heating systems with high efficiency furnaces equipped with Electronically Commutated Motors (ECM), and to replace existing central air conditioners with ENERGY STAR qualified systems and products**.**

Description: This is an energy efficiency Initiative that provides rebates for the replacement of old heating or cooling systems with high efficiency furnaces (equipped with ECM) and Energy Star qualified central air conditioners by approved Heating, Refrigeration, and Air Conditioning Institute (HRAI) qualified contractors.

Targeted End Uses: Central air conditioners and furnaces

Delivery: OPA contracts centrally for delivery of the program. LDCs provide local marketing and encourage local contractors to participate in the Initiative.

Conservation Instant Coupon Initiative (Exhibit A)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage households to purchase energy efficient products by offering discounts.

Description: This Initiative provides customers with year round coupons. The coupons offer instant rebates towards the purchase of a variety of low cost, easy to install energy efficient measures and can be redeemed at participating retailers. Booklets were directly mailed to customers and were also available at point-of-purchase. Downloadable coupons were also available at www.saveoneenergy.ca.

Targeted End Uses: ENERGY STAR® qualified Standard Compact Fluorescent Lights ("CFLs"),ENERGY STAR® qualified Light Fixtures lighting control products, weather-stripping, hot water pipe wrap, electric water heater blanket, heavy duty plug-in Timers, Advanced power bars, clothesline, baseboard programmable thermostats.

Delivery: The OPA develops the electronic version of the coupons and posts them online for download. Three LDC specific coupons were made available for local marketing and utilization by LDCs. The OPA enters into agreements with retailers to honour the coupons.

Bi-Annual Retailer Event Initiative (Exhibit C)

Target Customer Type(s): Residential Customers

Initiative Frequency: Bi-annual events

Objective: The objective of this Initiative is to provide instant point of purchase discounts to individuals at participating retailers for a variety of energy efficient products.

Description: Twice a year (Spring and Fall), participating retailers host month-long rebate events. During the months of April and October, customers are encouraged to visit participating retailers where they can

find coupons redeemable for instant rebates towards a variety of low cost, easy to install energy efficient measures.

Targeted End Uses: As per the Conservation Instant Coupon Initiative

Delivery: The OPA enters into arrangements with participating retailers to promote the discounted products, and to post and honour related coupons. LDCs also refer retailers to the OPA and market this initiative locally.

Retailer Co-Op

Target Customer Type(s): Residential Customers

Initiative Frequency: Year Round

Objective: Hold promotional events to encourage customers to purchase energy efficiency measures (and go above-and-beyond the traditional Bi-Annual Coupon Events).

Description: The Retailer Co-op Initiative provides LDCs with the opportunity to work with retailers in their service area by holding special events at retail locations. These events are typically special promotions that encourage customers to purchase energy efficiency measures (and go above-and-beyond the traditional Bi-Annual Coupon Events).

Targeted End Uses: As per the Conservation Instant Coupon Initiative

Delivery: Retailers apply to the OPA for co-op funding to run special promotions that promote energy efficiency to customers in their stores. LDCs can refer retailers to the OPA. The OPA provides each LDC with a list of retailers who have qualified for Co-Op Funding as well as details of the proposed special events.

New Construction Program (Schedule B-2)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to provide incentives to participants for the purpose of promoting the construction of energy efficient residential homes in the Province of Ontario.

Description: This is an energy efficiency Initiative that provides incentives to homebuilders for constructing new homes that are efficient, smart, and integrated (applicable to new single family dwellings). Incentives are provided in two key categories as follows:

- Incentives for homebuilders who install electricity efficiency measures as determined by a prescriptive list or via a custom option.
- Incentives for homebuilders who meet or exceed aggressive efficiency standards using the EnerGuide performance rating system.

Targeted End Uses: All off switch, ECM motors, ENERGY STAR qualified central a/c, lighting control products, lighting fixtures, EnerGuide 83 whole home, EnerGuide 85 whole homes

Delivery: Local engagement of builders will be the responsibility of the LDC and will be supported by OPA air coverage driving builders to their LDC for additional information.

Residential Demand Response Program (Schedule B-3)

Target Customer Type(s): Residential and Small Commercial Customers

Initiative Frequency: Year round

Objective: The objectives of this Initiative are to enhance the reliability of the IESO-controlled grid by accessing and aggregating specified residential and small commercial end uses for the purpose of load reduction, increasing consumer awareness of the importance of reducing summer demand and providing consumers their current electricity consumption and associated costs.

Description*:* In ***peaksaverPLUS®*** participants are eligible to receive a free programmable thermostat or switch, including installation. Participants also receive access to price and real-time consumption information on an In Home Display (IHD).

Targeted End Uses: central air conditioning, electric hot water heaters and pool pumps

Delivery: LDC's recruit customers and procure technology

C&I Program

Efficiency: Equipment Replacement Incentive (ERII) (Schedule C-2)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to non-residential distribution customers to achieve reductions in electricity demand and consumption by upgrading to more energy efficient equipment for lighting, space cooling, ventilation and other measures.

Description: The Equipment Replacement Incentive Initiative (ERII) offers financial incentives to customers for the upgrade of existing equipment to energy efficient equipment. Upgrade projects can be classified into either: 1) prescriptive projects where prescribed measures replace associated required base case equipment; 2) engineered projects where energy and demand savings and incentives are calculated for associated measures; or 3) custom projects for other energy efficiency upgrades.

Targeted End Uses: lighting, space cooling, ventilation and other measures

Delivery: LDC delivered.

Direct Install Initiative (DIL) (Schedule C-3)

Target Customer Type(s): Small Commercial, Institutional, Agricultural facilities and multi-family buildings

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer a free installation of eligible lighting and water heating measures of up to $1,000 to eligible owners and tenants of small commercial, institutional and agricultural facilities and multi-family buildings, for the purpose of achieving electricity and peak demand savings.

Description: The Direct Installed Lighting Initiative targets customers in the General Service <50kW account category. This Initiative offers turnkey lighting and electric hot water heater measures with a value up to $1,000 at no cost to qualifying small businesses. In addition, standard prescriptive incentives are available for eligible equipment beyond the initial $1,000 limit.

Target End Uses: Lighting and electric water heating measures

Delivery: Participants can enroll directly with the LDC, or would be contacted by the LDC/LDC-designated representative.

Existing Building Commissioning Incentive Initiative (Schedule C-6)

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives for optimizing (but not replacing) existing chilled water systems for space cooling in non-residential facilities for the purpose of achieving implementation phase energy savings, implementation phase demand savings, or both.

Description: This Initiative offers Participants incentives for the following:

- scoping study phase
- investigation phase
- implementation phase
- hand off/completion phase

Targeted End Uses: Chilled water systems for space cooling

Delivery: LDC delivered.

New Construction and Major Renovation Initiative (HPNC) (Schedule C-4)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage builders/major renovators of commercial, institutional, and industrial buildings (including multi-family buildings and agricultural facilities) to reduce

electricity demand and/or consumption by designing and building new buildings with more energy-efficient equipment and systems for lighting, space cooling, ventilation and other Measures.

Description: The New Construction initiative provides incentives for new buildings to exceed existing codes and standards for energy efficiency. The initiative uses both a prescriptive and custom approach.

Targeted End Uses: New building construction, building modeling, lighting, space cooling, ventilation and other Measures

Delivery: LDC delivers to customers and design decision makers.

Energy Audit Initiative (Schedule C-1)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to owners and lessees of commercial, institutional, multi-family buildings and agricultural facilities for the purpose of undertaking assessments to identify all possible opportunities to reduce electricity demand and consumption within their buildings or premises.

Description: This Initiative provides participants incentives for the completion of energy audits of electricity consuming equipment located in the facility. Energy audits include development of energy baselines, use assessments and performance monitoring and reporting.

Targeted End Uses: Various

Delivery: LDC delivered.

Industrial Program

Process & Systems Upgrades Initiative (PSUI) (Schedule D-1)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objectives: The objectives of this Initiative are to:

- Offer distribution customers capital incentives and enabling initiatives to assist with the implementation of large projects and project portfolios;
- Implement system optimization project in systems which are intrinsically complex and capital intensive; and
- Increase the capability of distribution customers to implement energy management and system optimization projects.

Description: PSUI is an energy management Initiative that includes three Initiatives: (preliminary engineering study, detailed engineering study, and project incentive Initiative). The incentives are available to large distribution connected customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings. The capital incentive for this Initiative is the lowest of:

a) $200/MWh of annualized electricity savings

b) 70% of projects costs

c) A one year pay back

Targeted End Uses: Process and systems

Delivery: LDC delivered with Key Account Management support, in some cases.

Monitoring & Targeting Initiative (Schedule D-2)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative offers access to funding for the installation of Monitoring and Targeting systems in order to deliver a minimum savings target at the end of 24 months and sustained for the term of the M&T Agreement.

Description: This Initiative offers customers funding for the installation of a Monitoring and Targeting system to help them understand how their energy consumption might be reduced. A facility energy manager, who regularly oversees energy usage, will now be able to use historical energy consumption performance to analyze and set targets.

Targeted End Uses: Process and systems

Delivery: LDC delivered with Key Account Management support, in some cases.

Energy Manager Initiative (Schedule D-3)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this initiative is to provide customers and LDCs the opportunity to access funding for the engagement of energy managers in order to deliver a minimum annual savings target.

Description: This Initiative provides customers the opportunity to access funding to engage an on-site, full time embedded energy manager, or an off-site roving energy manager who is engaged by the LDC. The role of the energy manager is to take control of the facility's energy use by monitoring performance, leading awareness programs, and identifying opportunities for energy consumption improvement, and spearheading projects. Participants are funded 80% of the embedded energy manager's salary up to

$100,000 plus 80% of the energy manager's actual reasonable expenses incurred up to $8,000 per year. Each embedded energy manager has a target of 300kW/year. This target can be achieved from one or more facilities. LDCs receive funding of up to $120,000 for a Roving Energy Manager plus $8,000 for expenses.

Targeted End Uses: Process and systems

Delivery: LDC delivered with Key Account Management support, in some cases.

Key Account Manager (KAM) (Schedule D-4)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This initiative offers LDCs the opportunity to access funding for the employment of a KAM in order to support them in fulfilling their obligations related to the PSUI.

Description: This Initiative provides LDCs the opportunity to utilize a KAM to assist their customers. The KAM is considered to be a key element in assisting the consumer in overcoming traditional barriers related to energy management and help them achieve savings since the KAM can build relationships and become a significant resource of knowledge to the customer.

Targeted End Uses: Process and systems

Delivery: LDC delivered

Demand Response 3 (Schedule D-6)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative provides for Demand Response ("DR") payments to contracted participants to compensate them for reducing their electricity consumption by a pre-defined amount during a DR event.

Description: Demand Response 3 ("DR3") is a demand response Initiative for commercial and industrial customers, of 50 kW or greater to reduce the amount of power being used during certain periods of the year. The DR3 Initiative is a contractual resource that is an economic alternative to procurement of new generation capacity. DR3 comes with specific contractual obligations requiring participants to reduce their use of electricity relative to a baseline when called upon. This Initiative makes payments for participants to be on standby and payments for the actual electricity reduction provided during a demand response event. 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 contract.

Targeted End Uses: Commercial and Industrial Operations

Delivery: DR3 is delivered by Demand Response Providers ("DRPs"), under contract to the OPA. The OPA administers contracts with all DRPs and Direct Participants (who provide in excess of 5 MW of demand

response capacity). OPA provides administration including settlement, measurement and verification, and dispatch. LDCs are responsible for local customer outreach and marketing efforts.

It is noted that while the Schedule for this Initiative was not posted until May 2011, the Aggregators reported that they were able to enroll customers as of January 2011.

Low Income Initiative (Home Assistance Program) (SCHEDULE E)

Target Customer Type(s): Income Qualified Residential Customers

Initiative Frequency: Year Round

Objective: The objective of this Initiative is to offer free installation of energy efficiency measures to income qualified households for the purpose of achieving electricity and peak demand savings.

Description: This is a turnkey Initiative for income qualified customers. It offers residents the opportunity to take advantage of free installation of energy efficient measures that improve the comfort of their home, increase efficiency, and help them save money. All eligible customers receive a Basic and Extended Measures Audit, while customers with electric heat also receive a Weatherization Audit. The Initiative is designed to coordinate efforts with gas utilities.

Targeted End Uses: End use measures based on results of audit (i.e. compact fluorescent light bulbs)

Delivery: LDC delivered.

Appendix B: Pre-2011 Programs

Electricity Retrofit Incentive Program

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year Round

Objective: The objective of this Initiative is to offer incentives to non-residential distribution customers to achieve reductions in electricity demand and consumption by upgrading to more energy efficient equipment for lighting, space cooling, ventilation and other measures.

Description: The Equipment Replacement Incentive Program (ERIP) offered financial incentives to customers for the upgrade of existing equipment to energy efficient equipment. This program was available in 2010 and allowed customers up to 11 months following Pre-Approval to complete their projects. As a result, a number of projects Pre-Approved in 2010 were not completed and in-service until 2011. The electricity savings associated with these projects are attributed to 2011.

Targeted End Uses: Electricity savings measures

Delivery: LDC Delivered

High Performance New Construction

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: The High Performance New Construction Initiative provided incentives for new buildings to exceed existing codes and standards for energy efficiency. The Initiative uses both a prescriptive and custom approach and was delivered by Enbridge Gas under contract with the OPA (and subcontracted to Union Gas), which ran until December 2010.

