

# **FINAL EVALUATION REPORT**

## **EVERY KILOWATT COUNTS: SUMMER SWEEPSTAKES CONTEST**

**Presented to**



**Ontario Power Authority™**

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## EXECUTIVE SUMMARY

The 2008 Every Kilowatt Counts Summer Sweepstakes (Summer Sweepstakes) program was delivered by Local Distribution Companies (LDCs) across Ontario and was designed to build awareness of Ontario's growing summer electricity requirements and the need for conservation during the warmer months of the year when air conditioning use dramatically increases the demand for electricity. The program sought to encourage residential customers to reduce their electricity consumption by 10 percent between July 1<sup>st</sup> and August 31<sup>st</sup> compared with their consumption during the same period in 2007. Customers wanting to participate were required to register with their LDC. If the 10% reduction was achieved, registered customers became eligible for a variety of prizes through a sweepstakes competition.

Although less than 2% of customer registered for the program (relative to a target of 10%), a significant number of non-registered customers appear to have taken energy saving actions as a result of the program and associated communications. Inclusive of these "active" non-registered customers, Navigant Consulting estimates that the overall participation rate fell in the range of 3% to 9%.

One-third of registered customers realized summer-over-summer savings of more than 9.5% and hence qualified for entry into the sweepstakes. LDCs reported that these qualifying customers exhibited an aggregate summer-over-summer reduction of just over 8 GWh. However, Navigant Consulting believes that these savings as reported by LDCs do not provide an accurate reflection of the gross impact of the Summer Sweepstakes program. Previous analysis by Navigant Consulting in its evaluation of the 2007 Summer Savings program determined that in each of the summers of 2004, 2005 and 2006, an average of 28% of the residential customers of a large Ontario LDC in Southwestern Ontario achieved summer-over-summer consumption reductions of 10% or more even in the absence of any similar summer savings or sweepstakes programs. Given this historical "qualification rate", Navigant Consulting believes that the qualification rate observed for the 2008 Summer Sweepstakes program was largely due to random factors not related to the actions that customers took to save energy that were influenced by the program.

Navigant Consulting's estimate of the gross energy impact of the program is based on the difference between the average change in consumption for all (not just qualified) registered customers and the average change in consumption for non-registered customers. Based on consumption data provided from LDCs from across Ontario for over 40,000 registered customers, the consumption of registered customers decreased by 57 kWh from 2007 to 2008 on average during the program period (July and August). Similarly, based on consumption data provided by LDCs for more than 130,000 eligible, non-registered customers from across Ontario, the consumption of non-registered customers increased by 22 kWh on average during the same period. Given this difference, Navigant Consulting estimates that the gross summer

savings were 79 kWh per registered customer representing a total of 5 GWh for all 62,670 registered customers.

To determine the free-ridership rate, Navigant Consulting developed a bottom-up estimate of the summer savings for registered customers who responded to a survey asking, among other things, about the energy savings actions they took and the influence of the Summer Sweepstakes program on those actions. Wherever possible, savings for the actions were taken directly from the 2009 OPA Measures and Assumption List (Mass Market)<sup>1</sup>. For those actions for which prescriptive input assumptions were not previously established by the OPA, Navigant Consulting developed savings estimates based on survey responses, secondary research from other jurisdictions and professional judgment. A comparison of the bottom-up estimate reflecting the mix of actions taken by registered customers who responded to our survey and the reported influence of the Summer Sweepstakes program on these actions against the observed difference in consumption for these same customers relative to non-registered customers indicated that the free-ridership rate for the Summer Sweepstakes program was approximately 22%, resulting in a net-to-gross ratio among registered customers of 78%. Based on this analysis, the net summer savings from registered customers was estimated to be 3.9 GWh (ie, 5 GWh x 78%).

The requirement for customer registration in the Summer Sweepstakes program significantly reduced the free-ridership rate compared with the 2007 Summer Savings program. Specifically, the free-ridership rate for the 2007 Summer Savings program, that did not include a customer registration requirement, was found to be 92% based on Navigant Consulting's previous evaluation, which is much higher than the estimated 22% free-ridership rate for the 2008 Summer Sweepstakes program.

Based on the results of a survey of non-registered customers, Navigant Consulting believes that additional summer savings were achieved by "active" non-registered customers who were 1) aware of the program, and 2) reported taking at least one energy saving action during the summer. This "free-drivership" impact was estimated to fall in the range of 3 to 20 GWh, based on a similar bottom-up estimate of the summer savings as described above for registered customers applied to "active" non-registered customers who were most likely to have been influenced by the program. Two progressively stringent screens based on their other survey responses were applied to identify the group of active non-registered customers who were most likely to have been influenced by the program. The higher end of the range (20 GWh) reflects the estimated summer savings for the group resulting from the first screen and the lower end of the range (3 GWh) reflects the results of the second, more stringent screen. Note that the bottom-up estimate of summer savings for all active non-participants without

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<sup>1</sup> Ontario Power Authority, 2009 OPA Measures and Assumptions List (Mass Market), November 2008

application of any screening was 46 GWh, but Navigant Consulting believe this overstates the free-drivership impact from non-registered customers.

Including the free-drivership impact from active non-registered customers, the net summer savings for the Summer Sweepstakes program were estimated to fall in the range of 7 to 24 GWh as shown in Figure 1. Navigant Consulting's estimates of the range of net annual savings, net lifetime savings and peak demand impact are also presented in Figure 1. These other impacts reflect a similar approach as described above for the net summer savings (ie, impact of registered customers net of free-ridership plus range of free-drivership from active non-registered customers).

*Figure 1: Estimated Impact of 2008 Summer Sweepstakes Program*

Period	Total Program Savings	
	Lower Range	Upper Range
Summer Savings (GWh)	7	24
Annual Savings (GWh)	38	116
Lifetime Savings (GWh)	196	574
Peak Summer Impact (MW)	9.5	34.4

Table 1 presents a comparison of the program results and objectives.

*Table 1: Comparison of program objectives and results*

Program Goal	Actual Results
Enroll at least 360,000 (10%) of the eligible Residential Customers in	62,670 registered customers
Encourage 50% of registered customers to reduce their electricity consumption by at least 10% during the Summer Program Season	33% of registered customers qualified
Achieve a province-wide savings of 1MW in residential electricity usage during the Program Season (July 1st to August 31st , 2008)	9 - 34 MW summer peak impact
Contribute to the culture of conservation by increasing awareness of the link between taking conservation actions and reducing summer energy bills	84% registered customers took at least one conservation action
Assess "sustained" behavioural changes i.e. how efforts have permanently changed the way people use and think about energy / electricity	40% believe their participation in Summer Sweepstakes has DEFINITELY helped them understand actions they can take to reduce household energy consumption

Navigant Consulting understands that the OPA is not offering a similar program for the summer of 2009. However, if a similar program is offered in 2010 or later, Navigant

Consulting offers the following recommendations for any future reward programs based on our findings for the 2008 Summer Sweepstakes program.

1. Customers should be required to register for the program to minimize free-ridership.
2. Bill credits should be offered for qualifying customers since this is the most preferred form of “incentive” reported by registered and non-registered customers.
3. Given the potential magnitude of the free-drivership impact from active non-registered customers and the uncertainty associated with this estimate for the 2008 Summer Sweepstakes program, the evaluation for any similar programs offered in the future should include customer contact and consumption history for a large sample of non-registered customers. This would allow the average summer-over-summer savings of active non-registered customers to be accurately determined and compared against the average savings for registered and inactive non-registered customers.
4. Consideration should be given to approaches to estimate other differences between registered customers and non-registered customers to better determine the percentage of the difference in summer-over-summer savings between these groups attributable to the “reward” program versus other programs and/or customer actions unrelated to the reward program.

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## INTRODUCTION

This report presents the results of Navigant Consulting's evaluation of the Ontario Power Authority's (OPA) 2008 Summer Sweepstakes Contest.

### 2008 EKC Summer Sweepstakes Program Description

The 2008 Every Kilowatt Counts Summer Sweepstakes (Summer Sweepstakes) program was designed to build awareness of Ontario's growing summer electricity requirements and the need for conservation during the warmer months of the year when air conditioning use dramatically increases the demand for electricity. The Summer Sweepstakes program sought to encourage residential customers to reduce their electricity consumption by 10 percent between July 1<sup>st</sup> and August 31<sup>st</sup> compared with their consumption during the same period in 2007. If this reduction was achieved, registered customers became eligible for a variety of prizes through a 'sweepstakes' competition, as shown in Table 2.

*Table 2: Summer Sweepstakes – 2008 Prizes*

Early Bird Prizes	Grand Prizes
<ul style="list-style-type: none"> <li>• 10 Stenic Clothes Lines - Approx. Retail Value: \$220</li> <li>• 150 Solio Classic Hybrid Chargers - Approx. Retail Value: \$119.99</li> <li>• 100 Philips Green Power/Surge Protector Standby power bars - Approx. Retail Value: \$39.99</li> <li>• 25 Triple Slide Out Recycling Centres - Approx. Retail Value: \$99.99</li> <li>• 100 Westinghouse 'Crawford II' 10-pc Solar Garden Lights Set - Approx. Retail Value \$99.99</li> </ul>	<ul style="list-style-type: none"> <li>• 10 LG 22.4 cu. Ft. Trio Refrigerator w/Ice &amp; Water ESTAR, Stainless - Approx. Retail Value \$2,699.99</li> <li>• 10 LG 30" Smooth Top, Self Cln, Convection, Free Standing Electric Range, Stainless - Approx. Retail Value \$1,699</li> <li>• 10 LG 24" Tall Tub Built In Dishwasher ESTAR, Stainless - Approx. Retail Value \$1,449.99</li> <li>• 15 LG 4.0 Front Load Washing Machine ESTAR, Titanium - Approx. Retail Value \$1,599.99</li> <li>• 15 LG 7.3 Electric Dryer, Titanium - Approx. Retail Value \$1,199.99</li> <li>• 30 LG 13.5" Pedestal, Titanium - Approx. Retail Value \$199.99</li> <li>• 20 iPod touch, 32 gig with Solio Classic Hybrid charger - Approx. Retail Value \$609.89</li> <li>• 15 Trek 6000 Mountain Bikes, Black 17.5 inch frame - Approx. Retail Value \$849</li> <li>• 15 Trek 6000 Mountain Bikes, Red &amp; White 15.5 inch frame - Approx. Retail Value \$849</li> </ul>

The objective of the Summer Sweepstakes Program was to:

- Enroll at least 360,000 of the eligible Residential Customers in Ontario (equal to 10%) in the program;

- Encourage 50% of these registered customers to reduce their electricity consumption by at least 10% during the Summer Program Season;
- Achieve a province-wide savings of 1 MW in residential electricity usage during the Program Season (July 1st to August 31st , 2008);
- Contribute to the culture of conservation by increasing awareness of the link between taking conservation actions and reducing summer energy bills; and
- Assess “sustained” behavioural changes i.e. how efforts have permanently changed the way people use and think about energy / electricity.

This program was delivered by Local Distribution Companies (LDCs) across Ontario. Customers’ electricity consumption during the two-month summer period was compared to their 2007 consumption and uniformly corrected for variations in the weather. The OPA provided the necessary weather correction factors to be applied to both the 2008 consumption and the 2007 baseline consumption data.

## Overview of this Report

The subsequent sections of the report (this Introduction is the first) are organized as follows:

- The second section presents the analysis of the consumption data provided by the LDCs;
- The third section presents the results of the survey of registered and non-registered customers;
- The fourth section presents the energy savings attributable to the program as reported by LDCs;
- The fifth section presents the estimated gross energy savings attributable to the program;
- The sixth section presents the key elements underlying the net-to-gross determination for the program, such as free-ridership and free-drivers;
- The sixth section presents the estimated net energy and demand savings attributable to the program; and
- The seventh section presents NCI’s recommendations and conclusions.

Appendix A contains a copy of the registered and non-registered participant telephone surveys for the 2008 Summer Sweepstakes program. Appendix B provides the results from the billing analysis and Appendix C provides a summary of the data requirements submitted to the participating LDCs.

## ANALYSIS OF CONSUMPTION DATA FROM LDCs

Based on NCI's previous evaluations of similar programs (e.g., the OPA's Summer Savings 2007 program, California 20/20 program), it has been determined that the most accurate method to assess net program energy savings is to compare the average change in summer-over-summer consumption for program participants with non-participants. In order to obtain consumption data from both participants and non-participants, Navigant Consulting submitted a data request to all participating LDCs in the fall of 2008. The specific information requested was as follows:

*For Registered Customers ("Participants"):*

1. Contact information;
2. Actual kWh consumption and read date for each actual (not estimated) meter read from January 2007 through to the most recent read after September 2008; and
3. Summer-over-summer percentage change in consumption and kWh change in consumption for each registered customer after application of the OPA's prescribed weather correction factor and methodology to the customer's meter readings / consumption history.

*For Non-Registered Customers (5% random sample of eligible non-participant customer base)*

- Summer-over-summer percentage change in consumption and kWh change in consumption after application of the OPA's prescribed weather correction factor and methodology to the customer's meter readings / consumption history.

A copy of the data request and format requirements has been provided in Appendix C: LDC Data Request and Format Requirements.

Navigant Consulting would like to take this opportunity to acknowledge and thank each of the LDCs that responded for their prompt efforts to satisfy our data request. These efforts enhanced the overall success of NCI's evaluation of the Summer Sweepstakes program. In total, 57 out of the 69 participating LDCs submitted registered participant data, enabling Navigant Consulting to analyze consumption data for over 40,000 registered program participants and to link customer-specific consumption data with survey responses. Likewise, LDCs submitted summer-over-summer percentage change and kWh change in consumption data for over 130,000 eligible non-registered customers, enabling a sound statistical analysis to be performed for each customer group.