Description: The objective of this Initiative is to encourage builders of commercial, institutional, and industrial buildings (including multi-family buildings and agricultural facilities) to reduce electricity demand and/or consumption by designing and building new buildings with more energy-efficient equipment and systems for lighting, space cooling, ventilation and other Measures.

Targeted End Uses: New Building construction, building modeling, lighting, space cooling, ventilation and other measures

Delivery: Through Enbridge Gas (and subcontracted to Union Gas)

Multifamily Energy Efficiency Rebates

Target Customer Type(s): Residential Multi-unit buildings

Initiative Frequency: Year round

Objective: Improve energy efficiency of Multi-unit building

Description: OPA's Multifamily Energy Efficiency Rebates (MEER) Initiative applies to multifamily buildings of six units or more, including rental buildings, condominiums, and assisted social housing. The OPA contracted with GreenSaver to deliver the MEER Initiative outside of the Toronto Hydro service territory. Activities delivered in Toronto were contracted with the City.

Similar to ERII and ERIP, MEER provides financial incentives for prescriptive and custom measures, but also funds resident education. Unlike ERII, where incentives are paid by the LDC, all incentives through MEER are paid through the contracted partner (i.e. GreenSaver).

Targeted End Uses: Electricity saving measures

Delivery: OPA contracted with GreenSaver

Appendix C: Greater Sudbury Hydro Inc.'s Program Evaluation Report

NAVIGANT

Evaluation Report

Conservation & Demand Management Programs (EB2008-0147)

Presented to

Greater Sudbury Hydro Inc
Hydro du Grand Sudbury Inc
A GSU company

empowering communities
le pouvoir aux communautés

September 30, 2013

Presented by:
Williams, Director
Navigant
333 Bay Street, Suite 1250
Toronto ON M5H 2R4
twilliams@navigantconsulting.com

Phone 312.583.5700
Fax 312.583.5701

www.navigantconsulting.com

Submitted to:

Paula Tarini
Supervisor, CDM
Greater Sudbury Hydro Inc.
250 Regent Street
Sudbury, ON P3E 4P1

Submitted by:

Contact:

Todd Williams
Managing Director
647-288-5204
TWilliams@navigant.com

Prepared by:

Glen J. Wood, Associate Director
647-288-5210
Glen.Wood@Navigant.com

Jodi Amy, Senior Consultant
416-956-5011
jodi.amy@navigant.com

Table of Contents

1.1 List of Figures

1.2 List of Tables

Executive Summary

E.1 Program Summary

Greater Sudbury Hydro Incorporated (GSHI) obtained approval from the Ontario Energy Board to operate the six conservation and demand management (CDM) programs.

- Community Awareness Program
- Electric Thermal Storage Program
- Commercial Parking Lot Plug Controller Program
- Vending Machine and Self Service Coolers Efficiency Program
- LED Traffic Light Conversion Program
- West Nipissing Street Light Conversion Program

These rate-payer funded programs were operated by GSHI in addition to a number of OPA-funded initiatives. All of these initiative and supporting community outreach and communication programs operated under GSHI's "Waste Not - Watt Not" umbrella program.

E.2 Key Impact Findings

A number of GSHI's programs were aimed at loads which operate in the winter months. Given the timing of the evaluation this meant that some of these measures could not be verified through actual measurements. In addition, limitations on available data and time limited the ability to obtain the targeted level of participant feedback for some of the programs. Despite these issues, Navigant is confident that the net energy and demand savings estimates developed for these programs are reasonable.

The estimated net energy and demand savings developed for each of the initiatives is shown in Table E1. Note that the table shows the demand impacts for both the summer and winter peak period as a number of GSHI's programs resulted in significant winter peak reductions but no summer peak demand reduction.

The estimated net energy and demand savings are shown in table E1 below. The energy savings shown are those which occurred in the program year; not cumulative savings over the program.

Table E1: Net Incremental Energy and Demand Savings

Program	Metric	Program Year				
		2009	2010	2011	2012	2013
Electric Thermal Storage	Demand savings - Winter Peak only (kW)	133	116	210	493	1,405
	Est. kWh Savings	n/a	n/a	n/a	n/a	n/a
Parking Lot Conversion (diesel)	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	21,046	110,970	3,455	89,475	12,306
Parking Lot Conversion (gas)	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	74,323	314,035	133,162	270,296	3,900
Street Lighting	Demand savings - Winter Peak only (kW)	n/a	n/a	1	101	25
	Est. kWh Savings	n/a	n/a	29,407	459,404	108,226
Traffic Light Conversion	Demand savings - Summer & Winter Peak (kW)	43	40	10	22	n/a
	Est. kWh Savings	274,448	168,389	45,404	144,557	n/a
CoolerMiser	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	2,211	3,980	14,595	28,305	15,037
VendorMiser	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	13,814	13,123	93,934	63,543	5,526
Demand Savings - Summer (kW)		**43**	**40**	**10**	**22**	**0**
Demand Savings -Winter Peak (kW)		**176**	**156**	**222**	**616**	**1,431**
Total Est. kWh Savings		**385,842**	**610,497**	**319,957**	**1,055,580**	**144,995**

The savings for 2013 shown in the table above are for installations to September 25th. GSHI expects additional savings for the 2013 program year as it still has a remaining inventory of controllers for the "Parking Lot Plug Controller" and "Vending Machine and Self Service Coolers" programs. GSHI will continue to install these devices in 2013 until the remaining inventory has been used.

E.3 Key Process Findings

Based on surveys completed with participants, the customer-facing side of the programs appears to be performing well. The participants surveyed were very pleased with the programs

offered by GSHI. Over 80 percent of the participants surveyed across the programs reported an overall satisfaction rating of over 8 on a 0 to 10 scale (10 being very satisfied) when asked about their overall program satisfaction and over 70 percent reported a satisfaction rating of over 8 on a 0 to 10 scale (10 being very satisfied) when asked about their satisfaction with GSHI as a company. Participants were happy with the administrative processes and the incentive amounts provided and were particularly happy with the one-on-one support from GSHI staff. Many participants reported participating in both GSHI and OPA programs and responded favourably about their experiences with GSHI programs. Any negative feedback was focused on enhancing communication about the programs and ensuring consistent follow-up.

Consistency and clarity in the format and information collected for all programs would improve the ability to track savings and participants across programs. There were some inconsistencies in the tracking databases and missing information.

1. Introduction and Purpose of Study

1.1 Program Overview

Greater Sudbury Hydro Incorporated (GSHI) obtained approval from the Ontario Energy Board to operate the six conservation and demand management (CDM) programs described below[1]. These rate-payer funded programs were operated by GSHI in addition to a number of OPA-funded initiatives. All of these initiative and supporting community outreach and communication programs operated under GSHI's "Waste Not - Watt Not" umbrella program.

Table 1: Overview of Programs

Program	Brief Description
Community Awareness Program	The Community Awareness Program included working with local schools to develop action plans for promoting energy conservation, providing energy information and "Kill-A-Watt" monitors to consumers, attending public events and a pilot Smart Meter education program.
Electric Thermal Storage Program	Customers were provided with an incentive to offset part of the cost of installing an Electric Thermal Storage system; which stores heat during periods when electricity costs are low and use it to heat the home during periods when electricity costs are higher.
Commercial Parking Lot Plug Controller Program	This program promoted and provided incentives to fully offset the cost of intelligent devices to control the amount of electricity used by electrical outlets servicing block heaters. The program provides an incentive of up to $175 per device. Participants may purchase the controllers directly from Greater Sudbury Hydro.
Vending Machine and Self Service Coolers Efficiency Program	Under this program incentives were provided to offset the costs of devices to automatically power off vending machines when not in use while maintaining product temperature. Participants are provided a $175 financial incentive per device and may purchase the devices directly from Greater Sudbury Hydro.
LED Traffic Light Conversion Program	Incentives were provided to Municipalities within GSHI's service territory to offset the cost of installing LED traffic signals to replace less efficiency incandescent systems.
West Nipissing Street Light Conversion Program	Originally designed to provide assistance to the Municipality of West Nipissing, the focus of this program was shifted to the Municipality of Greater Sudbury. Under the program the Municipality was provided with incentives to help offset the cost of installing LED streetlighting to replace less efficient existing systems.

[1] See OEB Decision EB-2008-0147

1.2 Evaluation Objectives

The objectives of the evaluation were two-fold:

1) To review the processes used in the programs in order to assess their effectiveness and identify areas for further improvement, and,
2) To provide an independent evaluation of energy and demand savings achieved as a result of the programs, taking into account the effects of free-ridership and any spill-over or rebound effects.

1.3 Evaluation Methods

A variety of methods were used to collect information regarding the programs, including interviews with program staff, collection and review of program tracking and participant consumption data, surveys of program participants, research on equipment used in the programs and experience with such measures in other jurisdictions, engineering review of savings estimates and metering of a sample of measures installed under the programs. A full description of the methods used is presented in section 2 (Methodology).

1.4 Organization of Report

This report is organized into four main sections. The Executive Summary, which precedes this section, is followed by an Introduction to the report which also outlines the purpose of the study. The second section of the report describes the methodology used to complete the evaluation, while the third section presents the findings of the evaluation. The final section summarizes the conclusions and recommendations arising from the evaluation. Appendices to the report are included to provide a copy of the survey instrument used and some illustrative marketing materials used in the programs.

2. Methodology

2.1 Overview of Approach

The following sub-tasks were carried out as part of the process evaluation:

- Review of program materials, including marketing materials, applications, guidelines, and other support materials.
- Discussions with GSHI staff to review program design and program logic. Specific program logic models (PLMs) had not been developed as part of the initial program design but many of the elements that would be represented in a PLD were considered as part of the designs.
- Conducting an assessment of marketing strategies and activities for each program relative to the program logic and their impact on program participation and effectiveness.
- Review incentive levels relative to overall program costs and any incremental costs of improvements implemented under the program.
- Review the effectiveness of incentive levels in motivating participation and driving incremental improvements.

2.2 Interviews with Program Staff

Navigant staff met with all of the staff involved in implementing the program following the project "kick off" meeting. Following the interviews, Navigant also obtained program documentation, application forms, tracking data, and information on marketing and outreach activities. As part of these discussions GSHI staff outlined the considerations and experience that had informed the program designs and how the programs had been adjusted based on actual program experience.

2.3 Tracking Data Review

Tracking databases for each program were provided by GSHI. Navigant reviewed the databases for consistency and completeness. Information from the databases was used to estimate initial estimates of program saving and to develop samples for both the process and impact reviews and data collected as part of that process was used to verify tracking data.

2.4 Review of Marketing and Communications Activities

GSHI provided samples of communication materials associated with each initiative for Navigant's review.

2.5 *Review of Participation*

As Table 2 illustrates the number of program participants for each initiative is relatively small and under some programs GSHI was successful in achieving a significant number of installations through individual participants. As a result, some individual participants were responsible for a significant share of total measure installations. GSHI also utilized some trade allies in promoting the programs to their customers.

Table 2: Summary of Program Participation

Program Name	No. of Devices			No. of Participants	
	Original Estimate[6]	Actual Installed		Total	Unique
1) Community Awareness Program	n.a.	n.a.		n.a.	n.a.
2) Electric Thermal Storage Program[1]	300	617		108	65
3) Commercial Parking Lot Plug Controller Program[2]	2,750	*G*	1,404	47	33
		D	383	13	10
		T	1,787	60	43
4) Vending Machine and Self Service Coolers Efficiency Program[3,4]	1,050	*C*	145	70	58
		V	275	40	24
		T	420	110	82
5) LED Traffic Light Conversion Program	832	1,458		1	1
6) West Nipissing Street Light Conversion Program[5]	250	1,454		1	1

Notes:

1. *30% of ETS systems installed in buildings of two organizations (all at one location for one organization and at different locations for other).*
2. *Different types of controllers were installed for gasoline (G) and diesel (D) vehicles. Row T shows total numbers for program. 68% of diesel controllers to two organizations. One organization purchased 24% of diesel units and a second purchased 13%.*
3. *Different devices are used for self-service coolers (C) and vending machines (V). Row T shows program totals.*
4. *90% of "Vending Misers" were installed through 4 organizations; at a variety of locations. Fewer "CoolerMisers" participants installed a large number of units.*
5. *Program design changed to include City of Greater Sudbury.*
6. *Expected number of devices taken from "Custom Programs – Conservation and Demand Management Plan for the Period 2008 to 2010", filed with the OEB in June 2008.*

The GSHI CDM plan indicated that GSHI would seek insights on the effectiveness of the incentives offered and on overall program awareness. To obtain this data and develop defensible information on free-ridership rates Navigant surveyed participants. The survey was designed to elicit insights regarding the program and used an established and well tested battery of net-to-gross questions to determine free-ridership and potential spill-over.

The survey process attempted to reach the key participants and weight their responses according to their proportionate impact on the program. Navigant worked with GSHI to identify participants from program tracking and obtain contact information. A survey form was developed with appropriate customization for each program and used to obtain feedback from both participants. These forms were reviewed with GSHI prior to implementation.

2.6 Data Collection

The approach to data collection differed for each of the initiatives:

1) Electric Thermal Storage

GSHI provided files of hourly customer billing data for 39 accounts where ETS units had been installed. The files include data from the point at which TOU metering was installed or activated up to the most recent month.

- 16 files include at least 1 year of data prior to ETS installation and 36 include at least 6 months of data prior to ETS installation.
- 37 files include at least 1 year of post installation data and all 39 include at least 6 months of post installation TOU data.

GSHI was not able to identify comparable electric heat customers in its Customer Information System (CIS) but provided Navigant with a large sample of customers with high energy use. Navigant reviewed 1,000 residential accounts and compared the level of winter month energy use with that for individual program participants. Accounts with comparable energy use were selected for each ETS program participant using a least squared comparison of energy consumption.

Navigant reviewed the hourly consumption data for ETS program participants with up to 20 comparable customers for each program participant with the objective of determining the level of load shifting and any impact on demand and energy.

2) Commercial Parking Lot Plug Controller Program

The "Intelligent Parking Lot Plug Controllers" (IPLC) installed under this program reduce the operating hours for block heaters based on actual temperature conditions. Given that the savings provided by these devices only occur in the winter months, it was not possible for Navigant to monitor or meter their operation during the time available for the evaluation.

GSHI provided metering and consumption data for:

- One account which installed IPLC has a separate service for parking lot plugs and sentinel lights.

- Four accounts which have IPLC installed where the meter serves common services in the building as well as the parking lot.
- Three accounts which do not have IPLC installed (comparable accounts) where the building is roughly the same size as the buildings with IPLC's installed.

In addition, GSHI provided engineering calculations estimating the savings from installing IPLC's based on historic weather data downloaded from Environment Canada for the period 2009 to 2013.

Navigant reviewed the engineering calculations, billing data provided by GSHI as well as data available from secondary sources in order to develop an estimate of the gross energy and demand impacts from the IPLC installations.

3) Vending Machine and Self Service Coolers Efficiency Program

This program provided two different types of controllers that reduce energy use from vending machines (VendingMiser) and self-service coolers (CoolerMiser). The tracking database listed 420 devices purchased or distributed through 82 unique companies. GSHI provided information on pre and post installation monitoring of four CoolerMiser and two VendingMiser installations.

Navigant arranged to install metering on a sample of devices (as described in Table 3).This sample was designed to provide results with higher confidence than proposed in the original EM&V plan approved by the OEB. The metering results were also compared with publicly available case studies and information from Technical Reference Manuals (TRMs) for comparable controllers.

Meters[2] were installed at participating customer locations to record actual energy use (kWh) with and without the controllers. The devices were first installed for a two week period without the controller, providing data on the base level of consumption for each installation. The equipment was then metered for a further two week period with the controller installed, providing data on the level of energy use with the controller in place.

4) LED Traffic Light Conversion Program

GSHI provided Navigant with tracking information on the number of lighting conversions by type of fixture and lamp. Navigant completed a desktop review of the information provided by GSHI and compared the information to publicly available measure data from other sources in order to develop an estimate of gross energy and demand savings.

[2] Eagle 120 power meters from Power Monitors Incorporated (PMI) wer used to record electricity use for each 2 minute interval during the installation period.

5) West Nipissing Street Light Conversion Program

This program was initially intended to replace metal halide streetlights in West Nipissing with more efficient LED lighting. When West Nipissing was unable to participate, GSHI approached the City of Greater Sudbury, which agreed to replace HPS street lighting within Greater Sudbury with LED lighting instead. The City approved replacement of up to 1,313 HPS lights under the program. As a result of the program, the City also moved from a system of spot replacement to group lamp replacement; providing additional maintenance cost savings.

GSHI provided Navigant with information on the street lighting conversions completed as part of the program. This data provides information on the type and wattage of the removed and replacement lamps. The tracking data provides information on the wattage of the replacement lamps installed. In some instances the same LED lamp wattage was used to replace different existing lamp types and wattages[3]. Navigant reviewed this information to develop an estimate of the gross energy and demand impacts associated with the program.

2.6.1 Sampling Plan

Table 3 shows the original estimate of participation and the actual number of measures installed under each program. Given that the number of unique participants was significantly smaller than the number of devices installed, the sample size for the process and impact review differed. In each case the sample size was selected with the goal of providing an 80% confidence interval (+/- 20%) assuming a coefficient of variation of 0.5.

Table 3: Sample Size

Program Name	No. of Devices			No. of Participants		Sample Size Required *(For 80/20 Confidence Interval)*	
	Original Estimate[1]	Actual Installed		Total	Unique	Impact	Process
1) Community Awareness Program	n.a.	n.a.		n.a.	n.a.	n.a.	n.a.
2) Electric Thermal Storage Program	300	617		108	65	10	11
3) Commercial Parking Lot Plug Controller Program[2]	2,750	*G*	1,404	47	33	6	15
		D	383	13	10	5	
		T	1,787	60	43	11	

[3] For example, 72 watt LED lamps were used to replace both 55 watt LPS and 100 watt HPS. A review of the tracking data provided by the City indicated only two instances in which a 72 watt LED was used to replace a 55 watt HPS.

Program Name	No. of Devices			No. of Participants		Sample Size Required *(For 80/20 Confidence Interval)*	
	Original Estimate[1]	Actual Installed		Total	Unique	Impact	Process
4) Vending Machine and Self Service Coolers Efficiency Program[3,4]	1,050	*C*	145	64	58	6	14
		V	275	37	24	5	
		T	420	102	82	11	
5) LED Traffic Light Conversion Program	832		1,458	1	1	11	1
6) West Nipissing Street Light Conversion Program[5]	250		1,454	1	1	11	1

Notes:

- *Expected number of devices taken from "Custom Programs – Conservation and Demand Management Plan for the Period 2008 to 2010", filed with the OEB in June 2008.*
- *Different controllers installed for gasoline (G) and diesel (D) vehicles. Row T shows total numbers for program. 68% of diesel controllers to two organizations. One organization purchased 24% of diesel units and a second purchased 13%.*
- *Different devices are used for self-service coolers (C) and vending machines (V). Row T shows program totals. Numbers shown for impact provided 80/20 C.I. for program as a whole.*
- *90% of "Vending Misers" were installed through 4 organizations; at a variety of locations. Fewer "CoolerMisers" participants installed a large number of units.*
- *Program design changed to include City of Greater Sudbury.*

2.7 Methods Used to Analyze Impact Data

The impact evaluation involved the following steps based on information collected during the tasks discussed above to:

- Estimate gross energy and demand savings and realization rates.
- Estimate free ridership rates and net energy and demand savings (Net-to-Gross Ratio).

An initial estimate of claimed (ex-ante) savings for each program was estimated based on data from program-specific tracking databases provided by GSHI. A variety of methods were used to review these claimed savings and determine the level of gross (ex-post) savings for each initiative.

A net-to-gross (NTG) ratio was determined and applied to gross verified savings for each program. There are three methods to determine NTG (self-report, econometric, and market share). For GSHI's programs Navigant selected the enhanced self-report approach as the most

appropriate. This method is simpler and less expensive than other approaches, can use all data points, can be used in a variety of situations and directly addresses the behaviours the program is seeking to affect. It is flexible enough to take into account the complexities of program-participant interaction.

In estimating the net-to-gross ratio and net savings Navigant attempted to include both the impacts occurring without the assistance of the program (free riders) and impacts occurring as a result of the program but not captured in the program participation databases (spillover). Rebound[4] or "take-back" was also considered as part of the assessment of net savings.

[4] Sometimes when participants in a program install a more efficient measure, such as more efficient lighting, they actually operate the new, more efficient technology for more hours per day, thus "taking back" part of the savings that would have otherwise been realized.

3. Detailed Evaluation Findings

3.1 Program Activity

In some cases an individual participant installed a number of the devices. For example over 30 percent of the devices installed under the IPLC program were installed by just three participants and one participant in the vending/cooling miser program installed over 40 percent of the devices. Sampling of the participants was adjusted accordingly to ensure that both participants and devices were well represented.

Table 4 below presents the participation for each program.

Table 4: Program Participation

Participation Levels	Electric Thermal Storage Program	Vending Machine and Self Service Coolers Efficiency Program	Commercial Parking Lot Plug Controller Program	West Nipissing Street Light Conversion Program	LED Traffic Light Conversion Program
# of Participants	108	102	60	1	1
# of Units	617	420	1,787	1,454	1,458

3.2 Process Review

3.2.1 Program Design

The programs were designed to address energy management opportunities that were felt to be significant to GSHI's system demands and customers. Overall, Navigant's assessment is that the programs were generally well designed based on a good understanding of the potential participants and the measures and decision making processes involved.

3.2.2 Program Tracking Data Review

Tracking databases, maintained by GSHI as Excel spreadsheets were provided to Navigant. Separate tracking spreadsheets were maintained for each program. For the programs which involved the provision of equipment (vending machine and parking lot controllers), the same worksheet was used to track the inventory of equipment.

Overall the tracking databases were well organized and generally consistent between programs. The tracking data effectively tracked the participating customers, number of devices provided to participants and the status of installations. The comments which follow highlight areas where further improvements could be made to improve the effectiveness of the tracking spreadsheets and make support future evaluations.

Several general issues were found in reviewing the tracking spreadsheets. Some of these issues relate to simple input errors while others related to the type and completeness of the data collected.

- Some input errors identified appear to have involved data being incorrectly transcribed from a written source (i.e. such as a 7 in a phone number being entered when the correct number was a 2).
- Navigant also identified some duplicate entries and incorrect contacts when participants were contacted. These errors and/or lack of detail created unnecessary confusion and required confirmation with participants.
- A number of fields were found to be blank. In some instances it appears that if a customer participated at more than one location the information was entered on one line but only partially entered on the second line. As a result it was not immediately clear if the information listed on first line related to the second or if the information was simply missing for the second location.
- In many instances, the information listed only the participant's first or last name, making identification of the individual difficult[5]. Phone numbers were not provided for all participants. Best practice is to obtain and record the participant's full name and where possible the person's position or job title.
- The ranges used in some formulas in the spreadsheets did not cover the entire data range, resulting in some of the calculated values being understated (i.e. in the "ETS Incentives 2011", the "connected load" and "Total ETS Heaters" values shown were understated because they did not include all of the installations for the year).

Some issues were also identified for specific program tracking databases:

a) Electric Thermal Storage Program

- Separate tracking spreadsheets were maintained for each program year. In the 2011 and 2012 worksheets the "Total kW" column is calculated based on a formula referencing ETS size by model number. In some locations where multiple units had been installed the field was entered as a hard coded number, overriding the formula. In other cases the formula returned a "FALSE" result; resulting in the "Total Connected kW" field being understated by the amount of kW installed at the sites with multiple units. To make the spreadsheet more transparent and reduce the risk of errors, it is suggested that a separate column be added and the logic revised to use the hard coded value in specific identifiable instances.

- For most installations the applicant was an individual and the individual participant's name is recorded in the worksheet. Where the applicant was an organization, only the organization's name was recorded. It is recommended

[5] For example, when one participating company was contacted, they indicated that there were several people at the firm with the surname listed in the tracking data.

that fields be added to allow entry of a contact person and position to the spreadsheet.

b) Commercial Parking Lot Plug Controller Program

- Separate spreadsheets were maintained for "Diesel" and "Gas" controllers, but the content of the worksheets was consistent.
- Labour costs were only shown for 3 of 13 applicants. It was not clear if this reflected instances where the participating firm used their own electrician to complete the installation or if the information on labour costs was simply missing. It is recommended that a specific indication be added to the tracking database.
- The fields for "estimated kWh" and kW in the spreadsheet were left blank.

c) Vending Machine and Self Service Coolers Efficiency Program

- Separate spreadsheets were maintained for "Vending" and "Cooler" controllers, but the spreadsheets were not completely consistent. The "Incentives Paid" folder of the Vending Miser spreadsheet includes separate columns to track units "purchased" and "returns". The "Cooler" spreadsheet lacked this explicit tracking of returned devices, which were recorded as comments in the spreadsheet. In both cases the information was complete, but the method used in the Vending Miser spreadsheet is preferable.
- CoolerMiser (Sales Summary)
  - Limited contact information was included in the tracking spreadsheet. For example, no phone numbers were recorded for participants.
  - The spreadsheet was used to track units provided to a trade ally who assisted in promoting the program. It is recommended that any intermediate transfer of this type be tracked explicitly to avoid any confusion as to the status of the units.
  - The spreadsheet shows the number of units purchased and the number installed. The number of units returned is not explicitly tracked as in the VendingMiser spreadsheet but is instead recorded in notes and comments.
  - A circular error was found in the spreadsheet. Though the circular error was not critical in this instance, any such error should be identified and corrected immediately.

- VendingMiser (Sales Summary)
    - No field was included to record participant phone numbers. One participant's phone number was recorded in the same field as the contact name. It is recommended that contact information for each participant be included in the tracking database.
    - A note in the spreadsheet indicates that a special incentive of $15 per unit was paid to one participating vending company.

d) LED Traffic Light Conversion Program

- The incentive tracking data for this program is based on invoices provided by installing contractors and the Municipality. The estimated change in power consumption was provided in a separate tracking spreadsheet used for estimating the billing consumption for flat rate accounts. That summary indicated 885 LED devices had been installed in the period from 2008 to February 2012 with a resulting incentive of $41,535.

e) West Nipissing Street Light Conversion

- The tracking data is based on invoices provided by installing contractors. GSHI provided the installing contractors with mapping of the lighting to be replaced and verified the installations against that data. The tracking database listed the removed lamp and the replacement lamp wattage and type for each location in accordance with the working copy of the map provided.
- Ballast data was only provided on one of the six invoices provided in the tracking data sheet and in one sheet the LED replacement wattage was entered in the column for ballast data.