## Participation Rate

The total percentage of registered customers in relation to their total residential customer base varied considerably by LDC - between 0.2% to 9.2%. Niagara-on-the-Lake had the highest overall proportion of registered participants at 9.2% of their customer base. Taking the weighted average of all the submitted LDCs, an average LDC participation rate was determined to be 1.7% of the total residential customer base. Weighted averages were also determined for the four geographic areas are presented below in Table 3.

*Table 3: Average program participation rate by geographic location (percentage of residential customer base)*

Region	Participation Rate (All customer base)
SW Area	2.7%
GTA Area	0.9%
Central East/West	1.4%
Northern	4.6%
Ontario (all)	1.7%

However, it should be noted that this participation rate is in respect to the total customer base of each LDC, which includes both eligible and non-eligible customers. As per the contest rules<sup>2</sup>, the specific eligibility requirements for the program are:

- Residential customers, excluding seasonal accounts, recreational accounts, and individually or bulk metered multi-unit residential accounts;
- Active account holders at the same address since July 1, 2007 in the name of at least one account holder at such address; and
- Account holders of record with a participating LDC.

In 2007, the LDCs estimated that approximately 75% of their customer base would be eligible to participate in the program<sup>3</sup>. Applying this eligibility rate across the LDCs, Navigant Consulting observes a small increase in the participation rate by geographic region, (between

<sup>2</sup> Taken from *The Every Kilowatt Counts Summer Sweepstakes Contest Rules*, <http://everykilowattcounts.ca/residential/summersweepstakes/full-contest-rules.php>.

<sup>3</sup> Taken from Appendix E: Summer Savings Program Methodologies, issued as part of the original RFP for evaluation services related to 2007 Summer Savings Program.

1.2% in the GTA region, to 6.6% in the Northern Region,) as shown in Table 4, with the weighted average participation for all of Ontario increasing to 2.2%.

*Table 4: Average program participation rate by geographic location (percentage of eligible customers)*

Region	Participation Rate (Eligible customers only)
SW Area	3.7%
GTA Area	1.2%
Central East/West	1.9%
Northern	6.6%
Ontario (all)	2.2%

As a comparison, based on the random surveying techniques used by Navigant’s research subcontractors to reach non-participants, 15 out of the 453 respondents (3.3%) indicated that they registered for the program. However, this sample would have comprised both eligible and ineligible customers.

## Qualified Participants

The requirements for “qualified” participants are listed below. These are based on the EKC Summer Sweepstakes contest rules:

- Persons who achieve a 10% savings target (electricity consumption reduced by 10% between the period of July 1, 2008 to August 31, 2008) as compared to corrected and normalized data from the same timeframe in 2007, as determined by the following methodology:
  - Each participant in the Summer Sweepstakes program must have actual (not estimated) electricity meter readings before and after July 1 and August 31 (the 62 day period within the months of July and August are referred to as the “Program Period”) in 2007 and the 2008 year. Meter readings must be taken no more than 80 days before and after the Program Period.
  - While the meter reading periods extend both before and after July and August, the Program Period will be the only period of time considered for the Summer Sweepstakes program purposes.
  - The percentage of savings will be calculated by pro-rating the number of days in the Program Period (62 days) over the total number of days in the metered period, and then multiplying this number by the number of kWh of electricity

consumed in each of the two years. These calculations must be performed by each participating LDC.

- This calculation will prorate the number of days in the Program Period (62 days) over the total number of days in the metered period, and then will multiply this number by the number of kilowatt hours (kWh) of electricity consumed in each of the two years. This will allow the percentage of savings to be calculated.

In terms of the percentage of registered customers who were successful at reducing their summer over summer consumption by 10%, considerable variability was observed between the LDCs, ranging between 25% to 56% of registered participants.

Norfolk Power had the highest percentage of registered participants who qualified for the program, with a remarkable 56% of their registered customers reducing their weather-adjusted summer over summer consumption by at least 10%. Taking the weighted average of all the submitted LDCs, an average success rate for registered participants was 33%. Weighted averages were also determined for the four geographic regions as presented below in Table 5.

*Table 5: Average percentage of registered customers who qualified for the Summer Sweepstakes Program by geographic location*

Region	Qualified Registered Participants
SW Area	32%
GTA Area	33%
Central East/West	31%
Northern	35%
Ontario (all)	33%

In comparison, 37% of the 404 registered customers surveyed by Navigant's research partner qualified for entry into the contest.

For registered participants who were successful in reducing their consumption by 10% in summer 2008 over summer 2007, the average gross summer savings for each LDC varied between 230 kWh to 650 kWh, with the highest average household gross saving realized by Oshawa PUC Networks customers, at 650 kWh. In terms of geographical regions, registered participants from Northern LDCs who achieved a minimum of 10% savings averaged 433 kWh per household, whereas those who lived in the Central East/West region saved 353 kWh.

Average savings for all regions are shown in Table 6, with the average gross saving for all of Ontario being 402 kWh.

*Table 6: Average summer 2008 savings for qualified participants (gross saving)*

Region	Average Summer Savings for Qualified Participants (kWh)
SW Area	402
GTA Area	414
Central East/West	353
Northern	433
<i>Ontario (all)</i>	<i>402</i>

This value is 6% lower than the average gross savings of 430 kWh for qualifying customers reported for the 2007 Summer Savings program<sup>4</sup>, however the number of qualified customers in the 2007 program was considerably larger, at over 850,000.

### Historic Variability of Summer-over-Summer Consumption

Previous analysis by Navigant Consulting, undertaken as part of the 2007 Summer Savings evaluation, indicates that a relatively high percentage of customers exhibit summer-over-summer reductions of more than 10% even without the influence of a program such as the 2008 Summer Sweepstakes program. The results of our analysis of what would have been eligible customers from an LDC in Southern Ontario if the 2007 Summer Savings program had been offered prior to 2007 are summarized below.<sup>5</sup>

On average, across the three historical summer periods reviewed (2004 - 2006), 28.1% of residential customers reduced their weather-normalized summer-over-summer consumption by more than 9.5%). The percentage of customers who would have randomly qualified varied from year to year, ranging from a low of 16.9% in 2004 to a high of 46.1% in 2006. In a given year, customers who would have qualified for an incentive consumed, on average, 20% less electricity when compared to their consumption over a previous summer season. Table 7 summarizes the result of these calculations by year.

*Table 7: % of Qualified and Non-Qualified Customers and Average Change in Summer Electricity*

<sup>4</sup> Navigant Consulting, Final Evaluation Report: 2007 Summer Savings Program, prepared for the OPA by Navigant Consulting, August 2008.

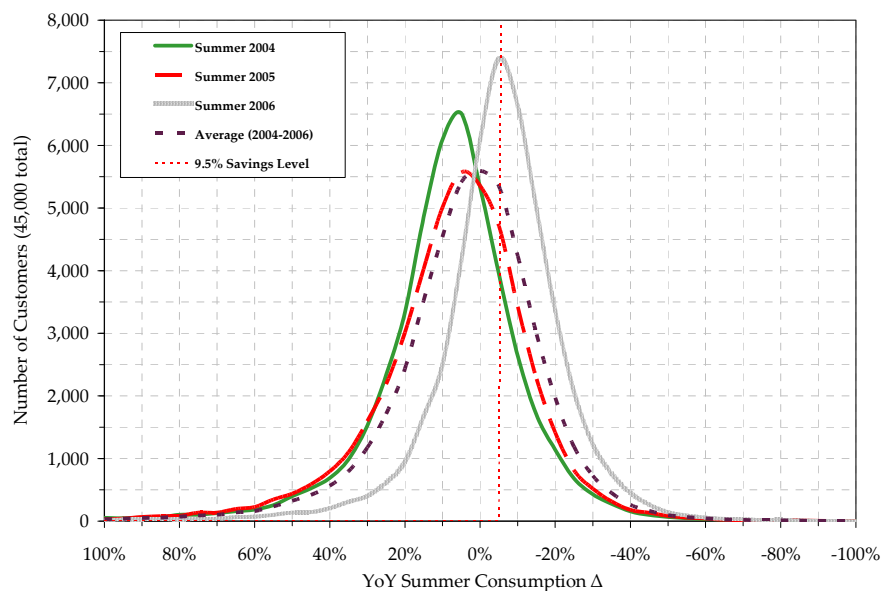
<sup>5</sup> Further details of this analysis are provided in the Final Evaluation Report: 2007 Summer Savings Program.

Consumption

	Qualified				Non-Qualified
	2004	2005	2006	Average 2004-2006	Average 2004-2006
% of Customers	16.9%	21.4%	46.1%	28.1%	71.9%
YoY Summer Consumption $\Delta$	-20.5%	-20.3%	-20.6%	-20.5%	11.3%

Figure 2 illustrates the distribution of year-over-year variance in summer electricity consumption for the set of customers over each of the three summer periods and on average over the entire historical period analyzed (2004-2006).

Figure 2: Distribution of %-Change in Historical Summer Electricity Consumption



The key takeaway from this historical analysis is that the percentage of registered customers in the Summer Sweepstakes program who reduced their weather-normalized summer-over-summer consumption by more than 9.5% was (at 33%) only slightly more than the historic average of 28% of eligible customers who would have randomly exhibited such a change in the absence of a program. This suggests that qualification is not necessarily an indication of the level of savings achieved and that there are other random factors affecting the observed summer-over-summer change in consumption.

Further, even though a customer may have registered for the Summer Sweepstakes program and may have achieved the 10% savings, it should not necessarily be assumed that they were



*actively* trying to reduce their energy consumption. These and other considerations are explored in further detail in the *Net-to-Gross Analysis* section starting on page 25 of this report.

## SURVEY OF PARTICIPATING AND NON-PARTICIPATING CUSTOMERS

A survey covering both participating and non-participating customers was conducted between February and March 2009 by Navigant Consulting's market research partner, Opinion Search. Participating LDCs provided Navigant Consulting with contact information and weather-adjusted summer 2007 and 2008 consumption per the OPA's Summer Sweepstakes rules (please refer to Appendix C: LDC Data Request and Format Requirements) in addition to summer-over-summer % change in consumption for registered (participating) customers.

Specific quota's for geographic areas were determined by Navigant Consulting based on the registered customer data submitted by the LDCs. For example, approximately 43% of the registered customer consumption data submitted by LDCs was for customers based in South-Western Ontario, therefore an equivalent quota for survey responses was set for this area. All customer contact information and associated consumption data were then categorized into each of these four geographic regions (based on the location of their LDC) and customers were surveyed at random until the specific regional quotas were met.

The complete breakdown of all 404 completed participant surveys by geographic region is provided in Table 8.

*Table 8: Completed participant surveys by geographic region*

Region	Completed Surveys	Percentage
SW Area	170	42%
GTA Area	136	34%
Central East/West	76	19%
Northern	22	5%
<b>Total</b>	<b>404</b>	<b>100%</b>

In addition to surveying registered customers, NCI's market research partner also completed approximately 453 random surveys with residential customers across Ontario, using the same regional quotas established for the participant survey. This revealed 15 respondents (3%) who indicated that they registered for the program. These responses were excluded from the non-participant analysis. Table 9 provides a summary of the breakdown of the non-participant survey responses used in the analysis.

Table 9: Completed non-participant surveys by geographic region

Region	Completed Surveys	Percentage
SW Area	186	43%
GTA Area	144	33%
Central East/West	85	19%
Northern	23	5%
<i>Total</i>	<i>438</i>	<i>100%</i>

## Survey Design

The surveys for participant and non-participant customers were almost identical and covered such topics as:

- The respondent's awareness of Summer Sweepstakes and other programs;
- When the respondent first become aware of the program;
- The respondent's motivation for participating in the program (or reason for NOT participating – in the case of non-participants);
- Whether or not the respondent took specific actions to reduce their electricity consumption to be eligible for the program and if so:
  - What specific actions were taken to be eligible for the program (both behavioural and equipment-based actions were noted);
  - Whether or not these actions were also taken as part of respondent's participation in other energy conservation programs, specifically other OPA programs (EKC, GRRP and HCSP);
  - Likelihood of the respondent taking the action had they not registered for the program;
  - Influence of Summer Sweepstakes on their overall decision to undertake the action.
- Whether or not the respondent participated in 2006 or 2007 Summer Savings program; and
- The extent to which Summer Sweepstakes has helped the respondent understand the actions they can take to reduce their household energy usage.

The surveys also considered respondent demographic and psychographic segmentation (based on a battery of OPA attitudinal questions).

A copy of the survey is provided in Appendix A: Summer Sweepstakes Telephone Survey.

## Analysis of Participant / Non-Participant Characteristics

The section that follows presents Navigant Consulting's findings on the analysis of characteristics of both participants and non-participants in the Summer Sweepstakes program based on survey responses.

### *Demographics*

Table 10 provides a comparison of key demographics for the surveyed participants and non-participants. As indicated, there are a few disparities between both surveyed groups, with the greatest divergence being the percentage of households with air conditioning and the percentage of household with electric water heaters.

*Table 10: Key demographics of surveyed customers*

Characteristics	Participants	Non-Participants
Single family detached home	76%	69%
Own home (versus rent)	92%	86%
1,500 to 2,000 sq ft	27%	27%
Air conditioning (central, ductless or window unit)	90%	72%
Electric water heating	19%	28%
University/college degree	68%	64%
Household income above \$60,000	64%	57%

Based on these findings, NCI has determined that participants who registered in Summer Sweepstakes were more likely to have air conditioning and less likely to use electricity for their water heating needs compared with non-participants. Furthermore, as indicated in the table, participants were somewhat more likely to live in single family detached homes and have medium to medium-high household income levels (i.e., \$60,000 to \$100,000 annually) compared with non-participants.