3.2.3 Communications and Outreach

GSHI branded its over-arching efficiency program as "Waste Not Watt Not". A variety of communications were used to promote awareness of GSHI's programs, including advertising in local publications and television, creation of content on the GSHI web page, attendance at community events, and sales calls to larger customers. Business customers served by GSHI were sent information through a direct mail campaign in September 2009 promoting the availability of both OEB-funded. As the programs progressed, GSHI staff indicated that more businesses and other customers reported becoming aware of the programs through "word-of-mouth" communication. The overall marketing message in these communications focused on potential monetary savings, the availability of cash incentives and the environmental benefits associated with energy savings available from participation. Some examples of communications materials are provided in Appendix B.

Information regarding GSHI's initiatives and program application forms were made available through its web page. The "Green Room" section of the web page also provides energy savings tips specific to different sectors. For example, tips are provided for residential customers, convenience and grocery stores, Laundromats and Restaurants. Tracking of the number of web hits regarding each program show an increase in interest over time; as shown in Table 5.

Table 5: Web Hits by Program

Program	2010	2011
Electric Thermal Storage Program	2,199	3,418
Commercial Parking Lot Plug Controller Program	1,029	1,325
Vending Machine and Self Service Coolers Efficiency Program	782	1,409

As part of the Community Outreach program, GSHI also made "Kill a Watt" monitors available to its customers on loan. The "Kill a Watt" meters allow customers to meter equipment in order to better understand how their equipment is consuming power and how operational or other changes affect electricity use.

3.2.4 Motivations for Behaviour and Market Feedback

Most participants surveyed indicated that they were motivated to participate in the program in order to reduce their utility bills. Many were small businesses and noted that anything to improve their bottom line was welcome. Almost 20 percent of the businesses surveyed for the IPLC and Miser programs noted that they actively seek incentive or rebate programs for energy efficiency improvements while approximately 10 percent simply upgrade to more energy efficient measures when equipment needs to be replaced.

Over 80 percent of the participants surveyed across all programs reported a satisfaction rating of over 8 on a 0 to 10 scale (10 being very satisfied) and found the program simple and were very satisfied with the rebate provided by GSHI.

Table 6 shows the primary motivation for participation reported by surveyed participants (Question PA2 in the survey) address why participants were initially interested in participating. Later questions explore the key factors in their decisions to actually install the measures offered under the program.

Table 6: Motivations for Participation

Primary Motivation to Participate	Electric Thermal Storage Program	Vending Machine and Self Service Coolers Efficiency Program	Commercial Parking Lot Plug Controller Program
Program Incentive	0%	0%	0%
GSHI Account Representative	0%	0%	0%
Recommended by Contractor	25%	0%	10%
High utility bills/Wanted to save money	50%	63%	80%
Save energy to protect the environment	0%	38%	10%
Other	25%	0%	0%

Feedback from participants was largely positive with a few exceptions. 85 percent of survey respondents commented on the incentive level and approximately 30 percent of the IPLC and Miser participants surveyed indicated that participation in the program was a "no brainer". Three participants with multiple businesses in multiple LDC territories expressed frustration that the program was not available for other locations of their businesses (i.e. in Hydro One territory). Eight participants surveyed also received incentives through OPA programs for lighting projects at their business and found the administrative processes easier with the GSHI program.

The sections below outline program-specific feedback provided by participants sampled and other observations resulting from surveys.

a) Electric Thermal Storage Program

Over half of the participants cited cost savings as their primary motivation for their initial interest in participating in the program. Others were influenced by recommendations made by contractors or friends and family and were already searching for ways to reduce their utility bills. Many had not heard about ETS technology and were leaning towards converting to natural gas prior to hearing about the ETS program. A couple of participants that were social housing administrators had different perspectives on the program, but were still primarily motivated by cost savings.

Almost all participants specifically noted the improvement in the comfort level of their homes; indicating that previous to the installation of the ETS their only option to reduce their electricity

bills during the winter was to turn down the heat. Participants mentioned the demonstration at Greater Sudbury Hydro as a good way for them to understand what they were purchasing.

b) Commercial Parking Lot Plug Controller Program

As the table below shows, the majority of diesel units were installed by business customers, while the majority of gas controllers were installed at multi-residential sites. Participants in this program were generally more sophisticated in their understanding of their energy use and were proactive in pursuing energy efficiency. Some participants indicated that they have requirements and designated budgets to make energy efficiency improvements. Due to this requirement, many of these sampled companies were actively looking for incentive programs to save electricity and had participated in other rebate programs in Ontario, specifically lighting programs. Many of the sampled participants noted that it was difficult to have non-rebated projects approved by their head office and noted specific payback requirements. 40 percent of survey respondents indicated that their head office paid the electricity bills, limiting the feedback that participants could provide.

Table 7: Participation in IPLC Program

	% of Participants	% of Units
Diesel		
Construction/Transportation	85%	98.4%
Multi-Residential	8%	0.3%
Other or Unknown	7%	1.3%
Gas		
Construction/Transportation	16%	7.2%
Multi-Residential	68%	88.8%
Other or Unknown	16%	4.0%

Half of the participants surveyed indicated that electricity makes up such a small percentage of their total expenses and that they have not been able to discern savings associated with the IPLC's. Participants stated that their primary motivation for participating was cost savings and noted that anything to improve their bottom line was welcome.

One participant commented that the enclosure for the controller provided by the utility didn't comply with size requirements in the Ontario Electrical Code and that another enclosure had to be purchased and installed. These comments were more focused on reducing waste and inefficiency than dissatisfaction and the respondent noted that it is difficult to find products that comply with some Ontario only electrical code.

c) Vending Machine and Self Service Coolers Efficiency Program

Participants were very happy with this program, but found it difficult to assess whether it had resulted in an actual reduction on their utility bills. Participants in this program were generally

less sophisticated about how they could reduce electricity use and appreciated the ease of participation in this program. The types of businesses in this program are typically smaller with few employees and awareness of energy efficiency was generally quite low. However, almost 40 percent of participants claimed that the environmental benefits of saving energy motivated their participation.

During the initial implementation of the program GSHI attempted to work with firms involved in the provision of vending equipment. In most instances these firms retain ownership of the vending machines located in businesses and institutions served by GSHI. GSHI reports that this approach identified some conflicts between the interests of the firms which owned the machines and the business owners who paid for electricity in the businesses where the machines were located. In some instances the controllers identified problems with equipment operation which resulted in higher operating costs for the building owner/utility customer. From the machine owners perspective this resulted in some additional service calls and requests to change equipment. While one vending machine operator became very actively involved in the program and was responsible for over 40 percent of total installations, GSHI broadened their marketing approach to also approach customers with appropriate equipment directly.

d) & e) LED Traffic and Street Light Conversion Program

Both of these initiatives were undertaken by the City of Greater Sudbury. The City of Greater Sudbury staff member involved in the initial decision making for this project had a very good understanding of energy efficient technologies and potential applications in the city. Initial motivations for participating were based on the LED technology itself (i.e. much better technology in terms of maintenance and durability, good payback, etc.). However, the staff person indicated that it is difficult for a municipality to undertake these types of high capital cost projects and that upgrades are often not done unless there is a significant financial motivation. The respondent also indicated that the lead time for such projects is fairly long given the need for consideration and approval by City Council; which often has many competing budget priorities.

3.2.5 Customer Enrollment Process

Most participants reported hearing about the programs on television, or from a contractor (i.e. electrician) or from a GSHI representative.

Participants were asked what their primary source of information regarding the program was. Table 8 summarizes the results for each program. Information was not obtained for the two projects in which the local municipality participated.

Table 8: Participant Information Source

Primary Source of Program Information	Electric Thermal Storage Program	Vending Machine and Self Service Coolers Efficiency Program	Commercial Parking Lot Plug Controller Program
GSHI mailing/flyer	0%	0%	0%
Newsletter	0%	0%	0%
GSHI bill insert	0%	0%	0%
GSHI website	0%	0%	15%
GSHI Account Representative	25%	27%	38%
Newspaper/magazine/print media	0%	0%	0%
Family/friend/word of mouth	25%	9%	8%
Contractor	25%	0%	23%
Vendor/Installer	0%	0%	0%
Retailer advertising	0%	0%	0%
In-store advertising	0%	0%	0%
Television	0%	64%	15%
Other	25%	0%	0%

a) Electric Thermal Storage Program

Roughly equal numbers of participants included in the survey indicated that they heard of the program from contractors, by word-of-mouth, from the GSHI Account Representative and from "other" sources.

b) Commercial Parking Lot Plug Controller Program

Almost 40 percent of sampled participants indicated that they became aware of the program when they were approached by a GSHI representative and the overwhelming majority of participants surveyed specifically noted how happy they were with the GSHI representative. Due to the GSHI representative's involvement they felt the process was very simple and were very pleased with the program. Many mentioned that the GSHI representative also did a walk through their facility and provided them with recommendations and advice on other potential energy efficiency improvements.

Three participants surveyed indicated concerns about the requirement to have three quotes from contractors to install the parking lot controllers. These participants generally had onsite electricians or an electrical company under a longer term contract and felt that this requirement was burdensome. In addition, some smaller participants found it difficult to find electricians that were available to install the devices and as such experienced some delays.

c) Vending Machine and Self Service Coolers Efficiency Program

Over 60 percent of the participants initially heard about the program on television. These participants were typically small businesses with half of the sampled participants having less than 20 employees.

d) & e) LED Traffic and Street Light Conversion Program

Both of these initiatives were undertaken by the City of Greater Sudbury. GSHI approached the City with the project and incentives. GSHI representatives worked with the City throughout the application process and also provided support to the City in pursuing OPA programs. The City of Greater Sudbury representative commented on how proactive and helpful the Conservation Department of GSHI was throughout the entire process from initial contact to the incentive payment.

3.2.6 Incentive Payment Process

Process review indicated that the processing of incentive payments was generally timely. This was confirmed by a review of approval dates and incentive payment dates in the tracking databases. Participants surveyed did not report any challenges in receiving payment.

3.2.7 Customer Experience/Barriers

Overall comments regarding the programs were overwhelmingly favourable. A number of participants made unsolicited comments praising the efforts of GSHI field staff and commented favourably on the processes in the GSHI programs compared to their experience with other similar programs.

Most customers found the application processes simple and straight forward and there were few process-related complaints. One participant reported that the representative from Sudbury Hydro used the inspection visit to help identify other opportunities to save electricity in their business which led them to implement more actions to reduce their energy costs.

3.2.8 Verification and Due Diligence

Navigant reviewed the quality control and verification processes incorporated in the programs and found them to be generally reasonable. The programs included a very strong verification process, with 100% post-installation on-site verification for most of the programs to ensure that participants were eligible and that devices were properly installed. The only program which did not use 100% verification was the LED Traffic Signals program, where a random sample of sites was verified.

3.2.9 Eligibility Review

One potential issue was identified with respect to the ETS program. The program criteria indicated that electricity must be the "primary" source of heating in order for the home to be eligible. While this is easily identified in most homes it may not always be clear-cut in homes with multiple systems. The program design included a pre-installation audit and post-installation verification visit, allowing some judgment to be exercised in determining the "primary" heating system. Navigant is satisfied that this arrangement was sufficient to ensure that participants met the eligibility criteria.

Eligibility rules for the other programs were generally quite clear and relatively simple. No issues were identified with regards to eligibility.

3.3 Impact Findings

3.3.1 Review of Gross Savings

The claimed savings estimated from the tracking databases for each program are shown in Table 9 below. The demand savings shown in the table represent the estimated demand reduction at the point of metering, not demand coincident with the GSHI or Ontario system peak; as shown in the tracking databases.

Table 9: Reported Activity and Savings

Program	Metric	Program Year				
		2009	2010	2011	2012	2013^
Electric Thermal Storage	Number of Units	30	28	40	214	305
	Demand savings at point of metering (kW)	148	129	234	548	1,405
	Est. kWh Savings	n/a	n/a	n/a	n/a	n/a
Parking Lot Conversion (diesel)	Number of Units	87	133	4	117	42
	Demand savings at point of metering (kW)**	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	38,976	59,584	1,792	52,416	18,816
Parking Lot Conversion (gas)	Number of Units	258	479	205	447	15
	Demand savings at point of metering (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings**	57,792	107,296	45,920	100,128	3,360
Street Lighting	Number of Units	n/a	n/a	63	1,188	203
	Demand savings at point of metering (kW)	n/a	n/a	1.4	101	25
	Est. kWh Savings	n/a	n/a	29,407	459,404	108,226

Program	Metric	Program Year				
		2009	2010	2011	2012	2013^
Traffic Light Conversion	Number of Units	556	505	128	269	n/a
	Demand savings at point of metering (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	14,840	9,336	4,212	n/a	n/a
CoolerMiser	Number of Units	5	9	33	64	34
	Demand savings at point of metering (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	2,180	3,924	14,388	27,904	14,824
VendorMiser	Number of Units	20	19	136	92	8
	Demand savings at point of metering (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	39,260	37,297	266,968	180,596	15,704
Total Demand savings at point of metering (kW)		**148**	**129**	**235**	**649**	**1,431**
Total Est. kWh Savings		**153,048**	**217,437**	**362,687**	**820,448**	**160,930**

Notes:

^ 2013 data includes installations up to September 26.
*** Parking Lot Conversion savings are based on monthly estimates for January, February, November and December of each year based on actual temperatures and the number of devices installed in month.*

In developing these estimates from the tracking data:

- Measures have been assigned to each program year based on the inspection or purchase date for the measure.
- Energy savings for the Parking Lot Plug Controllers have been estimated based on assumptions stated in the program document since the tracking database did not show energy savings for all installations. Demand savings have not been shown though they were estimated for gas controllers in the tracking database. It is assumed that the demand for the controlled block heaters would occur at some point in each billing period during the winter months even with the controller in place.
- Estimated per unit savings for CoolerMiser and VendingMiser are based on testing carried out by GSHI (discussed in section c below).
- The traffic light conversion tracking data tracks number of combined units. The values shown in the table above represent the number of actual lamps converted.

a) Electric Thermal Storage Program

The ETS program is designed to shift energy use from peak to off-peak periods, reducing customer billing costs and winter peak demand. As such, the expected incremental savings

from the program did not anticipate any change in energy use. The program operates during the winter months and was therefore not projected to have any impact on summer energy use or summer peak demand.