## Program Awareness and Motivations

Table 11: Summary of key findings regarding program awareness and customer motivations

Survey Issue	Participants	Non-Participants
Has heard of Summer Sweepstakes program	98%	40%
Recalls registering for program	94%	3%
Period when they became aware of program	Before summer 2008: 57%	Before summer 2008: 35%
Main source of awareness	Bill insert: 35%	Radio, TV: 30%
Primary motivation for participating in Summer Sweepstakes	Reduce electricity/save money: 43%	N/A
Aware there was a registration process and knew how to register	N/A	26%
If not aware of program, likelihood of registering in program had they known about the program	N/A	Extremely or very likely: 37%
Top reason for non-participants to not register for program (if aware of program)	N/A	"I already conserve energy on my own": 23%
Top form of reward respondents would prefer if program were to be offered in the future	Bill credit: 48%	Bill credit: 44%

Although all of the 404 surveyed participants would have registered for the Summer Sweepstakes program based on the information provided from the LDCs, 94% recalled registering for the program and 98% had heard of the Summer Sweepstakes program. This small discrepancy in the results is likely due to the fact that:

- Some participants registered almost a year ago and may not remember the program; or
- The individual surveyed was not the person who registered for the program or was not the most knowledgeable person in the home about their household electricity use.

In terms of the non-participants, approximately 40% of the 453 respondents had heard of the Summer Sweepstakes program, of which 15 (or 3%) recalled registering for the program. Since the non-participant survey was a random survey across Ontario, Navigant Consulting expected to capture a few registered participants in the non-participant survey. Survey results from these 15 respondents were treated separately and not included in the non-participant analysis.

Furthermore, of the 155 non-participants who had heard of the Summer Sweepstakes program, 74% of the respondents were not aware that there was a registration process. For the remaining non-participants who had not heard of the program, 37% stated that they would have been extremely or very likely to register and participate in the program had they known about the program and the registration process.

As shown in Figure 3, bill inserts were the most recalled source of awareness for the Summer Sweepstakes program by participants, whereas for non-participants, of the 166 respondents who were aware of the program, 30% stated that the radio and TV were their primary sources of awareness.

*Figure 3: How did you first hear of the Summer Sweepstakes program?*

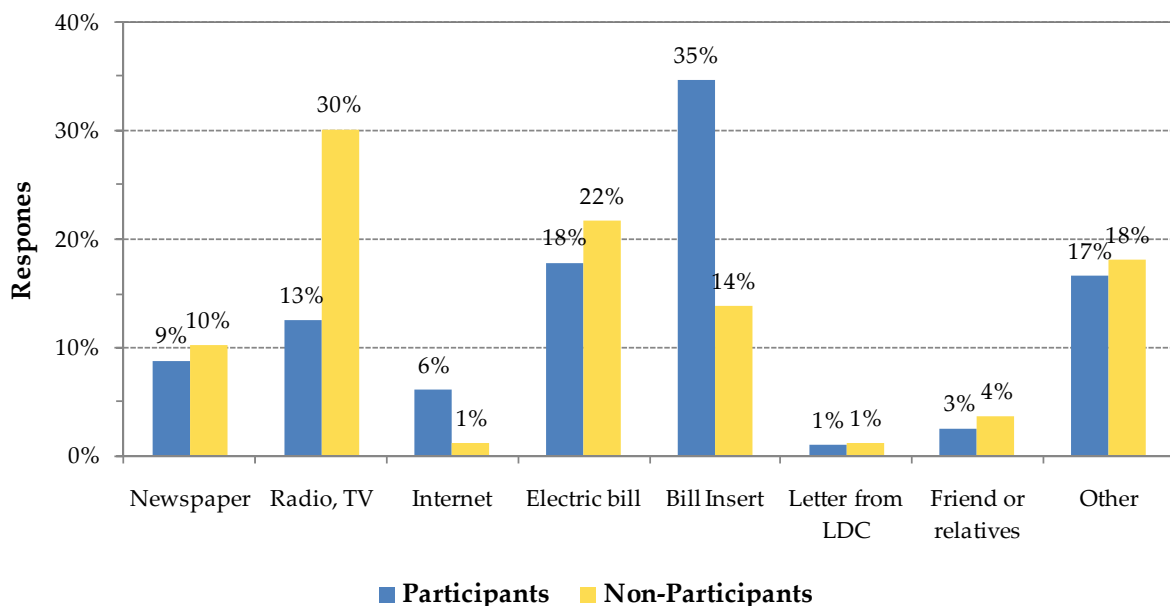
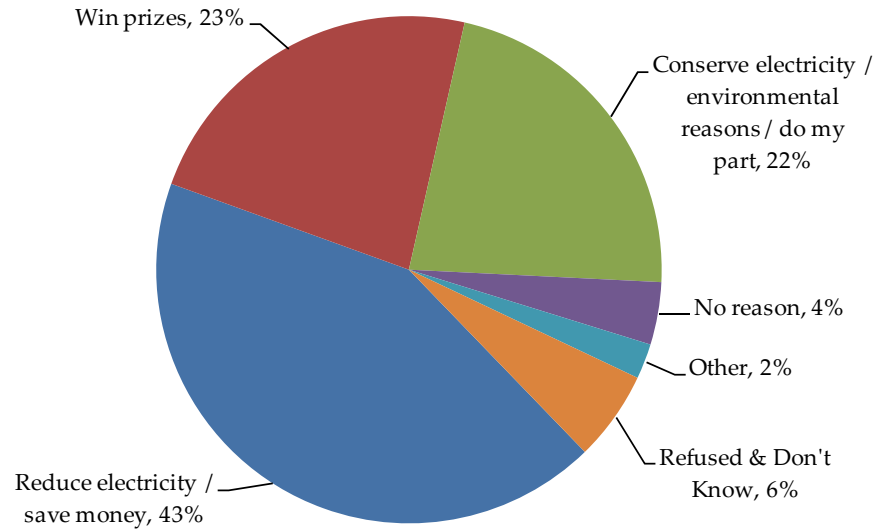


Figure 4 illustrates the various primary motivations for participants who ultimately registered in the program. Reducing electricity / saving money was the top reason, with 43% of respondents, followed by winning prizes and conserving electricity / environmental reasons with 23% and 22%, respectively.

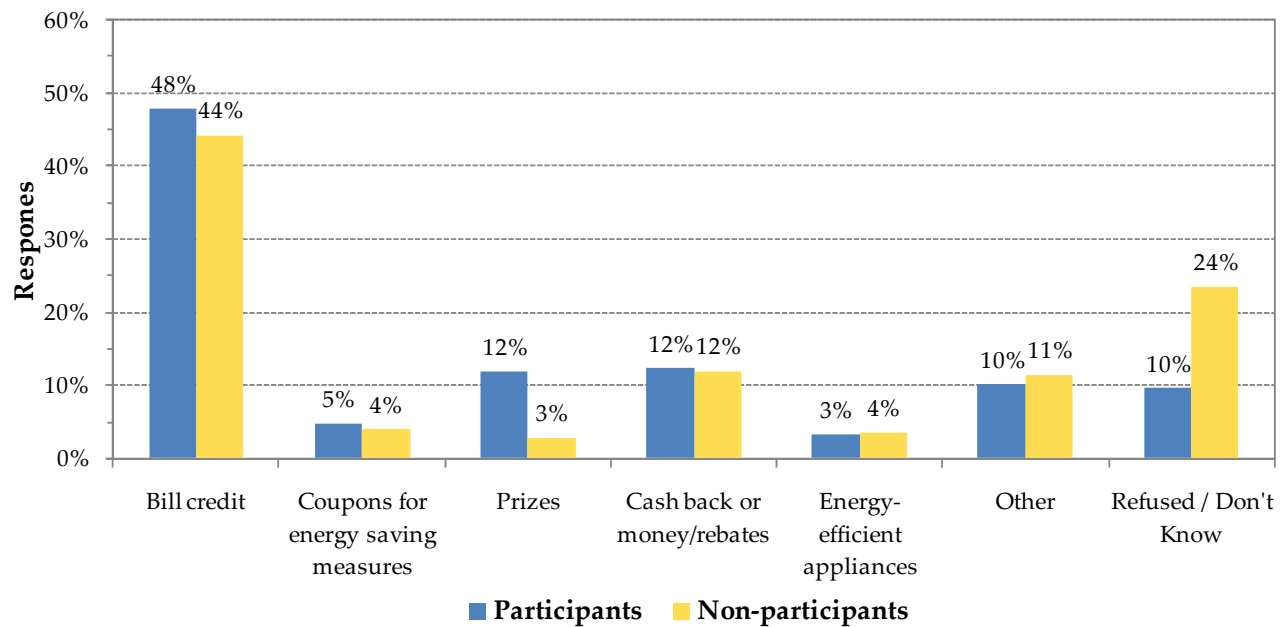
Figure 4: What was your primary motivation for participating in the program?



In terms of the non-participants who heard of the program but failed to register (40 respondents), reasons for not registering varied considerably, with the top reason being “I already conserve energy on my own” at 9 responses or 23%. Note: Due to the low response rate for this question, results were not found to be statistically significant.

Both groups of survey respondents were asked about which forms of reward or incentives they would prefer if the program were to be offered in the future. As shown in Figure 5, bill credit was viewed as the preferred reward for both participants (48%) and non-participants (44%), with cash back or financial rewards/rebates a distant second, at 12%.

Figure 5: What form of rewards or incentives would you prefer if the program is offered in the future?



## Marketing Effects

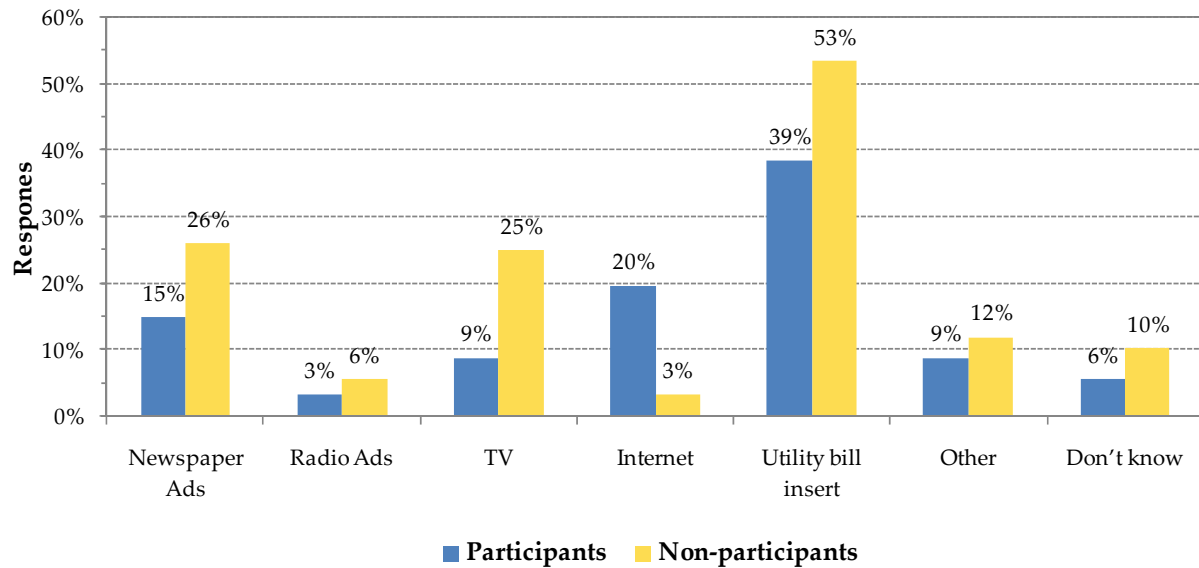
Table 12: Summary of key findings of the overall marketing effects of the program

Survey Issue	Participants	Non-Participants
Recall seeing promotional material	81%	53%
Location of promotional material	Bill insert: 39%	Bill insert: 53%
Effectiveness of promotional material	Extremely effective: 31%	Extremely effective: 13%
Respondents who use the internet to seek out information on energy efficiency programs and opportunities to reduce consumption	47%	26%

Approximately 8 out of 10 surveyed participants recall seeing marketing or advertisements promoting the Summer Sweepstakes program, with 39% indicating they recall seeing it through a bill insert, as shown in Figure 6. Not surprisingly, non-participants were less likely to recall seeing marketing or advertising for the program (53%). Similarly to the participant results, of the 88 non-participant respondents who recall seeing promotional materials, 53% identified the utility bill as the source of the advertisement.



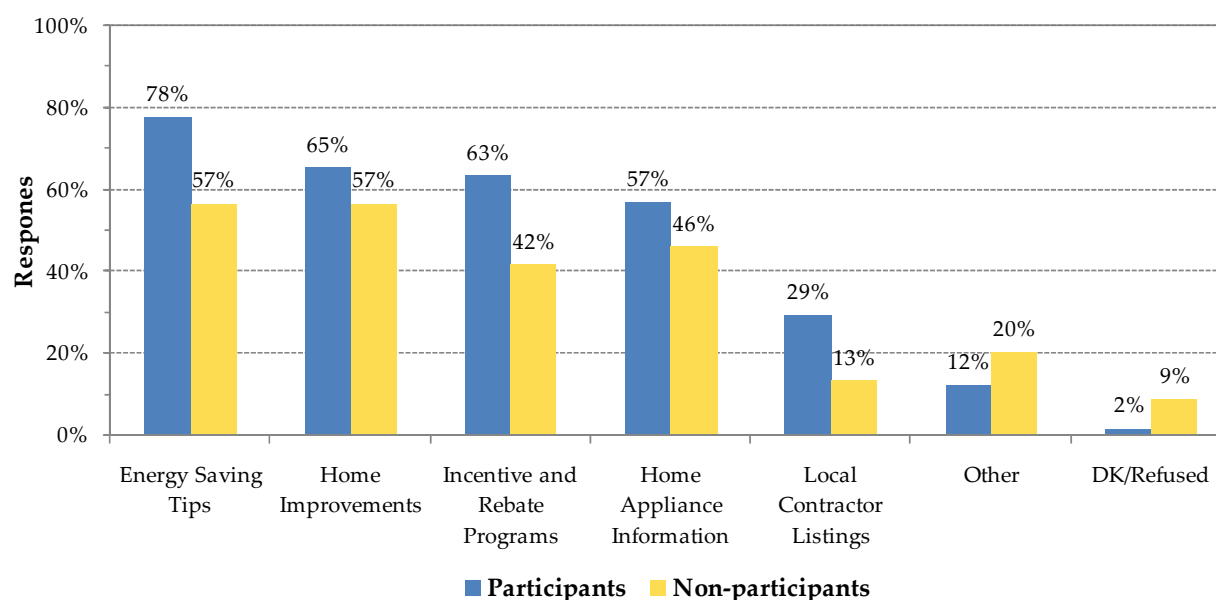
Figure 6: Please identify where you saw promotions for the program



In terms of the effectiveness of the marketing and promotional material, 91% of the surveyed participants indicated that the marketing or promotional materials were “extremely effective” or “somewhat effective” to inform them about the program and encourage them to reduce their household energy consumption. Likewise, for non-participants, of those who recalled seeing promotional materials, just under 80% believe the marketing or promotional materials were “extremely effective” or “somewhat effective”, with only 17% stating that they were “not at all effective” in informing them about the program and encouraging them to reduce their household energy consumption.

Both participants and non-participants were asked about their use of the internet to seek out information on energy efficient programs and opportunities to reduce their household consumption. Interestingly, participants are almost twice as likely to use the internet for these purposes than non-participants (47% vs. 26% respectively), with most participants (78%) and more than half of the non-participants (57%) stating they have used the internet to seek out energy saving tips.

Figure 7: What kind of information do you generally use the internet to seek out?



### Participation in Other Programs

Table 13: Key findings - participation in other programs

Survey Issue	Participants	Non-Participants
Participated in 2006 or 2007 Summer Savings Program	31%	7%
Recall receiving a bill credit for 2006 or 2007 program	41%	50% <sup>6</sup>
Participation in Summer Sweepstakes program has motivated participation in other conservation programs	43%	N/A
Other conservation programs participated in	Don't know: 37%	N/A
Respondents who believe participation in Summer Sweepstakes has <i>definitely</i> helped them understand actions they can take to reduce household energy consumption	40%	N/A

Both survey groups were asked if they participated in either the 2006 or 2007 Summer Savings programs offered by the OPA. Surprisingly, 31% of registered participants stated they participated in either the 2006 or 2007 Summer Savings program, with approximately 41% acknowledging that they received a bill credit, indicating their success in reducing their summer over summer consumption by at least 10%. Non-participants were less likely to have participated in past years, with only 7% (30 respondents) indicating they participated before.

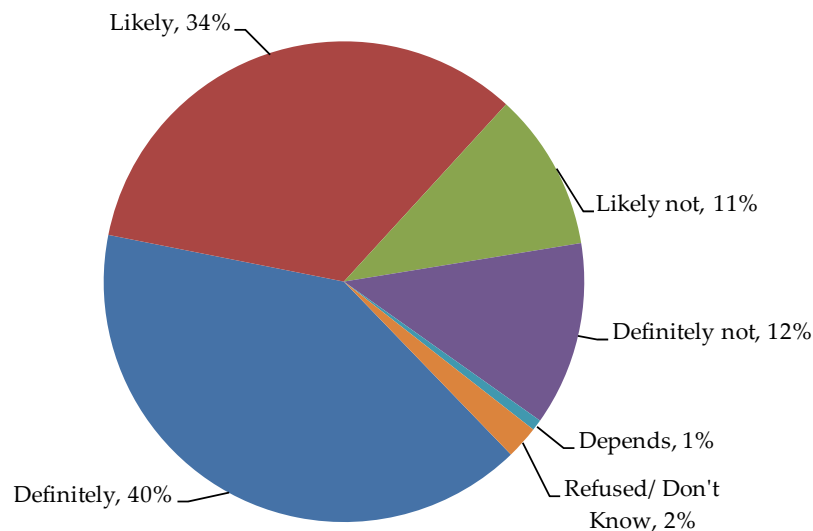
<sup>6</sup> Based on small number of respondents (30 responses).

However, half of them indicated that they received a 10% bill credit for their efforts. It should be noted that this is based on a relatively small sample size and may not accurately reflect the entire population of non-participants.

It is interesting to note that 43% of respondents revealed that their participation in Summer Sweepstakes program motivated them to participate in other conservation programs. However, 37% of those respondents are not able to specify which conservation programs they have recently participated in, and 25% indicated that they haven't yet participated in any other conservation programs.

Finally, registered participants were asked if they believe the Summer Sweepstakes program has helped them to understand the actions they can take as a household to reduce their energy consumption. As illustrated in Figure 8, roughly 3 out of 4 respondents stated that the program has "definitely" or has "likely" helped them understand the actions they can take to reduce household consumption, whereas 1 in 4 respondents stated "likely not" or "definitely not" in response.

*Figure 8: Do you believe that participation in Summer Sweepstakes has helped you to understand the actions that you can take to reduce your household energy usage?*



## ENERGY SAVINGS REPORTED BY LDCs

Based on data provided to the OPA by LDCs, 62,670 eligible single family residential customers registered for the program. This represents approximately 1.5% of the 4.3 million residential customers in the participating LDCs based on the most recent data available from the Ontario Energy Board<sup>7</sup>. The estimated customer population for the summer of 2008 was taken as the average of the reported year-end 2007 population data available from the Ontario Energy Board, in addition to a 5 month growth rate experienced in the previous year.

As previously indicated in Table 5, on average, 33% of registered participants qualified for the Summer Sweepstakes program, and, as indicated to Table 6, qualified customers reduced their summer-over-summer consumption by approximately 402 kWh, according to data provided by the participating LDCs to Navigant Consulting.

Based on these findings, the energy savings reported by LDCs are:

62,670 registered customers x 33% qualification rate x 402 kWh savings / customer

8,313,800 kWh

8.3 GWh

These savings do not reflect the fact that a large number of registered customers did not take specific actions to qualify for the program, but merely qualified through random fluctuations in their summer-over-summer consumption for other reasons as discussed in *Historic Variability of Summer-over-Summer Consumption* on page 7. Neither does this take into account savings from actions performed by non-qualified registered customers (and, to some extent, non-registered customers) who were influenced by the program. These factors and their impact on the gross and net savings for the program are discussed in the following two sections of this report.

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<sup>7</sup> The spreadsheet with LDC customer counts and other information is available at:  
<http://www.oeb.gov.on.ca/OEB/Industry+Relations/OEB+Key+Initiatives/Comparison+of+Electricity+Distributors+Costs>

## GROSS ENERGY IMPACT

While the energy savings reported by LDCs provided in the previous section is based on the savings of qualified customers, the customer surveys indicated that less than half of the registered customers who qualified reported taking specific actions to qualify for the program. Further, many of the registered customers who did not qualify also reported taking actions in an effort to qualify for the program. Finally, analysis of historic summer-over-summer variability suggests that qualification for the Summer Sweepstakes program can be influenced by non-program factors.

Given this, Navigant Consulting has estimated the gross energy impact of the program based on the difference between the average summer-over-summer change in consumption for registered customers and the corresponding average for eligible non-registered customers.

### Average Energy Savings for Registered Customers

In order to determine the average savings for a registered customers (regardless of whether they qualified or not), Navigant Consulting reviewed the entire registered customer data submitted by the LDCs and compared the weather-adjusted summer over summer consumption between 2007 and 2008.

For each LDC, the distribution of the summer over summer savings for registered customers were determined after elimination of statistical outliers (top and bottom 2.5% of the distribution) from the sample. Similar to the previous findings, average savings by LDC varied considerably, between 257 kWh to -69 kWh (the negative sign indicating that, on average, consumption *increased* during the summer of 2008). The weighted average for all the LDCs was determined to be 57 kWh, indicating that on average, households who registered in the Summer Sweepstakes program reduced their consumption by 57 kWh year over year between summer 2007 and summer 2008. As indicated in Table 16, this value varies by geographic location, with the Northern region showing the greatest savings (94 kWh) and the Central East/West region showing the lowest savings at 18 kWh.

Table 14: Average savings (summer 2008 vs. summer 2007) by region for all registered customers, regardless of whether they qualified or not

Region	Average Savings for all Registered Customers (kWh)
SW Area	51.8
GTA Area	67.8
Central East/West	17.9
Northern	94.4
Ontario (all)	56.5

## Average Energy Savings for Eligible Non-Registered Customers

A similar analysis was conducted for the eligible non-registered customer data submitted by the LDCs in order to determine the average savings for a typical Ontario household which did not register for the Summer Sweepstakes program but otherwise would be eligible to participate.

As with the registered participant analysis, Navigant Consulting reviewed all of the non-registered customer data submitted by the LDCs and compared the weather-adjusted summer over summer consumption for 2007 and 2008. For each LDC, the distribution of the summer over summer savings were truncated to 95% in order to remove the statistical outliers from the sample. Average summer over summer savings varied widely between LDCs (between 133 kWh to -414 kWh), with the weighted average for all the LDCs being -22 kWh, indicating that, on average, consumption *increased* by 22 kWh in the summer of 2008 over the summer of 2007 for non-registered customers. As shown in Table 15, all four geographic regions exhibited marginal growth in consumption for summer 2008 over summer 2007, with the exception of the Central East/West region, which experienced an increase of 65 kWh.

Table 15: Average savings (summer 2008 vs. summer 2007) by region for non-registered customers

Region	Average Savings for Non-Registered Customers (kWh)
SW Area	-13.8
GTA Area	-12.2
Central East/West	-65.2
Northern	-18.4
Ontario (all)	-22.4

## Gross Energy Savings for Registered Customers

As discussed, Navigant Consulting's estimate of the gross energy impact of the program is based on the difference between the average change in consumption for registered participants and the average change in consumption for non-registered participants. Based on the results shown in Table 14 and Table 15, Table 16 highlights these observed difference by region.

Table 16: Average savings (summer 2007 vs. 2008) by region for registered and non-registered customers

Region	Average Savings for all Registered Customers (kWh)	Average Savings for Non-Registered Customers (kWh)	Net Difference
SW Area	51.8	-13.8	65.6
GTA Area	67.8	-12.2	80.0
Central East/West	17.9	-65.2	83.1
Northern	94.4	-18.4	112.8
Ontario (all)	56.5	-22.4	78.9

As shown in Table 16, the average difference in summer-over-summer consumption between registered and non-registered customers was 79 kWh. This difference represents Navigant Consulting's estimate of the average gross savings per registered customer.

The gross energy impact for the program period (July and August 2008) is thus:

62,670 registered customers x 79 kWh savings / registered customer

4,950,930 kWh

5 GWh



## NET-TO-GROSS ANALYSIS

This section presents the results of Navigant Consulting's net-to-gross analysis for the 2008 Summer Sweepstakes program. Fundamental to our analysis is the definition of an "active participant", which is described below. Based on this definition and the survey results, Navigant Consulting estimated the participation rate among residential customers. The estimated summer kWh savings for participants versus non-participants was estimated based on the consumption history for each respondent. The participation rate and estimated savings for participants were then combined to estimate the overall summer savings and net-to-gross ratio attributable to the Summer Sweepstakes program.

### Definition of "Active Participant"

For the purposes of Navigant's analysis, an active participant was defined as a respondent who stated that they:

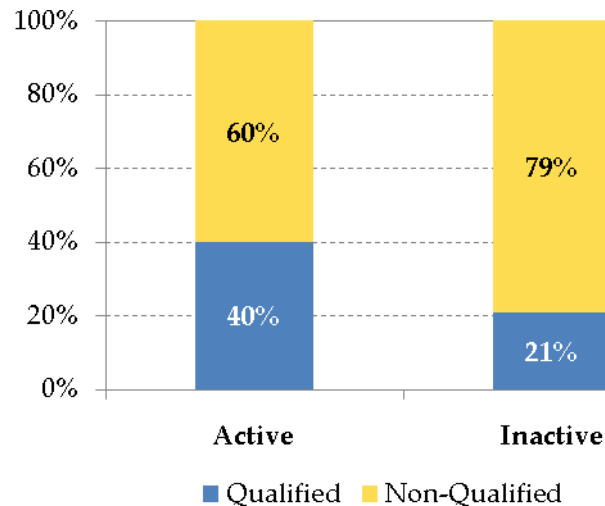
1. Registered for the program;
2. Were aware of the program; and
3. Recall at least one action taken during the summer to reduce household energy consumption.

If a customer did not meet all three of these conditions, they were deemed "Inactive". Note that this definition is completely independent of whether or not the respondent qualified to receive an entry into the contest. In other words, many participants may not have qualified for an entry into the contest and many respondents who did qualify for an entry may not have been participants according to the above definition. Navigant Consulting's analysis indicates that this was, in fact, the case.