Navigant has used the number of units and associated connected kW to estimate the demand change resulting from the ETS Program. As noted above, this reduction will only impact winter peak demand.

b) Commercial Parking Lot Plug Controller Program

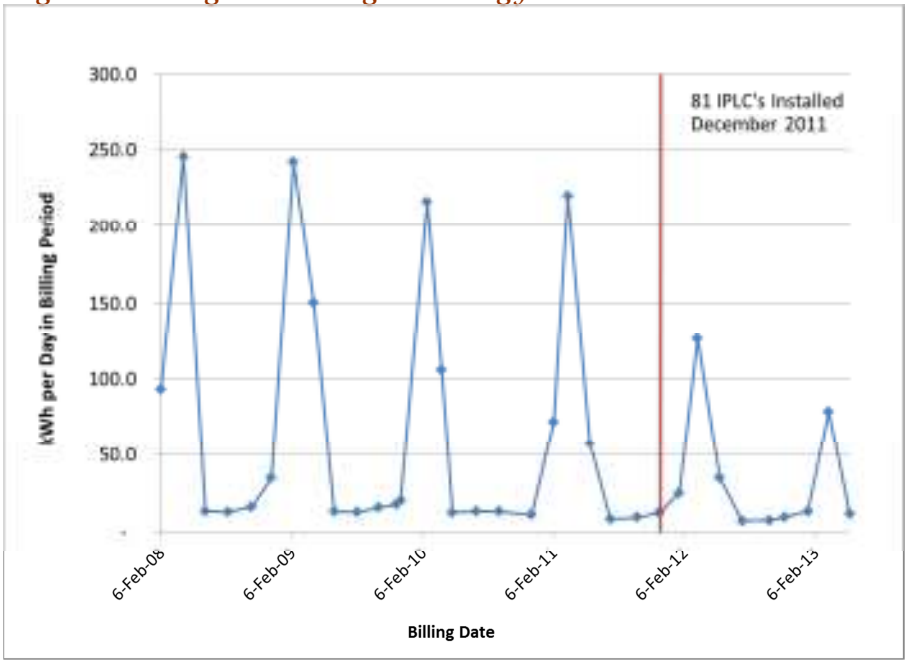
The controllers installed under this program reduce the hours of operation for block heaters plugged into controlled outlets based on ambient temperatures and when the vehicle was plugged in. The device controls energy use at different temperatures for gas and diesel vehicles[6]; resulting in different levels of energy savings. The IPLC also reduces energy use by controlling power off for a 2-hour period when a vehicle is initially plugged in[7] and by eliminating electricity use from the plugs in the non-winter months. This means that the parking lot plugs cannot be used by tenants in the spring, summer and fall months to supply power for other purposes, though it was not possible to assess the impact of this feature.

Given that the controller largely operates during off peak periods and that the block heater would be expected to operate at some time during each month when block heaters are in use, no demand savings were assumed and the program would have no impact on summer energy or demand.

In its CDM Plan, GSHI assumed energy savings of 50 percent relative to an uncontrolled outlet serving a block heater based on a prior study carried out by Manitoba Hydro[8]. GSHI provided Navigant with a small sample of customer accounts where the "common services" meter included parking lot energy use. Billing data was provided for 4 accounts where IPLCs had been installed and three comparable facilities with no IPLCs. A review of these accounts was inconclusive given the difficulty of separating out the impact of parking lot energy use from other changes occurring within the buildings and the small sample size. GSHI provided billing data for one account where IPLCs were installed and the parking lot was metered separately (Figure 1). Winter period energy consumption per day for that account shows a significant decrease in the order of 70 kWh per day.

[6] The Intelligent Parking Lot Controllers turn off energy to the outlet when temperatures rise above -5°C for gas vehicles and above 5°C for diesel vehicles.
[7] Operation of the devices is described in product literature available at: http://www.iplc.com/ .
[8] Manitoba Hydro, Power Smart Profiles: Globe General Agencies Finds Money in Parking Lots, Apartments/ Condominiums, No. 01 March 2005.

Figure 1: Change in Parking Lot Energy Use with IPLC Installation



A review of Technical Reference Manuals did not find any programs which included comparable measures; however a literature review identified two case studies, including the referenced study by Manitoba Hydro[9] in 2005. A 2011 study completed by the Yukon Department of Energy, Mines and Resources which involved metering of 57 IPLC's indicated that a 32.4 percent reduction was achieved[10].

Given the manner in which these controls work, it would be expected that the level of savings will differ depending on local weather conditions; specifically the number of hours above 5°C and -5°C. GSHI carried out an engineering analysis of expected savings based on actual temperatures during the 2009-2010 and 2010-2011 winters, using hourly weather data for the Sudbury Airport obtained from Environment Canada. The analysis assumed that:

- The average gas vehicle block heater was 500 watts while the average block heater in a diesel vehicle was 1,000 watts.
- The controlled block heaters were plugged in from 6 p.m. to 7 a.m. each day from the beginning of November to the end of March,
- The controller turned off power when temperatures rose above the design temperature (-5°C for diesel and +5°C for gas controllers).

[9] As indicated in GSHI's CDM Plan, a case study from Manitoba Hydro indicated annual savings of 50% relative to an uncontrolled block heater.

[10] IPLC Performance Validity Test : Summary of Results, Yukon Department of Energy Mines and Resources, Energy Solutions Center, September 2011 (http://www.energy.gov.yk.ca/pdf/iplc_paper_2011.pdf).

No credit was added for savings due to the IPLC not providing power immediately after a vehicle was plugged in.

The analysis estimated the level of savings shown in Table 10 below.

Table 10: Estimated Savings from Intelligent Parking Lot Plug Controllers

Type of Controller/Vehicle	2009 – 2010	2010 – 2011	2011 - 2012	2012 – 2013
Energy Savings as a % of Baseline Energy Use				
Gas Engine	75%	68%	71%	74%
Diesel Engine	53%	41%	44%	44%
Energy Savings Based on Installations in Each Month				
Gas Engine (kWh)	240,014	491,111	641,886	902,677
Diesel Engine (kWh)	214,438	177,318	191,033	643,829

Navigant reviewed the engineering calculation and assumptions made by GSHI in their engineering estimate. While the assumption that all vehicles are plugged in for all hours between 7 pm and 6 am may overstate the energy savings, we feel that it is reasonable given that savings may be understated given that vehicles may be plugged in during other hours of the day and that no credit is assumed for the 2 hours when the device would control the power off immediately following the vehicle being plugged in. Navigant has therefore used the engineering calculation for the IPLC program developed by GSHI as the basis for estimating savings in each program year.

c) Vending Machine and Self Service Coolers Efficiency Program

In its CDM Plan for 2008 to 2010, GSHI assumed an average savings of 45 percent on a base consumption of 3,500 kWh per year, based on a prior report from London Hydro[11].

The types of controllers used in this program have been applied in a number of programs in other jurisdictions and a number of studies of the savings associated with these devices are available. The estimates of savings for these types of controllers vary both between the type of controller (VendingMiser vs. CoolerMiser) and depending on the type of area where the equipment is used or level of activity in the area. A review of prior studies and Technical Reference Manuals found the following estimates of savings for these types of controllers.

- The equipment vendor who supplied the control devices (Optimum Energy Products) claims a range of savings depending on how frequently the vending or cooler equipment is used.

[11] Greater Sudbury Hydro Inc., Custom Programs: Conservation and Demand Management Plan for the Period 2008 to 2010, Filed June 2008, Appendix A: TRC Technology Input Assumptions, Page 28.

Table 11: Vendor Estimate of Savings for "Miser" Controls

Type of Machine	High Traffic Areas	Average	Low Traffic Areas
Vending Machines	36%	46%	56%
Glass Front Coolers	20%	30%	40%

- A letter from Coca-Cola North America provided on the GSHI website indicates that their data indicates that "*up to 50% energy savings is achieved in locations where there is 12-hours of sales activity per day*" through the installation of a the installation of a VendingMiser. The letter goes on to note that the amount of energy saved depends on the age of the vending machine and the level of activity around the machine.
- The Pennsylvania Technical Reference Manual[12] (TRM) quotes savings of 46% with a reported range of savings from 30 percent to 65 percent. The PA TRM "assumes" no demand savings.
- The Ohio TRM[13] indicates the energy savings factors shown in the table below should be used for controllers installed on non-Energy Star equipment. No summer coincident peak demand savings are indicated. A footnote indicates that it is assumed that the peak period is coincident with periods of high traffic, diminishing the demand reduction potential of occupancy based controls. The default baseline consumption used for vending machines varies from 3,113 to 4,198 kWh per year; depending on machine capacity. The value used by GSHI falls below the middle of that range at 3,500 kWh per year.

Table 12: Ohio TRM Estimate of Savings for "Miser" Controls

Equipment Type	Energy Savings Factor (ESF)
Refrigerated Beverage Vending Machine	46%
Non-Refrigerated Vending Machine	46%
Glass Front Refrigerated Cooler	30%

- A 2002 report on a study by SMUD[14], published by the ACEEE[15] is the only report found to have reported demand reductions. A decrease in demand of 49 to 156 watts per controlled vending machine was reported depending on the type/location of the

[12] Pennsylvania Public Utilities Commission, Technical Reference Manual, June 2012, (State of Pennsylvania, Act 129: Energy Efficiency and Conservation Program & Act 213: Alternative Energy Portfolio Standards), page 216.
[13] 2010 Ohio Technical Reference Manual, August 2010, Vermont Energy Investment Corporation, page 275.
[14] Sacramento Municipal Utility District
[15] Chappell, C., Hanzawi, E., Bos, W., Brost, M., and Peet, R. (2002). "*Does It Keep the Drinks Cold and Reduce Peak Demand? An Evaluation of a Vending Machine Control Program*," 2002 ACEEE Summer Study on Energy Efficiency in Buildings Proceedings, pp. 10.47-10.56.

installation. The highest level of demand savings were found to occur in schools and hotels.

- A subsequent NREL study showed average savings from installing a controller on beverage vending machines as averaging 33% with a range of savings from 22 – 50%[16].
- Table 13 summarizes the different levels of energy and demand reductions reported for controllers installed on vending machines and glass front coolers.

Table 13: Summary of Vending/Cooler Savings Estimates

Type of Equipment Controlled	GSHI Plan	Vendor Estimate (Average)	Coca-Cola	Ohio and PA TRMs	MI Case Study^	NREL Study
Vending Machines						
Energy	45%	46%	Up to 50%	46%	59%	33%
Demand	0%	*n.a.*	*n.a.*	0	*n.a.*	49-156 watts/device
Glass Front Coolers						
Energy			30%	30%		
Demand			*n.a.*	*n.a.*		

^ - *3 machines metered - savings from 39% to 80%.*

GSHI conducted its own monitoring on two vending machines located in the cafeteria in their office and four coolers with different door configurations in a convenience store.

- Metering on the vending machines was installed for 168 hours without the controller and 185 hours with the controller. Operating with the controller in place, the vending machine used 47.7 percent less energy over an equivalent period.
- For the coolers, metering indicated a 20 percent reduction in energy use. One of the four coolers was eliminated from the test as the CoolerMiser identified a defective door seal.

As part of the impact evaluation, metering was installed to record energy use with and without the controller for seven glass-fronted coolers and six vending machines.

- For the cooler installations, the results indicate that energy use for one of the seven coolers actually increased by 7.6 percent. The remaining coolers showed savings ranging from 7.5 percent to 29.6 percent. Average savings for all of the coolers averaged 16 percent. The average savings for the coolers which showed energy savings was 22 percent.

[16] Results quoted are for the use of a controller only, without any de-lamping of the display lights.

- For the vending machine installations, none of the device showed an increase in consumption. The vending machines showed energy savings ranging from 15.3 percent to 39.0 percent. The average reduction in energy use for all of the vending machines was 25 percent.
- A review of peak demand during the mid-week workday between 2 and 4 pm found no significant change in demand for either type of installation.

Prior experience with this type of control systems has indicated that the controller can increase energy use if there are other problems with the controlled equipment (i.e. a faulty compressor, leaking door seals, etc.). Given that the devices provide an error indication when these conditions exist, they can actually create further energy savings by flagging where such problems exist if the problem is then addressed. The test results indicate the importance of periodically checking the controllers for indications of improper operation[17]. Comments from GSHI staff indicate that participating customers have, in fact, called for assistance when they noticed error indications on the controllers.

Navigant has used the metering results, including the devices which indicated higher energy use, as the basis for estimating energy savings from this program.

d) LED Traffic Light Conversion Program

Traffic lights typically operate continuously during the year (8760 hours per year). However, not all lights in traffic signals operate at all times. The estimated energy and demand reductions indicated in the program tracking data are shown in the table below.