Based on Navigant's analysis of the survey results, approximately 84% of survey respondents who registered for the program were determined to be active participants per the definition above.

The qualification rate for active versus inactive participants is shown in Figure 9.

Figure 9: Qualification rate among for 2008 Summer Sweepstakes program among registered customers



Of these active participants, 40% were successful in reducing their household consumption by at least 10%, thereby qualifying for the program. In comparison, 21% of inactive participants were successful in qualifying for the program. This implies that even if a registered customer did not take any actions to reduce their household consumption (e.g., inactive participant), there is still a 1 in 5 chance in qualifying for the program. Therefore, the fact that registered participants took actions to reduce their household energy consumption does not guarantee their qualification into the program. Instead, it appears that qualification for the program may be attributed to random fluctuations in a customer's consumption or to actions or other factors that were unrelated to the Summer Sweepstakes program.

The average summer-over-summer savings for respondents to the registered customer survey was 94 kWh, compared with an average of 57 kWh for the over 40,000 registered customers whose data was provided to Navigant Consulting by LDCs. This suggests that, although potential respondents were drawn randomly from among registered customers, there may have been some response bias in the survey in that customers who took more energy saving actions and/or more aggressive actions may have been more likely to respond to the survey. Navigant Consulting could not ascertain the extent of any such response bias, but has attempted to mitigate the impact of this in determining the net-to-gross ratio for this group of customers. Similarly, Navigant Consulting has attempted to mitigate the impact of response bias, if any, in determining the net-to-gross ratio due to active non-participants.

## Definition of “Active Non-Participant”

For the purposes of our analysis, similar to the registered participants, an active non-participant was defined as a respondent who stated that they:

1. Did not register for the program;
2. Were aware of the program; and
3. Recall at least one action taken during the summer to reduce household energy consumption.

For example, if survey respondents had heard of the Summer Sweepstakes program and were able to identify at least one energy saving action taken during the summer to reduce their household consumption, they were considered as “Active Non-Participants”. If either of these conditions were not met, they were considered as “Inactive Non-Participants”.

Based on the survey results for the non-registered group, approximately 29% of the surveyed respondents were determined to be active non-participants, while the remaining 71% were determined to be inactive non-participants. Even though active non-participants did not register for the Summer Sweepstakes program, since they were aware of the program and took energy saving actions, Navigant Consulting analyzed the overall influence of the Summer Sweepstakes program on their decision to perform these actions. This analysis is presented in the Free-Driver section on page 35 of this report.

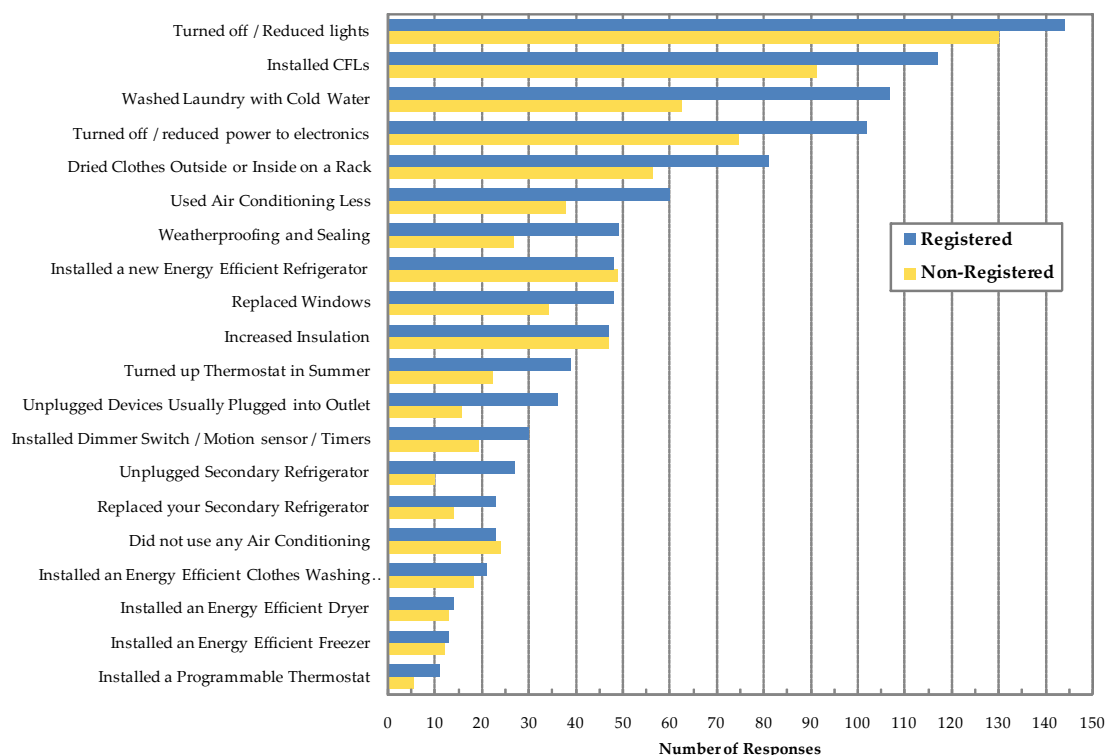
## Energy Saving Actions Undertaken by Participants and Non-Participants

The 20 most frequently mentioned normalized<sup>8</sup> actions registered and non-registered customers reported taking are shown in Figure 10. As shown below, reducing and turning off lights and installing CFLs were the two most frequently mentioned actions of both groups, whereas washing laundry in cold water was more common amongst registered customers while turning off or reducing power to electronics was the third most common action for the non-registered customers. Note, also, that some of the actions for both groups relate to major equipment purchases or major retrofits, such as purchasing an energy efficient refrigerator, replacing windows or adding insulation.

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<sup>8</sup> The total number of actions for each group were normalized to adjust for the difference in total sample sizes for participants (403) and non-participants (438).

Figure 10: Distribution of actions taken by registered and non-registered customers (from survey responses)



The top actions reported for the 2008 Summer Sweepstakes Contest were similar to those reported in the 2007 Summer Savings Final Evaluation Report<sup>9</sup> as shown in Table 17, with the exception of cold water laundry, which jumped significantly in ranking in comparison to last year's evaluation.

Table 17: Comparison of rankings of top 5 actions in 2008 Summer Sweepstakes program with ranking from 2007 Summer Savings program

Most Frequent Actions	2008 Summer Sweepstakes	2007 Summer Savings
Reduced / Turned off lights	1	1
Installed CFLs	2	2
Cold Water Laundry	3	8
Turned off / Reduced Power to Electronics	4	5

<sup>9</sup> Final Evaluation Report: 2007 Summer Savings Report, prepared for the Ontario Power Authority by Navigant Consulting, August 2008.

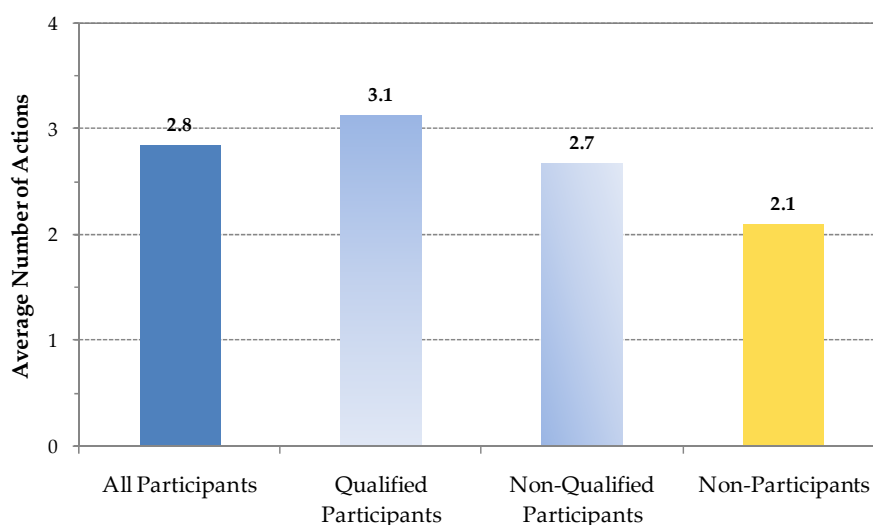
Dried Clothes Outside or on Rack

5

3

Furthermore, based on the survey results, surveyed participants took, on average 2.8 actions per household in order to reduce their household energy consumption, whereas non-participants averaged 2.1 actions per household, as illustrated in Figure 11. Not surprisingly, comparing those participants who achieved the 10% savings according to consumption data provided by the LDC vs. those surveyed participants who failed to meet the 10% target, qualified participants averaged 3.1 actions per household whereas non-qualified participants averaged 2.7 actions.

Figure 11: Average number of actions taken by participant type



## Action-Specific Free-Ridership Determination

Navigant Consulting took two approaches to determine the action-specific free-ridership: the “indirect” approach and the “direct” approach. Both approaches are discussed below.

### Indirect Approach

The “indirect” approach is based on each respondent’s reported likelihood of taking that specific action had they not participated in the Summer Sweepstakes program. For example, looking at those participants who said that they reduced or turned off lights as an action in Table 18, responses varied between “extremely likely” and “not at all likely”. Navigant Consulting assigned a corresponding free-ridership percentage to each response category, such that a 80% free-rider corresponded to all participants who stated that they were “extremely likely” to reduce or turn off their lights had they not participated in the program and a 0% free-rider corresponded to all participants who stated that they were “not at all likely” to reduce or

turn off their lights in the absence of the program. Those individuals whose responses would not categorize them clearly as either 0% free-riders or 80% free-riders were assigned partial free-ridership percentages. Finally, the weighted average of participants' responses along with their corresponding free-ridership percentage was determined, resulting in a free-ridership rate for this action of 48%.

*Table 18: Methodology for determining the Free-Ridership rate for "Reducing or Turning off Lights" action using the "Indirect" approach*

Likelihood of Taking Action in Absence of Summer Sweepstakes Program	Number of Responses	NCI Assigned Free-Ridership Percentage
Extremely Likely	23	80%
Very Likely	40	60%
Somewhat Likely	58	40%
Not Very Likely	12	20%
Not Likely at All	10	0%
<b>Weighted Average Free-Ridership for Action</b>		<b>48%</b>

## Direct Approach

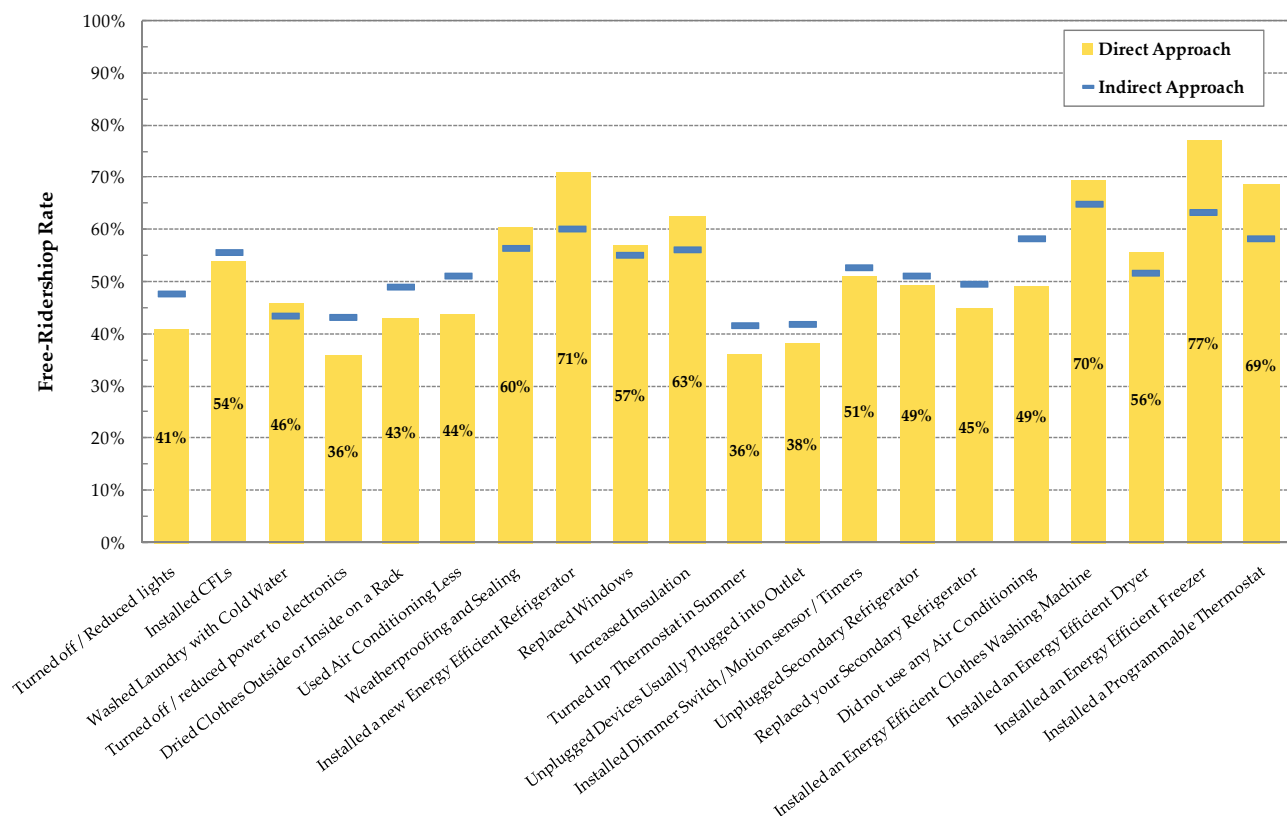
The second approach, or "direct" approach, used by Navigant Consulting to determine action-specific free-ridership was to *directly* ask survey respondents to rate the influence of the Summer Sweepstakes program on their overall decision to perform the specific action using a scale between 1 and 100. Continuing with the same example, each of the 143 surveyed respondents who stated they reduced or turned off their lights rated the influence of the Summer Sweepstakes on their overall decision to perform the action. The average of all the responses was determined to be 59 out of 100, resulting in a free-ridership rate of 41% (100% - 59% = 41%).

Based on these results, Navigant Consulting believes the second approach (the "direct" approach) is the more appropriate method to determine action-specific free-ridership rates since it eliminates the need to assign presumed free-ridership percentages, as in the case of the "indirect approach". For example, the "indirect" approach forces all surveyed respondents who stated "very likely" into one assigned free-ridership percentage of 60%, negating all variability of how one respondent interprets "very likely" in comparison to another respondent. On the other hand, allowing a respondent to directly rate the influence of the program on their decision

to perform an action using a 100 point scale reduces the need for external interpretation, providing a forthright response for action-specific free-ridership.

A comparison of the action specific free-ridership rates determined through both approaches is presented in Figure 12, with the specific free-ridership rates for the top 20 actions which are used in this analysis (direct approach) presented in the graph. Although the free-ridership values varied between +/- 2% to +/-14% in percentage point terms, on average, the variance only +/- 6% for the top 20 most common actions.

Figure 12: Comparison of free-ridership rates determined by both “direct” and “indirect” approach



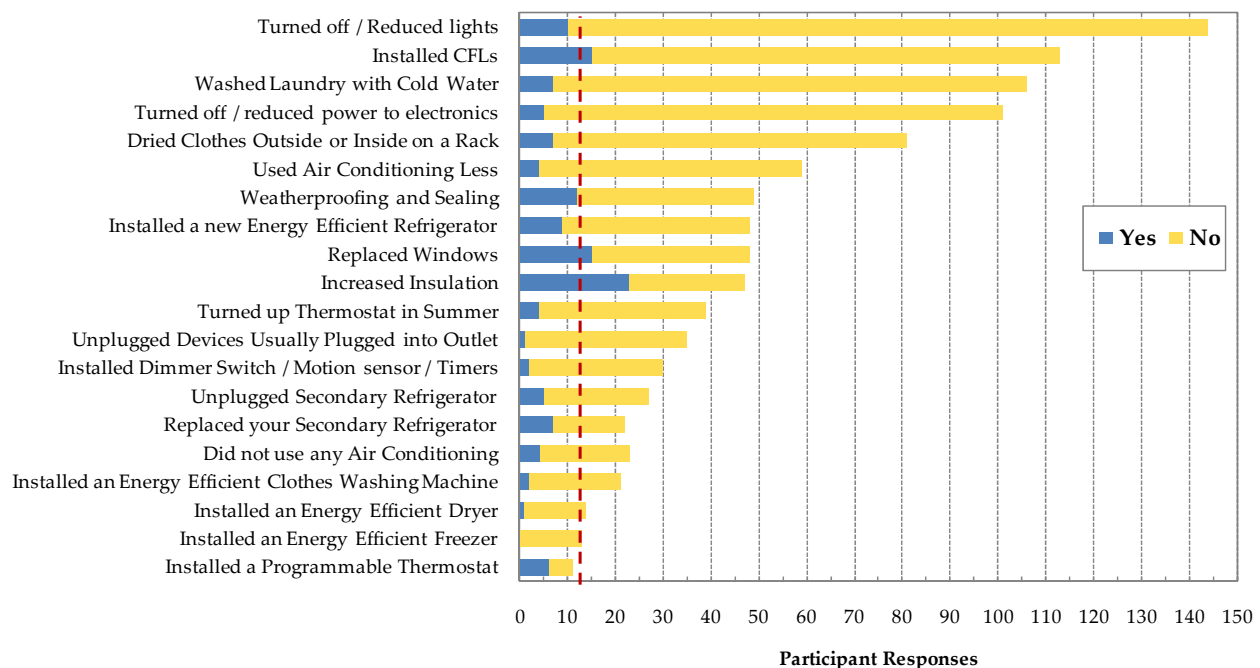
## Influence of, and Potential Attribution to, other OPA Programs

Since other OPA and non-OPA conservation programs were available to residential customers during the same period as the 2008 Summer Sweepstakes program, Navigant Consulting investigated whether any of the electricity savings from the 2008 Summer Sweepstakes should be attributed to these other conservation programs. Other OPA residential programs offered in 2008 included: Every Kilowatt Counts Power Savings Event, the Great Refrigerator Round Up Program, Cool Savings Rebate Program, and PeakSaver Program. Furthermore, residential

households may have participated in other non-OPA conservation programs including the ecoEnergy Retrofit grant, and other LDC-led initiatives.

Based on the survey results, approximately 13% of the total number of actions taken by the surveyed participants were in some way a result of their participation in another conservation program. Figure 13 shows the responses to the most commonly identified actions by the surveyed participants, with the weighted average shown as the dashed line. As shown, increased insulation, replacement of windows and weatherproofing/sealing were among the top actions which, in some manner, were the result of another conservation program (likely the ecoEnergy Retrofit program). The installation of CFLs were the other action which some participants attribute to other conservation programs (likely the Every Kilowatt Counts program).

Figure 13: Was your action in any way a result of your participation in another conservation program or initiative?



Interestingly, almost half (49%) of the respondents could not identify the name of the other conservation program which they participated in. Likewise, in terms of the non-participants, only 8% of the total number of actions respondents took were the result of another conservation program, with 64% of the respondents unable to recall the name of the conservation program.

However, due to the method NCI used to determine action-specific free-ridership levels by *directly* asking survey respondents to rate the influence of the Summer Sweepstakes program on



their overall decision to perform the specific action, any attribution to other programs is intrinsically taken into account through their response, thereby eliminating the need to further discount the savings to take into account other conservation programs. Therefore, Navigant Consulting is comfortable stating that the influence of other conservation programs is taken into account using the free-ridership method presented above.

## Bottom-up Analysis of Impact from Customer Actions

For the bottom-up analysis, Navigant Consulting used the OPA's established measure assumptions provided in the 2009 OPA Measures and Assumption List (Mass Market)<sup>10</sup> where applicable to the energy saving actions undertaken by registered and non-registered customers. For those actions for which prescriptive input assumptions were not previously established by the OPA, primarily behavioural actions (e.g., washing clothes in cold water, drying clothes on rack, etc.), Navigant Consulting developed estimates based on survey results (e.g., number of loads per week saved), secondary research from other jurisdictions and Navigant Consulting's professional judgment. Approximately half of the energy savings determined through the bottom-up approach were based on measure assumptions from the OPA Measures and Assumptions list, and approximately half were based on estimates developed by Navigant Consulting.

For example, for the "installed CFL" action, registered participants indicated that during the summer of 2008, on average, they installed 14 CFLs. Using the OPA's Measure and Assumption List for estimated savings of 43 kWh for a CFL bulb, Navigant Consulting determined that the gross annual savings related to this action to be the following:

$$14 \times 43 \text{ kWh/year}$$

$$602 \text{ kWh/year}$$

The net annual savings attributable to each action were then determined based on the action-specific free-ridership values outlined in the previous section (please refer to page 31). Continuing with the previous example, Navigant Consulting determined the net annual savings for "CFL" to be as follows:

$$\text{Gross Savings} \times (1 - \text{Action-Specific Free-Ridership})$$

$$602 \text{ kWh / year} \times (1 - 54\%)$$

$$277 \text{ kWh / year}$$

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<sup>10</sup> Ontario Power Authority, 2009 OPA Measures and Assumptions List (Mass Market), November 2008

Navigant Consulting then used the OPA's end use load shapes to distribute the annual savings by season, with half of the summer season savings assumed to occur during the two summer months of the Summer Sweepstakes program (July and August). This resulted in the following net summer energy savings for the "turned off/reduced lights" action:

Annual savings x Summer Season Distribution / 2

277 kWh / year x 29% / 2

40 kWh

In order to determine the peak demand impact of each action, the seasonal savings profile for each of the actions and its end-use peak demand coincidence factors were used based on the peak demand savings methodology outlined in 2009 OPA Measures and Assumption List (Mass Market)<sup>11</sup>. Again, continuing the example, the net peak demand impact for registered participants who "turned off/ reduced lights" was determined to be 0.0086 kW / year based on this methodology.

Since the net energy and peak demand impacts as described are only applicable to those registered customers who reported taking the action, the average net energy and peak demand impacts across the entire population of registered customers were determined based on the percentage of registered customers who reported taking each of the actions. For example, of the 404 registered customers surveyed, 117 indicated they "installed CFLs". As discussed above, the net annual energy savings were determined to be 277 kWh for those registered customers who took this action. Therefore, the average net annual savings among all registered customers were determined to be 80 kWh / year as follows:

Frequency of action / total number of registered customers surveyed x net annual savings

117 / 404 x 277 kWh / year

80 kWh/year

The same methodology was applied to all of the top twenty actions undertaken by registered participants.

## Regression Analysis

Navigant Consulting undertook a regression analysis of the reported actions and program influence on these actions against summer-over-summer change in consumption for registered customers who responded to our survey. Unfortunately, this regression did not yield any

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<sup>11</sup> Ibid.

statistically significant coefficients for use in this analysis. Navigant Consulting believes this is related to the earlier observation that there is a significant change in summer-over-summer consumption among customers in the absence of the Summer Sweepstakes or similar program. An overview of Navigant Consulting’s billing and regression analysis is presented in Appendix B: Billing and Regression Analysis.

## Free-Ridership

Using the “bottom-up” methodology described above, Navigant Consulting estimated that the average summer period savings attributable to the Summer Sweepstakes accruing from the actions taken by registered customers who responded to the survey was 90 kWh. In comparison, the observed difference between these registered customers who responded to the survey and all non-registered customers was 116 kWh (ie, 94 kWh observed savings for registered customers who responded to the survey compared to a 22 kWh observed increase for all non-registered customers for whom data was provided by LDCs).

This suggests that not all of the observed difference between registered and non-registered customers was due to the Summer Sweepstakes program. Based on this, Navigant Consulting estimates that the net-to-gross ratio for the Summer Sweepstakes program was 78% among registered customers, calculated as follows:

$$\begin{aligned} \text{Net-to-Gross Ratio} &= \frac{(90 \text{ kWh estimated savings for registered survey respondents})}{(116 \text{ kWh observed difference between registered survey respondents} \\ &\quad \text{and non-registered customers})} \\ &= 78\% \end{aligned}$$

The implied free-ridership rate among registered customers was 22%.

Based on the net-to-gross ratio as given above, the net summer period savings for registered customers was estimated to be 3.9 GWh (ie, gross summer period savings of 5 GWh x 78%).

## Free-Drivers

The starting point in our determination of free-drivership impact was identifying “active” non-participants from the non-participant survey respondents. As discussed, active non-participants were defined as non-registered customers who were 1) aware of the program, and 2) reported taking at least one energy saving action during the summer. Of the 438 non-registered customers surveyed, 129 (29%) were determined to be active non-participants based on the above definition.

Survey respondents were also asked to rate the overall influence of the Summer Sweepstakes program on each of their energy saving actions. Using the same methodology as for the registered participants and scaling up the savings from the non-respondent survey sample to represent the total population of non-registered customers in Ontario (4.2 M), the summer savings for all active non-registered savings customers were determined to be 45.8 GWh.

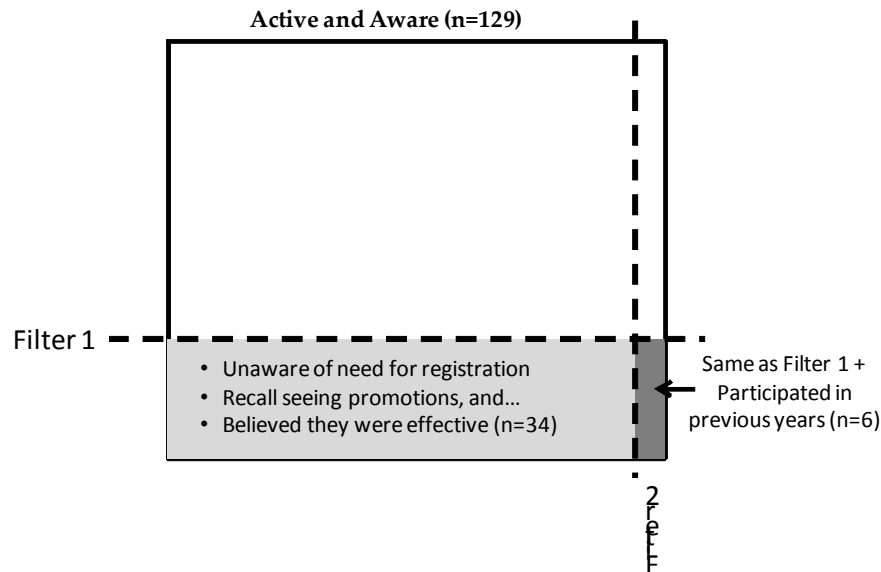
Navigant Consulting believes this estimate of 45.8 GWh represents the theoretical maximum free-drivership impact for the Summer Sweepstakes program. Navigant Consulting also believes that this overstates the true free-drivership for the program. This is because some survey respondents may have provided biased answers that did not accurately reflect the true influence of the Summer Sweepstakes program, but rather what they believe the surveyors would like to hear (what we will call the “halo-effect”).