Table 14: LED Traffic Signals Savings

Signal Type	No. of Devices	Incentive per Device	Total Incentives	Demand Reduction per Device (kW)	Total kW
Red	7	$20	$140	0.125	***0.9***
Green	5	$30	$150	0.083	***0.4***
Advanced Green	6	$30	$180	0.083	***0.5***
Red & Green	323	$55	$17,765	0.208	***67.2***
Red , Green & Advanced Green	110	$88	$9,680	0.291	***32.0***
Red and Advanced Green	30				***-***
Pedestrian Signals	404	$30	$12,120	0.080	***32.3***
Totals -			***$40,035***		***133.3***

[17] LED lights on the controllers will flash if the controlled unit is not operating correctly.

These savings calculations assume continuous operation of the lights but do not take into account any changes in ancillary loads for controllers, fans or heaters.

A search of deemed savings data from other jurisdictions found that Ohio, Pennsylvania and the Regional Technical Forum[18] of the Northwest Power and Conservation Council have all established savings for LED Traffic Signals. The table below shows the energy and demand values used in the Ohio and Pennsylvania Technical Reference Manuals[19] and RTF database for the types of conversions implemented under the GSHI program.

Table 15: Deemed Savings for LED Traffic Signals

	Ohio/Pennsylvania TRM				Regional Technical Forum	
	% Burn	Annual Hours of Use	Savings from LED Conversion		Savings from LED Conversion	
			kW	kWh	kW	kWh
Red 8 inch	55%	4818	0.062	299	*Not provided*	367
Green 8 inch	43%	3,767	0.060	226		283
Turn Signal (8" Green)	8%	701	0.109	76		111
Pedestrian	100%	8,760	0.108	946		1,210

Per section 4.3.1 of the CDM plan (page 12), yellow yield and yellow arrows were not to be covered by the program.

The higher figures used in the RTF database are based on program evaluations carried out in Northern California in 2005[20] that evaluated a sample of 165 units.

Navigant has used the demand change and kWh reduction per devices from the Ohio and Pennsylvania TRMs as the basis for estimating savings from the LED Traffic Light Program. These values represent a consistent set of savings data taking into account burn time and hours of use.

e) West Nipissing Street Light Conversion Program

The initial intent of this program was to replace 250 mercury vapour streetlights located in West Nipissing with LED fixtures. GSHI approached West Nipissing on several occasions but it appeared that West Nipissing was unable to finance the project. GSHI therefore re-targeted the program to replace high pressure sodium lamps in the municipality of Greater Sudbury.

[18] The Northwest Regional Technical Forum database, for commercial lights/LED Traffic Signals. http://rtf.nwcouncil.org/

[19] Both the Ohio and Pennsylvania Technical Reference Manuals (previously cited) were prepared by the Vermont Energy Investment Corporation. The TRM references PECO as the source of the savings data.

[20] Mowris, R., & Carlson, K. (2005). Measurement & Verification Load Impact Study for Northern California Power Agency Senate Bill 5X Programs, Study ID: NCP0001.01 . Roseville, CA: Northern California Power Agency. Retrieved from http://www.calmac.org/publications/M&V_Load_Impact_Study_for_NCPA_SB5X_Programs.pdf .

Navigant has estimated the energy and demand reductions for the LED streetlighting program based on information provided in the tracking data. The estimate presented below makes two assumptions:

1) That the average ballast size for the HPS lamps replaced under the program was 38 watts. Information provided for one invoice indicated this ballast wattage for all 150w HPS lamps listed. Navigant believes this is a conservative assumption given that roughly 50 percent of the lamps replaced under the program were 150w HPS and about 40 percent were above that wattage.
2) That the lamps operate for 4,306 hours per year on average; the value used by GSHI in billing street lighting energy use.

Table 16: LED Streetlighting Savings

Program Year	Energy Savings (kWh/year)	Change in Connected Load (KW)
2011	29,407	1.4
2012	459,404	101.0
2013	108,226	25.0
	597,037	***127.4***

The estimated gross savings for each program are summarized in Table 17. Note that demand savings are shown for both the summer and winter peak as a number of the programs targeted winter peak demand reductions.

Table 17: Estimated Gross Savings by Program

Program	Metric	Program Year				
		2009	2010	2011	2012	2013
Electric Thermal Storage	Number of Units	30	28	40	214	305
	Demand savings - Winter Peak only (kW)	148	129	234	548	1,405
	Est. kWh Savings	n/a	n/a	n/a	n/a	n/a
Parking Lot Conversion (diesel)	Number of Units	87	133	4	117	42
	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	24,760	130,553	4,065	105,265	14,477
Parking Lot Conversion (gas)	Number of Units	258	479	205	447	15
	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	87,439	369,453	156,661	317,996	4,589
Street Lighting	Number of Units	n/a	n/a	63	1,188	203

Program	Metric	Program Year				
		2009	2010	2011	2012	2013
	Demand savings - Winter Peak only (kW)	n/a	n/a	1.4	101	25
	Est. kWh Savings	n/a	n/a	29,407	459,404	108,226
Traffic Light Conversion	Number of Units	556	505	128	269	n/a
	Demand savings - Summer & Winter Peak (kW)	43	40	10	22	n/a
	Est. kWh Savings	274,448	168,389	45,404	144,557	n/a
CoolerMiser	Number of Units	5	9	33	64	34
	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	2,835	5,103	18,711	36,288	19,278
VendorMiser	Number of Units	20	19	136	92	8
	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	17,710	16,825	120,428	81,466	7,084
Demand Savings - Summer (kW)		**43**	**40**	**10**	**22**	**0**
Demand Savings -Winter Peak (kW)		**191**	**169**	**245**	**671**	**1,431**
Total Est. kWh Savings		**407,192**	**690,322**	**374,676**	**1,144,975**	**153,654**

The savings for 2013 shown in the table above are for installations to September 25th. GSHI expects additional savings for the 2013 program year as it still has a remaining inventory of controllers for the "Parking Lot Plug Controller" and "Vending Machine and Self Service Coolers" programs. GSHI will continue to install these devices in 2013 until the remaining inventory has been used.

3.3.2 Estimation of Net Savings

The net-to-gross ratio for the GSHI's programs was estimated in a manner consistent with that prescribed in the OPA's EM&V Protocols and Requirements – STG-12 Net-to-Gross Adjustment.

Navigant used the self-reporting survey method to estimate the net-to-gross adjustment required. Data from the participant telephone survey was used quantitatively, with free-ridership values assigned to different respondents based on respondents' answers to a number of direct program participation and program influence questions. This quantitative assessment of free-ridership was also compared with comments offered by the respondents themselves (in

open-ended survey questions) to qualitatively assess the reasonableness of both the individual and overall average level of free ridership. The overall free-ridership rate applied to gross savings is the weighted average of the surveyed individual's free-ridership scores.

Net energy savings incorporate not only free-ridership, but spill-over[21] and rebound. Questions regarding the impact of participation in the GSHI programs on other energy efficiency improvements were included in the survey. Analysis of the survey results did not provide any indication of significant spillover from the GSHI initiatives and comments offered by participants indicated that decisions to participate in other initiatives were largely made independently, though based on the same underlying motivations.

The table below shows the number of responses obtained for each program and the proportion of installed units represented by those responses. As the table indicates, the responses received for the Commercial Parking Lot Plug Controller and Vending Machine and Self Service Coolers Efficiency programs represented over half of the units installed under those programs. However, the respondents reached for the ETS program represent a very small proportion of the units installed.

Table 18: Survey Response Rates by Program

	Electric Thermal Storage Program	Commercial Parking Lot Plug Controller Program	Vending Machine and Self Service Coolers Efficiency Program
No. of Respondents	3	13	10
No. of Units Installed by Respondents	11	1033	210
Total Units Installed in Program	1034	1787	415
% of Units Represented in Survey	1%	58%	51%

Navigant asked participants a number of direct questions regarding their intentions prior to participating in the programs and the likelihood that they would have installed the measures absent the program. In addition, participants were asked about the level of influence that the program had on their decision and whether participation in the program influenced other energy management actions. Table 19 below summarizes the responses by program.

[21] In accordance with the OPA's EM&V Protocols, and due to the nature and quantity of data available, Navigant elected not to estimate the possible "rebound" or "snap-back" effects of the program.

Table 19: Free Ridership Questions

Question No.	Short description	Potential Responses	Electric Thermal Storage Program	Commercial Parking Lot Plug Controller Program	Vending Machine and Self Service Coolers Efficiency Program
FR1	Had you already been thinking of installing the measure prior to involvement in the program.	Yes/No	27%	35%	2%
FR1a	Had planned to install similar equipment before participating in the program.	Yes/No	27%	0%	2%
FR1b	How far had planning advanced?	1 to 10	0.0	1.5	0.0
FR1c	Had funds been budgeted?	1 to 10	0.0	1.5	0.0
FR2	Learned of incentive after measure installed.	Yes/No	0.0%	0%	0%
FR3	Incentive influenced earlier installation	Yes/No	91%	92%	12%
FR3a	Without incentive would have installed measure within 1 year.	Yes/No	0%	19%	0%
FR4	Likelihood that measure would have been installed without the program	1 to 10	0.0	2.0	0.1
FR6	Importance of Rebate to decision.	1 to 10	0.0	9.0	9.8

The responses to the survey questions were reviewed for consistency and weighted based on the number of units installed by each participant as a proportion of total responses for the program. Questions FR1c, FR3, FR3a and FR4 were used to derive an estimate of free-ridership for each program as indicated below.

Table 20: Estimated Free Ridership Rates

	Electric Thermal Storage Program	Commercial Parking Lot Plug Controller Program	Vending Machine and Self Service Coolers Efficiency Program	LED Traffic Light Conversion Program	LED Street Light Conversion Program
Free Ridership Rates	2%	15%	22%	0%	0%

Navigant notes that the number of responses for the ETS program was very small and that some of the responses were internally inconsistent. For example, one of the three respondents indicated that they had considered and planned to install an ETS system before learning of the program but later indicated that they would never have installed the equipment without the incentive. As a result, we have used the assumed 10 percent free ridership rate used in the initial program proposal for that program.

The responses for the LED Traffic Lights and LED Streetlighting program were based on an interview with the key decision maker at the municipality who was responsible for the City's participation in both programs. As mentioned previously, the challenges of implementing this

type of project in a municipality include high capital costs and navigating decision making processes. The participant surveyed stated that the LED street lighting and traffic lighting project would likely not have taken place until the cost of LED lighting reduced significantly.

Table 21: Free Ridership Rates Used for NTG Calculation

	Electric Thermal Storage Program	Commercial Parking Lot Plug Controller Program	Vending Machine and Self Service Coolers Efficiency Program	LED Traffic Light Conversion Program	LED Street Light Conversion Program
Free Ridership Rates	10%	15%	22%	0%	0%

3.3.3 Summary of Impact Findings

The estimated net energy and demand savings are shown in Table 22 below.

Table 22: Net Energy and Demand Savings

Program	Metric	Program Year 2009	2010	2011	2012	2013
Electric Thermal Storage	Demand savings - Winter Peak only (kW)	133	116	210	493	1,405
	Est. kWh Savings	n/a	n/a	n/a	n/a	n/a
Parking Lot Conversion (diesel)	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	21,046	110,970	3,455	89,475	12,306
Parking Lot Conversion (gas)	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	74,323	314,035	133,162	270,296	3,900
Street Lighting	Demand savings - Winter Peak only (kW)	n/a	n/a	1	101	25
	Est. kWh Savings	n/a	n/a	29,407	459,404	108,226
Traffic Light Conversion	Demand savings - Summer & Winter Peak (kW)	43	40	10	22	n/a
	Est. kWh Savings	274,448	168,389	45,404	144,557	n/a
CoolerMiser	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	2,211	3,980	14,595	28,305	15,037
VendorMiser	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	13,814	13,123	93,934	63,543	5,526
Demand Savings - Summer (kW)		**43**	**40**	**10**	**22**	**0**

Program	Metric	Program Year				
		2009	2010	2011	2012	2013
Demand Savings -Winter Peak (kW)		**176**	**156**	**222**	**616**	**1,431**
Total Est. kWh Savings		**385,842**	**610,497**	**319,957**	**1,055,580**	**144,995**

3.3.4 Incentive Levels

Incentive levels for some of the programs were adjusted during the operation of the programs based on actual program experience.

a) Electric Thermal Storage Program

- Initially the incentive for this program was set at $2,500 per installation. Based on early experience, GSHI changed the incentive to provide up to $2,500 for materials. This change required the program participant to pay for labour costs associated with the installation.
- Participants commented that the cost of the ETS system was high. When asked about their satisfaction of the incentive amount, participants felt it was reasonable and likely the most that GSHI could provide. All participants surveyed reported that they would not have purchased the ETS units without the incentive provided by GSHI.

b) Commercial Parking Lot Plug Controller Program

- The original incentive of $200 was found to be excessive based on initial program experience. As a result, the incentive was reduced to $175 almost immediately after the program was started. In addition a requirement was added to the program requiring that the participants using a contractor obtain at least three quotes for the installation. Participants with their own in-house electrician were also required to obtain competitive quotes to install the devices to establish the allowable level of labour costs.
- Participants were very satisfied with the level of incentive provided by GSHI. Over 20 percent of the participants surveyed reported that their business made capital decisions based on a specific payback period. Therefore, reassessing the incentive amount with this perspective may allow GSHI to lower the incentive amount while maintaining an attractive offer for businesses should the program be considered for extension or reoffered.

c) Vending Machine and Self Service Coolers Efficiency Program

- The initial incentive of $150 per installation was increased to $175 based on the actual costs of the devices; reported as $200 for VendingMiser and $180 for CoolerMiser.