To mitigate this impact and develop a more accurate estimate of the true free-drivership impact, Navigant Consulting considered the application of a specific discount factor to the 45.8 GWh given above. However, the determination of an appropriate correction factor is highly conditional on the specific situation of the program and survey (e.g, program type, population segment, past and concurrent marketing efforts, etc.). As such, it would not be appropriate to use an adjustment factor developed for a different situation and apply it to the Summer Sweepstakes program.

Instead, Navigant Consulting used active non-participants’ responses to other survey questions to identify subsets of active non-participant respondents for whom the likelihood of having been influenced by the Summer Sweepstakes program was higher than other active non-participants. This “filtering out” of active non-participants with lower likelihood of having been influenced by the program was applied in two stages.

Figure 14 illustrates how the active non-participants were progressively filtered based on their survey responses. The first filter resulted in a subset of active non-participants and the application of the second filter to this subset resulted in a much smaller subset.

Figure 14: Schematic of Progressive Filtering of Active Non-Participants based on Survey Responses



As shown, the first stage of filtering resulted in a subset of 34 from the original 129 active non-participants whose reported program-influenced summer savings were 20.2 GWh (when scaled up to the entire non-registered customer population). This subset of active non-participants were those who:

1. Were not aware of that there was a registration process in order to participate in the program
2. Recall seeing promotions material for the Summer Sweepstakes program on tips to reduce their household energy consumption or how to obtain energy efficiency measures
3. Believe the promotional material was somewhat to very effective on informing them about the program and encouraging them to reduce their household energy consumption.

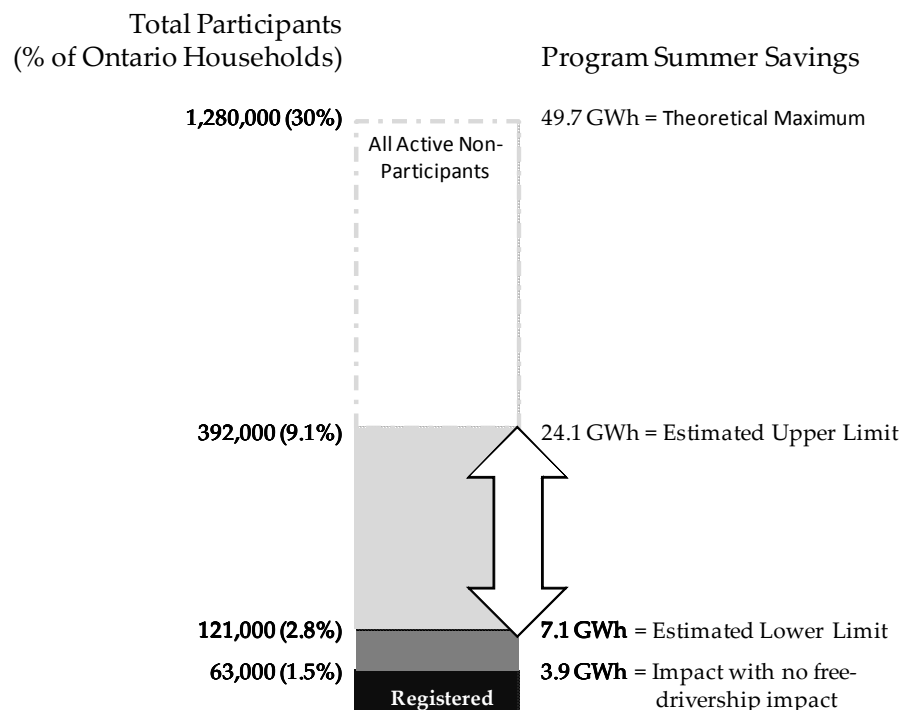
Navigant Consulting believes that the 20.2 GWh free-drivership impact based on this subset represents a reasonable estimate of the upper range of the free-drivership impact of the program.

In the second stage of filtering, Navigant Consulting selected only those respondents from the subset described above who reported that they had attempted to participate in either the 2006 or 2007 Summer Savings program on the assumption that past (ie, summer 2006 or 2007) behaviour is a reasonable predictor of future (ie, summer 2008) behaviour. This second stage resulted in a subset of only 6 of the original 129 active non-participants whose reported program-influenced summer savings were 3.2 GWh (when scaled up to the entire non-

registered customer population). Navigant Consulting believes that the 3.2 GWh summer savings based on this smaller subset represents a reasonable estimate of the lower range of the free-drivership impact of the program.

Figure 15 illustrates the estimated net summer savings with the various free-drivership impacts discussed above and including the estimated 3.9 GWh net summer savings for registered participants. The most conservative estimate would exclude any free-drivership impact. As shown, Navigant Consulting's 3.2 GWh estimate of the lower end of the likely range of the free-drivership impact of the program would result in summer savings of 7.1 GWh from an estimated 120,000 customers (both registered and active non-participants) representing just under 3% of Ontario residential customers. Similarly, based on Navigant Consulting's 20.2 GWh estimate of the higher end of the likely range of the free-drivership impact of the program would result in summer savings of 24.1 GWh from almost 400,000 customers representing just over 9% of Ontario residential customers. As a point of reference, Navigant Consulting had previously determined that approximately 9% of Ontario residential customers were active participants in the 2007 Summer Savings program (which did not require registration).

*Figure 15: Estimated Range of Net Summer Savings Inclusive of Free-Drivership*



Navigant Consulting's estimates of the net energy and peak demand savings presented in the following section reflect a similar approach as described based on free-drivership at the lower and higher end of the likely range.

## NET ENERGY AND PEAK DEMAND IMPACT

This section presents Navigant Consulting's estimates of the net annual energy, net lifetime energy and peak demand impact for the 2008 Summer Sweepstakes program. These estimates were developed using the same approach as described for the net summer energy savings in the previous section. Hence, the estimated impacts reflect the types of actions undertaken by both registered customers and active non-participants as well as the reported influence of the program on these actions. The impacts also reflect 1) Navigant Consulting's estimate of the free-ridership rate among registered customers (as discussed in *Free-Ridership* starting on page 35) and 2) uncertainty with respect to the free-drivership impact from non-registered customers (as discussed in *Free-Drivers* starting on page 35).

Note that some actions (such as those related to air conditioning usage) provided savings primarily in the summer, whereas others actions, such as turning off or reducing power to electronic devices provided savings in all seasons. Savings from behavioural actions were assumed to persist for one year only, whereas savings from equipment-based actions were assumed to persist for the effective useful life of the equipment.

Note: While the non-registered customer surveys indicate (and Navigant Consulting believes) that there was some free-drivership impact from active non-participants, the most conservative estimate of the program impact would exclude this impact. To this end, the impacts due to registered customers (net of free-ridership) are presented separately from the impacts due to free-drivership in the following sections.

### Net Energy and Peak Demand Impact

#### Net Annual Energy Savings

Navigant Consulting's estimate of the most likely range of net annual energy savings for this program were developed using a similar approach as described for the net summer energy savings in the previous section.

$$\begin{aligned}\text{Lower Limit Annual Energy Savings} &= \text{Annual Savings from Registered Customers (net of free-ridership)} \\ &\quad + \text{Annual Savings due to Free-Drivership from Active Non-} \\ &\quad \text{Participants (lower limit)} \\ &= 18.4 \text{ GWh} + 19.2 \text{ GWh} \\ &= 38 \text{ GWh}\end{aligned}$$



$$\begin{aligned}
 \text{Upper Limit Annual Energy Savings} &= \text{Annual Savings from Registered Customers (net of free-ridership)} \\
 &\quad + \text{Annual Savings due to Free-Drivership from Active Non-Participants (upper limit)} \\
 &= 18.4 \text{ GWh} + 97.5 \text{ GWh} \\
 &= 116 \text{ GWh}
 \end{aligned}$$

Based on the above, Navigant Consulting estimates that the net annual energy savings from the Summer Sweepstakes program falls in the range of 38 to 116 GWh.

### **Net Lifetime Energy Savings**

Navigant Consulting's estimate of the most likely range of net lifetime energy savings for this program were developed using a similar approach as described for the net summer energy savings in the previous section.

As previously noted, savings from behavioural actions were assumed to persist for one year only, whereas savings from equipment-based actions were assumed to persist for the effective useful life of the equipment.

$$\begin{aligned}
 \text{Lower Limit Lifetime Energy Savings} &= \text{Lifetime Savings from Registered Customers (net of free-ridership)} \\
 &\quad + \text{Lifetime Savings due to Free-Drivership from Active Non-Participants (lower limit)} \\
 &= 87 \text{ GWh} + 109 \text{ GWh} \\
 &= 196 \text{ GWh}
 \end{aligned}$$

$$\begin{aligned}
 \text{Upper Limit Lifetime Energy Savings} &= \text{Lifetime Savings from Registered Customers (net of free-ridership)} \\
 &\quad + \text{Lifetime Savings due to Free-Drivership from Active Non-Participants (upper limit)} \\
 &= 87 \text{ GWh} + 487 \text{ GWh} \\
 &= 574 \text{ GWh}
 \end{aligned}$$

Relative to the net annual energy savings, the average duration of the savings is approximately five years. Approximately 65% of the first year savings for registered customers are comprised of savings due to behaviour changes assumed to last only one year with the remaining 35% of savings associated with equipment purchases with an average effective useful life of approximately 12 years. Due to a different mix of actions and equipment purchases influenced, roughly 40% of first year savings for active non-participants are associated with equipment purchases with an average effective useful life of approximately 11 years.

Given the expected range of free-drivership impacts as discussed above, Navigant Consulting estimates that the net lifetime energy savings from the Summer Sweepstakes program fall in the range of 196 to 574 GWh.

### **Net Peak Demand Savings**

Navigant Consulting's estimate of the most likely range of net peak demand impacts for this program were developed using a similar approach as described for the net summer energy savings in the previous section and reflect the types of actions undertaken by both registered customers and active non-participants as well as the reported influence of the program on these actions.

the mix of actions pursued by registered and non-registered customers as follows:

$$\begin{aligned}\text{Lower Limit Net Peak Demand Impact} &= \text{Net Peak Demand Impact from Registered Customers (net of free-} \\ &\quad \text{ridership)} + \text{Net Peak Demand Impact due to Free-Drivership from} \\ &\quad \text{Active Non-Participants (lower limit)} \\ &= 5.4 \text{ MW} + 4.1 \text{ MW} \\ &= 9.5 \text{ MW}\end{aligned}$$

$$\begin{aligned}\text{Upper Limit Net Peak Demand Impact} &= \text{Net Peak Demand Impact from Registered Customers (net of free-} \\ &\quad \text{ridership)} + \text{Net Peak Demand Impact due to Free-Drivership from} \\ &\quad \text{Active Non-Participants (upper limit)} \\ &= 5.4 \text{ MW} + 28.9 \text{ MW} \\ &= 34.4 \text{ MW}\end{aligned}$$

Given the expected range of free-drivership impacts as discussed above, Navigant Consulting estimates that the net peak demand savings from the Summer Sweepstakes program falls in the range of 9 to 34 MW.

## CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations reflect Navigant Consulting's evaluation of the 2008 Summer Sweepstakes program as described in the previous sections.

### Conclusions

1. The requirement for customer registration in the 2008 Summer Sweepstakes program significantly reduced the free-ridership rate compared with the 2007 Summer Savings program that did not include a registration requirement.
2. Less than 2% of customer registered for the program relative to a target of 10%, but a significant number of non-registered customers appear to have taken energy saving actions as a result of the program and associated communications. Based on the lower and upper limit of free-ridership from active non-registered customers, Navigant Consulting estimates that the overall participation rate (including both registered customers and active non-registered customers) fell in the range of 3% to 9% (as shown in Figure 15 on page 38).
3. 33% of registered customers realized summer-over-summer savings of more than 9.5% and hence qualified for entry into the sweepstakes. However, based on historic analysis of the distribution of customers' summer-over-summer savings for a Southern Ontario LDC for which 28% of customers exhibited summer-over-summer savings of 9.5% or more in the period from 2004 through 2006, Navigant Consulting believes that this qualification rate is largely due to random factors not related to the actions registered customers took to save energy.
4. 84% of registered customers took actions to save energy as a result of the Summer Sweepstakes program.
5. The net energy savings and peak demand impacts for the program were estimated as follows. Note that the range given reflects Navigant Consulting's estimate of the range of free-ridership impact from non-registered customers who took energy savings actions as a result of the program.

Period	Total Program Savings	
	Lower Range	Upper Range
Summer Savings (GWh)	7.0	24.0
Annual Savings (GWh)	38	116
Lifetime Savings (GWh)	196	574
Peak Summer Impact (MW)	9.5	34.4

## Recommendations

Navigant Consulting understands that the OPA is not offering a similar program for the summer of 2009. However, if a similar program is offered in 2010 or later, Navigant Consulting offers the following recommendations for any future reward programs based on our findings for the 2008 Summer Sweepstakes program.

1. If a similar program is offered in the future, Navigant Consulting recommends that customers should be required to register for the program and that bill credits be offered for qualifying customer since this is the most preferred form of “incentive” reported by registered and non-registered customers.
2. Given the potential magnitude of the free-drivership impact from active non-registered customers and the uncertainty associated with this estimate for the 2008 Summer Sweepstakes program, the evaluation for any similar programs offered in the future should include customer contact and consumption history for a large sample of non-registered customers. This would then allow the average summer-over-summer savings of active non-registered customers to be accurately determined and compared against the average savings for registered and inactive non-registered customers.
3. Consideration should be given to approaches to estimate other differences between registered customers and non-registered customers to better determine the percentage of the difference in summer-over-summer savings between these groups is attributable to the “reward” program versus other programs and/or customer actions unrelated to the reward program.