- Participants were very satisfied with the incentive level and 90 percent of participants reported that the importance of the rebate in their decision to participate was at least an 8 out of 10 (10 being extremely important).

d) & e) LED Traffic Light Conversion Program & West Nipissing Street Light Conversion Program

- The City of Greater Sudbury representative was very satisfied with the incentive level of the program and specifically commented that the project would not have received approval without the incentive.

4. Conclusions and Recommendations

4.1 Conclusions

4.1.1 Process Issues

Based on surveys completed with participants, the customer-facing side of the programs appears to be performing well. The participants surveyed were very pleased with the programs offered by GSHI. Over 80 percent of the participants surveyed across the programs reported an overall satisfaction rating of over 8 on a 0 to 10 scale (10 being very satisfied) when asked about their overall program satisfaction and over 70 percent reported a satisfaction rating of over 8 on a 0 to 10 scale (10 being very satisfied) when asked about their satisfaction with GSHI as a company. Participants were happy with the administrative processes and the incentive amounts provided and were particularly happy with the one-on-one support from GSHI staff. Many participants reported participating in both GSHI and OPA programs and responded favourably about their experiences with GSHI programs. The only significant concerns expressed by participants related to ensuring consistent follow-up and suggestions relating to enhancing communication about the programs to improve awareness.

Overall comments regarding the programs were overwhelmingly favourable. A number of participants made unsolicited comments praising the efforts of GSHI field staff and commented favourably on the processes in the GSHI programs compared to their experience with other similar programs

Consistency and clarity in the format and information collected for all programs would improve the ability to track savings and participants across programs. As noted, there were some inconsistencies and missing information in the tracking databases.

4.1.2 Program Impacts

A number of GSHI's programs were aimed at loads which operate in the winter months. Given the timing of the evaluation this meant that some of these measures could not be verified through actual measurements. In addition, limitations on available data and time limited the ability to obtain the targeted level of participant feedback for some of the programs. Despite these issues, Navigant is confident that the net energy and demand savings estimates developed for these programs are reasonable.

The estimated net energy and demand savings developed for each of the initiatives is shown in Table 21. Note that the table shows the demand impacts for both the summer and winter peak period as a number of GSHI's programs resulted in significant winter peak reductions but no summer peak demand reduction.

The estimated net energy and demand savings are shown in the table below.

Table 23: Net Energy and Demand Savings

Program	Metric	Program Year				
		2009	2010	2011	2012	2013
Electric Thermal Storage	Demand savings - Winter Peak only (kW)	133	116	210	493	1,405
	Est. kWh Savings	n/a	n/a	n/a	n/a	n/a
Parking Lot Conversion (diesel)	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	21,046	110,970	3,455	89,475	12,306
Parking Lot Conversion (gas)	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	74,323	314,035	133,162	270,296	3,900
Street Lighting	Demand savings - Winter Peak only (kW)	n/a	n/a	1	101	25
	Est. kWh Savings	n/a	n/a	29,407	459,404	108,226
Traffic Light Conversion	Demand savings - Summer & Winter Peak (kW)	43	40	10	22	n/a
	Est. kWh Savings	274,448	168,389	45,404	144,557	n/a
CoolerMiser	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	2,211	3,980	14,595	28,305	15,037
VendorMiser	Demand savings (kW)	n/a	n/a	n/a	n/a	n/a
	Est. kWh Savings	13,814	13,123	93,934	63,543	5,526
Demand Savings - Summer (kW)		**43**	**40**	**10**	**22**	**0**
Demand Savings -Winter Peak (kW)		**176**	**156**	**222**	**616**	**1,431**
Total Est. kWh Savings		**385,842**	**610,497**	**319,957**	**1,055,580**	**144,995**

The savings for 2013 shown in the table above are for installations to September 25th. GSHI expects additional savings for the 2013 program year as it still has a remaining inventory of controllers for the "Parking Lot Plug Controller" and "Vending Machine and Self Service Coolers" programs. GSHI will continue to install these devices in 2013 until the remaining inventory has been distributed.

4.2 Recommendations for Program Improvements

4.2.1 Process Recommendations

Based on a review of tracking databases, Navigant recommends three potential improvements.

- With respect to customer information collected, the level of contact information obtained from customers and entered into the database could be improved. Specifically, tracking databases should include the full names of participants or contacts within an organization and, where possible, obtain a description of the contact's position within the organization.
- When performing estimates of energy savings (kWh) and demand savings (kW) for each program, tracking databases should contain clear estimates that are consistently applied to all customers.
- Finally, when tracking multiple programs, consistency in the setup of each database should be ensured for the clear tracking of sales and any returns of the devices promoted under the program.

Navigant recommends that continuing attention be paid to ensuring that commitments to program participants are met, for example with regards to follow-up visits to verify measure installation. While the majority of participants were very satisfied in this regard, it was the most common concern regarding the program by participants. As noted above, GSHI does verify 100% of measure installations, but notes that the staff involved with the installation may not always be present at the time of the visit.

Based on responses from participant surveys, Navigant recommends that GSHI continue one-on-one outreach to business customers to provide information about programs. Participants surveyed felt this form of outreach was effective and were very happy with the support provided by GSHI staff throughout the application and installation process.

In terms of program design, Navigant recommends that GSHI maintain the practice of structuring the incentive process such that the participant does not receive the full value of the incentive until the process, including field verification, is completed.

4.2.2 Impact Recommendations

Based on a review of the energy savings (kWh) and demand savings (kW) for each program, Navigant recommends the incorporation of a process to educate business owners that have participated in the Vending and Reach-In Cooler program on the importance of monitoring the devices for warning codes. Correcting issues identified by the warning codes can avoid increased energy use from issues such as leaking door seals or a faulty compressor.

For the LED Traffic Light program it is recommended that the program tracking data be consistent in the treatment of fixtures or devices (i.e. red/green/yellow) device and the number of lamps used in these fixtures.

Appendix A: Participant Survey Instrument

Survey Form for

on following pages for

Vending Machine and Self Service Coolers Efficiency Program.

(Note: The same survey format was used for each program but customized to refer to the applicable program name).

GSHI Participant Survey Modules: Smart Vending/VendingMiser/CoolerMiser

Module	Questions	Notes
Screening	A1 – A2.	
Program Awareness	PA1-PA2	
Free Ridership and Consistency Checks	FR0-FR7, CC1-CC2	Appears lengthy but very few respondents will need to answer all questions.
Spillover	SO1-SO2	
Program Satisfaction	PS1-PS6	
GSHI Satisfaction	GS1	
Program-Specific Process Questions	Not included in this document.	
Demographics (residential) / Firmographics (commercial)	D1-D5 or F1-F5	
Module	**Questions**	
Screening	A1 – A2.	

Sample Variables/Customization Needed:

<PROGRAM>: Program name

<MEASURE >: Program-qualifying high efficiency product or service implemented by respondent; select measure with greatest savings for respondents with multiple measures.

<MEASURE 2> is measure with second highest savings;

<MEASURE 3> is measure with third highest savings.

Phrasing Notes:
-If the measure is a service (e.g., AC tune-up, duct sealing) replace verbs such as "purchase" and "install" with "implement" or another appropriate verb.
-For residential programs, change "this site" or "this property" to "your home".

Intro/Screener

Hello, this is _____ from Navigant calling on behalf of Greater Sudbury Hydro Inc. (Sudbury Hydro). This is not a sales call. May I please speak with <**ContactName**>?

Our records show that <**BusinessName** > purchased VendingMiser/CoolerMiser and received an incentive from Sudbury Hydro. We are calling to do a follow-up study about <**BusinessName** >'s participation in this program.

I was told you're the person most knowledgeable about this project. Is this correct?
[IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGABLE PERSON OR RECORD NAME & NUMBER.]

This survey will take about 20 minutes. Is now a good time? [If no, schedule a call-back time.]

SCREENING QUESTIONS

A1. Just to confirm, did <**BusinessName**> participate in Sudbury Hydro's **Smart Vending/VendingMiser/CoolerMiser** program?

(**IF NEEDED**: This is a program where you/your business would have received an incentive for installing one or more VendingMiser/CoolerMiser. You may have participated in the program with projects at more than one site. We are discussing only the facility at <**SiteAddress**>)

READ CODES 1-3

1 Yes, participated as described
2 Yes, participated but at another location.
3 No, did not participate in program.
97 OTHER, SPECIFY.
98 DON'T KNOW.
99 REFUSED.

[SKIP A2 IF A1=1, 2]

A2. Is it possible that someone else dealt with the VendingMiser/CoolerMiser installation?

DO NOT READ LIST

1 YES, SOMEONE ELSE DEALT WITH IT
2 NO
97 OTHER, SPECIFY
98 DON'T KNOW
99 REFUSED

[IF A2=1, ASK TO BE TRANSFERRED TO THAT PERSON. IF AVAILABLE, GO BACK TO A1] IF NOT AVAILABLE, THANK, OBTAIN NAME & APPROPRIATE TIME TO CALL - THENTERMINATE.

[IF A1=2, 3, 97, 98, 99: THANK AND TERMINATE. RECORD AS "COULD NOT CONFIRM PARTICIPATION".]

If they express hesitation, use an appropriate combination of the following.

Overcoming objections:

- Confidentiality. We are an independent consulting firm and your response only will be presented in aggregate along with responses from other survey participants.

- Not the right person – that's fine, do you know who would be more appropriate to talk to? Do you have their contact details? RECORD NEW CONTACT

- Security. Your responses will not affect any financial incentives or rebates you have received, nor will it affect your ability to participate in the program in the future.

- Sales concern. I am not selling anything. On behalf of GSHI I simply want to understand what factors were important to your company's decision to apply to this program and subsequent decision to proceed.

- Contact. If you would like to talk with someone about this survey from our client or the Program Managers, the contacts are:

    - **GSHI** – the contact person is **Paula Tarini** or **Ron Lefebvre** – available by phone at 705-675-7536 x 2266or by e-mail at: ronl@shec.com

Program-Specific Verification Questions

Program Awareness

PA1. How did you hear about the Smart Vending/VendingMiser/CoolerMiser?

[DO NOT READ LIST, RECORD ALL MENTIONED]

1. (GSHI mailing/flyer)
2. (Newsletter)
3. (GSHI bill insert)
4. (GSHI website)
5. (GSHI account representative)
6. (Newspaper/magazine/print media)
7. (Family/friend/word of mouth)
8. (Contractor)
9. (Vendor/Installer)
10. (Retailer advertising)
11. (In-store advertising)
77. (Other: SPECIFY)
88. (Don't know)
1. (Refused)

[IF MULTIPLE RESPONSES GIVEN TO PA1, ASK PA1a, ELSE SKIP TO PA2]

PA1a. Which of these sources of information was most influential in your decision to participate in the program?

1. (GSHI mailing)
2. (Newsletter)
3. (GSHI bill insert)
4. (GSHI website)
5. GSHI account representative)
6. (Newspaper/magazine/print media)
7. (Family/friend/word of mouth)
8. (Contractor)
9. (Retailer advertising)
10. (In-store advertising)
11. (Salesperson)
12. ((Other: SPECIFY)
88. (Don't know)
99. (Refused)

PA2. What was the main reason you started thinking about installing VendingMiser/CoolerMiser at this site?

[DO NOT READ LIST, SELECT ONE]

1. (GSHI /Smart Vending/VendingMiser/CoolerMiser incentive)
2. GSHI Account Representative
3. (Recommended by contractor)
4. (High utility bills/wanted to save money)

5. (Save energy to protect the environment)
77. (Other: SPECIFY)
88. (Don't know)
99. (Refused)

Free Ridership

Prior Planning

FR1. Prior to your involvement in the Smart Vending/VendingMiser/CoolerMiser, had you already been thinking about installing VendingMiser/CoolerMiserfor this property?

1. (Yes) [CONTINUE TO FR1a]
2. (No) [SKIP TO FR3]
88. (Don't know) [SKIP TO FR2]
99. (Refused) [SKIP TO FR2]

FR1a. Had you planned to install similar equipment that would have reduced electricity use before you participated in the program?

1. (Yes) [CONTINUE TO FR1a(i)]
2. (No) [SKIP TO FR3]
88. (Don't know) [SKIP TO FR2]
99. (Refused) [SKIP TO FR2]

i) Please describe the type of equipment you had considered.
[OPEN ENDED]

ii) On a scale of 1 to 10 where "0" means highly unlikely and "10" means highly likely – how likely do you think it is that you would have installed this similar equipment?
1. [RECORD 0-10]

FR1b. Now, I would like you to think about prior to participating in the program again. On a scale of 0 to 10, where 0 means you "Had not yet planned for equipment and installation" and 10 means you "Had identified and selected specific equipment and the contractor to install it", please tell me how far along your plans were.

2. [RECORD 0-10]
88. (Don't know)
99. (Refused)

FR1c. On a scale of 0 to 10, where 0 means "Had not yet budgeted or considered payment" and 10 means "Already had sufficient funds budgeted", please tell me how far along your planning and budgeting/approval was?

3. [RECORD 0-10]
88. (Don't know)
99. (Refused)

Timing

FR2. When did you learn about the financial incentive or rebate? Was it before you installed the VendingMiser/CoolerMiser or after you installed it/them?

1. Before installed equipment
2. After installed equipment [SKIP TO CC1]
88. (Don't know)
99. (Refused)

FR3. Did the program influence you to purchase and install the VendingMiser/CoolerMiser earlier than you otherwise would have?

1. (Yes) [CONTINUE TO FR3a]
2. (No) [SKIP TO FR4]
3. (No, the program actually delayed installation) [SKIP TO FR4]
88. (Don't know) [SKIP TO FR4]
99. (Refused) [SKIP TO FR4]

FR3a. How much later would you have installed the VendingMiser/CoolerMiser, if you hadn't participated in the program?

1. Within 1 year
2. Between 1 and 2 years
3. Sometime after 2 years
4. Would never have installed without the program [SKIP TO FR6]
88. (Don't know)
99. (Refused)

Likelihood

FR4. On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is it that you would have purchased and installed the VendingMiser/CoolerMiser on your property if you had not participated in the program?

4. [RECORD 0-10]
88. (Don't know)
99. (Refused)

[ASK IF <QUANTITY> >1]

FR5. Without the program, would you have installed fewer VendingMiser/CoolerMiser, the same number, or more?

1. Fewer VendingMiser/CoolerMiser [SKIP TO FR5a]
2. Same number of VendingMiser/CoolerMiser [SKIP TO FR6]
3. More VendingMiser/CoolerMiser [SKIP TO FR6]
88. (Don't know) [SKIP TO FR6]
99. (Refused) [SKIP TO FR6]

[IF FR5 = 1]

FR5a. What percent of the VendingMiser/CoolerMiser would you have installed without the program?

5. [RECORD 0-100%]
88. Don't know
99. Refused

Importance

FR6. On a scale of 0 to 10, where 0 means "not at all important" and 10 means "extremely important", please tell me how important the program's rebate was in your decision to install the energy efficient VendingMiser/CoolerMiser.

6. [RECORD 0-10]
88. Don't know
99. Refused

FR7. On a scale of 0 to 10, where 0 means "not at all important" and 10 means "extremely important", please tell me how important the program's advertising and information was in your decision to install the energy efficient VendingMiser/CoolerMiser.

7. [RECORD 0-10]
88. Don't know
99. Refused

Consistency Checks on Free Ridership Responses

[ASK CC1 IF FR4 =<5 AND MAX (FR6, FR7) =<5, ELSE SKIP TO CC2 IF APPLICABLE]

CC1. Let me make sure that I understand you. Earlier, you indicated that it was unlikely that you would have installed VendingMiser/CoolerMiser without the program, but that differs from some of your other responses. Please tell me in your own words what influence, if any, the program had on your decision to purchase and install VendingMiser/CoolerMiser.

[OPEN ENDED]

[ASK CC2 IF ANY OF THE FOLLOWING SITUATIONS OCCUR:

IF FR4 >6 AND MAX (FR6, FR7) >5

IF FR4 >6 AND FR3 = 1
IF FR4 >6 AND FR5 = 1]

CC2. Let me make sure that I understand you. Earlier, you indicated that you likely would have installed VendingMiser/CoolerMiser even without the program, but that differs from some of your other responses. Please tell me in your own words what influence, if any, the program had on your decision to purchase and install VendingMiser/CoolerMiser.

[OPEN ENDED]

Spillover

We've just discussed the measures that you installed through Smart Vending/VendingMiser/CoolerMiser.

[READ THIS STATEMENT TO ALL]

Now I would like to ask you about any *other* energy efficiency measures that you might have installed after participating in Smart Vending/VendingMiser/CoolerMiser.

SO1. Apart from the equipment for which you received a Smart Vending/VendingMiser/CoolerMiser rebate, did you do any subsequent energy efficiency improvements **which were not rebated**?

1. (Yes)
2. (No) [SKIP TO SO2]
88. (Don't know) [SKIP TO SO2]
99. (Refused) [SKIP TO SO2]

Measures	SO1a. What type of equipment did you install? [SELECT APPLICABLE MEASURE]

SO1b. On a scale of 0 – 10, where 0 means no influence at all and 10 means extremely influential, how influential was the Smart Vending/VendingMiser/CoolerMiser program in your choice to take these additional measures?

[RECORD 0-10]

SO1c. Was the program as influential in your decision to install all the other additional measures as it was in your decision to install VendingMiser/CoolerMiser, or would you say the program influenced some measures more than others?

1. The program influenced some measures more than others [REPEAT SO1b FOR EACH RESPONSE TO SO1a]
2. The program was similarly influential for all additional measures installed [CONTINUE TO SO1d]
88. (Don't know) [CONTINUE TO SO1d]
99. (Refused) [CONTINUE TO SO1d]

SO1d. Please briefly describe in your own words how the program has influenced your decision to incorporate additional energy efficiency measures at this property that did not receive a program rebate.

[OPEN ENDED]

[FOR BUSINESSES ONLY]

SO2. Apart from the equipment for which you received a Smart Vending/VendingMiser/CoolerMiser rebate, did you do any subsequent energy efficiency improvements **which were not rebated** at *other* properties within <**REGION**>?

1. (Yes)
2. (No) [SKIP TO NEXT SECTION]
88. (Don't know) [SKIP TO NEXT SECTION]
99. (Refused) [SKIP TO NEXT SECTION]
8.

Possible Measures	SO2a. Other actions taken or equipment installed? [SELECT APPLICABLE MEASURE]
for CoolerMiser/VendorMiser	
Repairs - Compressor	
Repairs – Door Seals	
Occupancy sensors on lights	
Smart Strip Power Strip	

SO2b. On a scale of 0 – 10, where 0 means no influence at all and 10 means extremely influential, how influential was the Smart Vending/VendingMiser/CoolerMiser program in your choice to install <FIRST RESPONSE FROM SO2a>?

[RECORD 0-10]

SO2c. Was the program as influential in your decision to install all the other additional measures as it was in your decision to install < FIRST RESPONSE FROM SO2a >, or would you say the program influenced some measures more than others?

1. The program influenced some measures more than others [REPEAT SO2b FOR EACH RESPONSE TO SO2a]
2. The program was similarly influential for all additional measures installed [CONTINUE TO SO2d]

88. (Don't know) [CONTINUE TO SO2d]
99. (Refused) [CONTINUE TO SO2d]

SO2d. Please briefly describe in your own words how the program has influenced your decision to incorporate additional energy efficiency measures at these other properties that did not receive a program rebate.

[OPEN ENDED]

Program Satisfaction

I am now going to ask a few questions about your experience with the program.

PS1a. Using a scale of 0-10 where 0 represents very easy and 10 represents very difficult – how would you rate the ease of finding information about the program?

9. [RECORD 0-10]

PS1b. Using that same scale, how easy or difficult did you find it was to apply to the program?

[RECORD 0-10]

PS2. On a scale of 0 to 10 where 0 means extremely dissatisfied and 10 means extremely satisfied, please rate your overall satisfaction with the Smart Vending/VendingMiser/CoolerMiser?

10. [RECORD 0-10]
88. (Don't know)
99. (Refused)

PS2a. Why did you give it that rating?

[OPEN-ENDED]

PS3. Would you recommend Smart Vending/VendingMiser/CoolerMiser to a friend?

1. (Yes)
2. (No)
88. (Don't know)
99. (Refused)

PS4. On a scale of 0 to 10 where 0 is extremely dissatisfied and 10 is extremely satisfied, how would you rate your satisfaction with the following aspects of your experience with the Smart Vending/VendingMiser/CoolerMiser: [ROTATE LIST]

PS4a. The overall cost of the VendingMiser/CoolerMiser. [0-10, DK, REF]

PS4b. The incentive amount provided by GSHI . [0-10, DK, REF]

PS4c. The energy savings resulting from the VendingMiser/CoolerMiser installed. [0-10, DK, REF]

PS4d. The program application process. [0-10, DK, REF]

[REPEAT PS5 FOR ANY RESPONSES TO PS4a-d <6, IF ALL RESPONSES ARE >=6, SKIP TO PS6]

PS5. Why did you give [PS4a/PS4b/PS4c/PS4d] that rating?

[OPEN-ENDED]

PS6. From your perspective, what if anything could be done to improve the GSHI Smart Vending/VendingMiser/CoolerMiser?

[OPEN-ENDED]

GSHI Satisfaction

GS1. Based on your overall experience as a customer of Sudbury Hydro, how would you rate the company on a 0 to 10 scale, where 0 is extremely dissatisfied and 10 is extremely satisfied?

11. [RECORD 0-10]
88. (Don't know)
99. (Refused)

Firmographics (for Commercial Programs)

We're almost finished. I have a few final questions about your business and then we are done.

F1. What sector is this business in? [READ LIST IF NECESSARY, SELECT ONE.]

1. K-12 School
2. College
3. Grocery
4. Medical
5. Hotel/Motel
6. Light Industry
7. Heavy Industry
8. Office
9. Restaurant
10. Retail/Service
11. Warehouse
12. Other, specify
88. Don't know
99. Refused

F2. How many people does this business employ?

[RECORD #, DK, REF]

F4.Which of the following best describes the ownership of the facility where the tune-up was completed? [READ LIST, SELECT ONE]

1. Our company owns and occupies this facility [SKIP TO CLOSING COMMENT]
2. Our company owns this facility but it is rented to someone else [CONTINUE TO F5]
3. Our company rents this facility [CONTINUE TO F5]
88. Don't know [SKIP TO CLOSING COMMENT]

99. Refused [SKIP TO CLOSING COMMENT]

[ASK IF F4=2 OR 3]

F5. Does your company pay the electric bill?

1. (Yes)
2. (No)
88. (Don't know)

99. (Refused)

F6. How much (approximate %) of your total business expenses are electricity?

12. [RECORD 0-100%], DK

CLOSING

CL1: Is there anything we haven't discussed that you would like to mention with regards to the program?

CLOSING COMMENT: Those are all the questions I have for you today.

Thank you very much for your time. Sudbury Hydro appreciates your taking the time to help improve this program.

Appendix B: Illustrative Advertising

Buy it cheap – and use it all day long.

Reduce heating costs with
Electric Thermal Storage

With the introduction of Smart Meters, electricity will be sold at different rates during the day depending on load. But if you use electric heat, now you can purchase electricity when it's at its lowest rate (during off-peak hours) and store it to heat your home all day long. It's called Electric Thermal Storage (ETS) and this technology can now be installed in your home or business, saving energy… and money. To make it even easier, Greater Sudbury Hydro will provide an incentive equal to 75% of the purchase price of the Electric Thermal Storage system up to a maximum of $2500.00. For details on our ETS incentive, call today.

675-0517

Greater Sudbury Utilities
Services Publics du Grand Sudbury

It's like storing nuts for the winter.

Reduce heating costs with
Electric Thermal Storage

With the introduction of Smart Meters, electricity will be sold at different rates during the day depending on load. But if you use electric heat, now you can purchase electricity when it's at its lowest rate (during off-peak hours) and store it to heat your home all day long. It's called Electric Thermal Storage (ETS) and this technology can now be installed in your home or business, saving energy… and money. To make it even easier, Greater Sudbury Hydro will provide an incentive equal to 75% of the purchase price of the Electric Thermal Storage system up to a maximum of $2500.00. For details on our ETS incentive, call today.

675-0517

Greater Sudbury Utilities
Services Publics du Grand Sudbury

GET PLUGGED INTO...

The Ultimate Energy and Cost Saving Solution for Parking Lot Operators

As an operator of a commercial establishment, you know how taxing winter energy costs can be. By installing Intelligent Parking Lot Controllers you can save up to 65% in energy costs associated with vehicle plug-ins.

Call Greater Sudbury Hydro today for details on how to reserve parking lot controllers.

We will even pay you up to $175 per unit installed!

Greater Sudbury Hydro Inc/
Hydro du Grand Sudbury Inc

Visit sudburyhydro.com
or call 753-2341 ext 2272 or 2283

Store your heat when you need it most.

Reduce heating costs with Electric Thermal Storage

With the introduction of Smart Meters, electricity will be sold at different rates during the day depending on load. But if you use electric heat, now you can purchase electricity when it's at its lowest rate (during off-peak hours) and store it to heat your home all day long. It's called Electric Thermal Storage (ETS) and this technology can now be installed in your home or business, saving energy… and money. To make it even easier, Greater Sudbury Hydro will provide an incentive equal to 75% of the purchase price of the Electric Thermal Storage system up to a maximum of $2500.00. For details on our ETS incentive, call today.

675-0517

Greater Sudbury Utilities
Services Publics du Grand Sudbury


The CoolerMiser is designed to use less energy in refrigerating beverage coolers.
call 705-675-0517
or visit www.sudburyhydro.com
POWER DOWN
WHEN NO
ONE'S AROUND
AND SAVE 35%-55%
IN ENERGY COSTS
The VendingMiser and CoolingMiser are designed to use less energy in refrigerating beverage vending machines by automatically powering down and re-powering the cooling system at one to three hour intervals, while ensuring that the product stays cold.
Call Greater Sudbury Hydro
today to receive your
FREE
VendingMisers and CoolingMisers
for your business establishment!*
Visit sudburyhydro.com or call 675-0517.

POWER DOWN WHEN NO ONE'S AROUND...

And save 35% - 55% in energy costs

The VendingMiser®, is designed to use less energy in refrigerating beverage vending machines by automatically powering down and re-powering the cooling system at one to three hour intervals, while ensuring that the product stays cold.

Call Greater Sudbury Hydro today for details on how to reserve VendingMisers® for your business establishment. **We will even pay you up to $175 per unit installed!**

Greater Sudbury Hydro Inc/
Hydro du Grand Sudbury Inc

Visit **sudburyhydro.com** or call **675-0517**.