## APPENDIX A: SUMMER SWEEPSTAKES TELEPHONE SURVEYS

Survey included in the following pages.

Summer Sweepstakes Telephone Survey  
PARTICIPANT SURVEY

**SECTION 1 - SCREENER**

Good morning/afternoon/evening.

**[IF CONTACT NAME IS AVAILABLE]** May I please speak with **[INSERT NAME]**?

**[IF CONTACT NAME IS UNAVAILABLE]** I'd like to speak with the person who would be most familiar with or knowledgeable about the energy use in your home, and your electric bill? Would that be you?

**[IF NO / REFUSED]** Could I please speak with the person who is most familiar with or knowledgeable about the energy use in your home, and your electric bill?

**[If appropriate person is not available, schedule call-back]**

**[ONCE APPROPRIATE PERSON IS ON THE PHONE]** My name is \_\_\_\_\_. I'm calling from OPINION SEARCH, a public opinion and marketing research firm, on behalf of your utility company **[INSERT UTILITY NAME FROM DATABASE]** and the Ontario Power Authority. Our firm has been commissioned to conduct an important survey. The information you provide will help your utility company **[INSERT UTILITY NAME FROM DATABASE]** and the Ontario Power Authority to evaluate the effectiveness of their current rebate program and improve services to residential customers like you.

Please, be assured that we are not selling anything. Your participation in the study will in no way result in sales or solicitation calls.

2. Record gender **[DO NOT ASK]**

3. Does someone in your household currently receive and pay the electricity bill for your home?

- 1      Yes
- 2      No **[THANK & TERMINATE]**

## **SECTION 2 – AWARENESS AND MOTIVATIONS**

1 A program run by your local electricity distributor called the “Every Kilowatt Counts Summer Sweepstakes” was a province-wide energy conservation program that ran this past summer which provided Ontario residents with the opportunity to win prizes if they signed up to reduce your summer 2008 electricity consumption by 10% compared to your summer 2007 electricity usage. Have you heard of the “Every Kilowatt Counts Summer Sweepstakes” program?

- 1 Yes, has heard of program
- 2 No, has NOT heard of program
- 88 Refused
- 99 Don’t know

2 In order to participate in “Every Kilowatt Counts Summer Sweepstakes”, residents had to sign up and complete the entry ballot before July 15<sup>th</sup>, 2008. Do you recall if you or anyone in your household signed up for “Every Kilowatt Counts Summer Sweepstakes”?

- 1 Yes
- 2 No
- 88 Refused **(Skip to Q4)**
- 99 Don’t know **(Skip to Q4)**

**[If Q1=2 or DK AND Q2=2 or DK then Thank and Terminate]**

3 **(Ask if Q1=1)** When did you first become aware of this program? **[OPEN END, DO NOT READ]**

- 1 I participated in the 2007 Summer Savings Challenge Program
- 2 Before 2008
- 3 Before the beginning of summer 2008, that is between January and July of 2008
- 4 Sometime during the summer 2008, that is between July of 2008 and September 2008

- 5 After summer of 2008
- 6 When I received a prize
- 88 Refused
- 99 Don't know
  
- 4 **(Ask if Q1=1) How did you first hear about "Every Kilowatt Counts Summer Sweepstakes"? [OPEN END, DO NOT READ]**
  - 1 Newspaper
  - 2 Radio, TV
  - 3 Internet
  - 4 Electric bill
  - 5 Insert in electric bill
  - 6 Letter from local utility
  - 7 Friend, relative, word of mouth
  - 8 Announcement by public official
  - 9 School, church, community group
  - 10 Other, please specify\_\_\_\_\_
  - 88 Refused
  - 99 Don't know
  
- 5 **(Q1=1 or Q2=1) What was your motivation for participating in the program? [SELECT ALL THAT APPLY -OPEN END, DO NOT READ]**
  - 1 To reduce my electricity bill/save money
  - 2 To win prizes/participate in contests
  - 3 To conserve electricity/environmental reasons/do my part
  - 4 Help ensure the reliability of the electricity system in Ontario
  - 5 No reason
  - 6 Other, please specify\_\_\_\_\_



88 Refused

99 Don't know

**5a (IF MORE THAN ONE REASON) What was your PRIMARY motivation for participating in the program? [OPEN END, DO NOT READ]**

1 To reduce my electricity bill/save money

2 To win prizes/participate in contests

3 To conserve electricity/environmental reasons/do my part

4 Help ensure the reliability of the electricity system in Ontario

5 No reason

6 Other, please specify\_\_\_\_\_

88 Refused

99 Don't know

**6 (Q1=1) Do you recall seeing any promotional material on tips to reduce your household energy consumption or how to obtain energy efficiency measures promoted by the Summer Sweepstakes Program?**

1 Yes

2 No [SKIP TO Q9]

88 Refused

99 Don't know

**7 [IF YES] Please identify where you saw promotions for the program (select all that apply) [DO NOT READ]**

1 Newspaper ads

2 Radio Ads

3 TV

4 Internet

5 Utility bill insert

5 Others\_\_\_\_\_

88 Refused

99 Don't know

**7a** [IF RECALL AT LEAST ONE MEDIUM] How effective were the promotions to inform you about the program and encourage you to reduce your household energy consumption?

1 Extremely effective

2 Somewhat effective

3 Not at all effective

88Refused

99Don't know

### **SECTION 3 – ACTIONS**

8 **(ALL RESPONDENTS)** Did you take active steps to reduce your electricity use last summer by 10% in order to qualify for the program? **[OPEN END, DO NOT READ]**

1 Yes **(Go to Q9)**

2 No **(Skip to Q14)**

88 Refused **(Skip to Q14)**

99 Don't know **(Skip to Q14)**

9 **(ASK IF Q9= YES)** Which of the following actions, purchases and / or changes did you make last summer in effort to reduce your summer energy consumption and qualify for the prizes? Did you...

	<u><b>Yes</b></u>	<u><b>No</b></u>	<b>DK/Refused</b>
A. Install new energy efficient appliances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Improve the efficiency of the building shell of your home. This would include adding insulation, upgrading windows, increased weatherproofing, etc..?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Repair, replace or reduce the usage of your air conditioner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Reduce your hot water usage or change your clothes was and/or drying habits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Reduce usage of lights and/or home electronics?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Unplug or got rid of any old appliances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Switch any of your appliances/equipment from electricity natural gas or other fuel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H - Other?			

**TO CODE:**

1. FOR PARTICIPANTS, IF FIELD "QUALIFIED" = YES
  - THEN CODE AS "QUALIFIED", ELSE
  - CODE AS "NON-QUALIFIED"
2. IF HEARD OF Summer Sweepstakes PROGRAM (Q1=1) OR RECALL BEING REGISTERED (Q2=1) **AND** TOOK ACTIVE STEPS TO REDUCE USAGE (Q8=1) **AND** CAN RECALL AT LEAST ONE ACTION (Q9 = YES)
  - I. THEN CODE AS "ACTIVE PARTICIPANT", ELSE
  - II. CODE AS "INACTIVE PARTICIPANT"

**[IF new appliance -9A]** More specifically, which new energy efficient appliance did you install?

**[OPEN END DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Refrigerator	Was it an Energy Star refrigerator?	1. Yes 2. No 3. DK/Refused	
2 Dishwasher	Was it an Energy Star Dishwasher?	1. Yes 2. No 3. DK/Refused	
3 Freezer	Was it an Energy Star Freezer?	1. Yes 2. No 3. DK/Refused	
4 Clothes Washing machine	Was it an Energy Star Clothes Washing Machine?	1. Yes 2. No 3. DK/Refused	
5 Dryer	Was it an Energy Star Dryer?	1. Yes 2. No 3. DK/Refused	
6 Dehumidifier	Was it an Energy Star Dehumidifier?	1. Yes 2. No 3. DK/Refused	
7 Water heater	Was it an Energy Star Water Heater?	1. Yes 2. No 3. DK/Refused	
8 Air Conditioner	What type of air conditioner did you install? 1. Central air conditioner 2. Room air conditioner 3. Other 4. DK/Refused	Was it an Energy Star air conditioner? 1. Yes 2. No 3. DK/Refused	
9 Other (please specify:_____)			

**[IF improved building shell - 9b]** More specifically, how did you improve the efficiency of your home's building shell? **[OPEN END DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Added ceiling / attic / wall / basement insulation	1. Specifically, where did you increase your insulation (select all that apply)	1. Attic 2. Wall 3. Basement 4. Floor 5. Hot water pipes 6. DK/Refused	
2 Closed drapes during the day to block the sun	1. On average, how many hours per day were the drapes closed to block the sun?	1. Record number of hours____ 2. DK/Refused	Behaviour (Seasonal)
3 Replaced windows	1. How many windows did you replace?	1. Record number of windows____ 2. DK/Refused	
4 Got an energy evaluation / audit of home			
5 Weatherproofed home / sealed around windows / doors			
6 Other, specify: _____			

**[IF reduced air conditioning - 9C]** More specifically what did you reduce the power used for air conditioning? **[OPEN END, DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Got an air-conditioner tune-up.	1. When did you last tune up your air conditioner?	1. Previous year 2. Between 2 – 4 years ago 3. Over 5 years ago 4. Never 5. DK/Refused	
2 Changed furnace filter, or changed more frequently	1. How frequently do you change your furnace filter?	1. Once per year 2. Every 6 months 3. Every 2-3 months 4. Every month 5. Never 6. DK/Refused	Behaviour (Annual)
3 Used fewer room air conditioners	1. How many fewer room air conditioners did you use?	1. Record number of room ACs_____ 2. DK/Refused	Behaviour (Seasonal)
4 Used fans instead of air conditioning	1. On average, how many hours per day would you use the fan instead of the air conditioner?	1. Record number of hours_____ 2. DK/Refused	Behaviour (Seasonal)
5 Installed a programmable thermostat	1. Did you have the programmable thermostat set to change the temperature automatically for different days of the week or times of the day?	1. Yes 2. No 3. DK/Refused	
6 Turned up thermostat setting in summer so house was not as cool / house was warmer	1. On average, how many degrees would you raise the temperature setting on your thermostat?	1. Record number of degrees_____ 2. DK/Refused  Is this Celsius or Fahrenheit?	Behaviour (Seasonal)

		1. Celsius 2. Fahrenheit	
7 Used air conditioning less frequently	1. On average, how many hours per day would you use your air conditioner less?	1. Record number of hours_____ 2. DK/Refused	Behaviour (Seasonal)
8 Installed ceiling fan	1. Was it an Energy Star ceiling fan?	1. Yes 2. No 3. DK/Refused	
9 Did not use any air conditioning	1. Did you use your air conditioner in the previous summer, that is the summer of 2007?	1. Yes 2. No 3. DK/Refused	Behaviour (Seasonal)
10 Installed a electronically commutated motor (ECM - new furnace motor) in my furnace			
11 Closed drapes during the day to block the sun	1. On average, how many hours per day were the drapes closed to block the sun?	1. Record number of hours_____ 2. DK/Refused	Behaviour (Seasonal)
12 Other, specify: ____			



**[IF reduced hot water usage changed clothes washing/drying habits – 9D]** More specifically, how did you reduce your hot water usage or change your clothes washing and/or drying habits? **[OPEN END, DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Washed laundry with cold water	1. On average, how many loads of laundry per week did you previously wash in hot or warm water but now wash in cold water?	1. Record number of hot or warm water loads saved____ 2. DK/Refused	Behaviour (Annual)
2 Dried clothes outside or inside on a rack	1. On average, how many loads of laundry per week did you previously use a dryer but now hang to dry?	1. Record number of dryer loads saved____ 2. DK/Refused	Behaviour (Annual)
3 Ran the dishwasher only when it was full	1. On average, how many loads of dishwashing per week do you believe you saved by running only when the dishwasher was full?	1. Record number of loads saved____ 2. DK/Refused	Behaviour (Annual)
4 Washed dishes by hand rather than use dishwasher	1. On average, how many loads of dishwashing per week do you believe you saved by washing your dishes by hand?	1. Record number of loads saved____ 2. DK/Refused	Behaviour (Annual)
4 Insulated hot water pipes			
5 Insulated water heater			
5 Installed low flow showerhead/faucet aerator	1. How many low flow faucet aerators or low flow showerheads did you install?	1. Record number of units installed____ 2. DK/Refused	
6 Other, specify: _____			

**[IF reduced usage of lights or electronics -9E]** More specifically, how did you reduce the use of your lights or home electronics? **[OPEN END, DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Turned off / reduced use of lights	1. On average, how many lights in your home did you turn off more frequently or use less frequently?	1. Record number of lights____ 2. DK/Refused	Behaviour (Annual)
	2. On average, approximately how many fewer hours per day was each light on?	1. Record number of hours____ 2. DK/Refused	
2 Turned off / reduced use of power to electronics (TV / DVD / VCR / computers)	1. How many sets of electronics did you turn off or use less frequently?	1. Record number of electronics____ 2. DK/Refused	Behaviour (Annual)
	2. On average, how many hours per day were the electronics reduced?	1. Record number of hours____ 2. DK/Refused	Behaviour (Annual)
	3. Did you manually turn off and/or reduce power to electronics or did you use a power bar?	1. Manually 2. Use of Power bar 3. DK/Refused	
	4. [IF POWER BAR] Did the power bar have an automatic timer and/or an automatic shut off?	1. Yes 2. No 3. DK/Refused	
3 Installed compact fluorescent lights	1. How many conventional bulbs did you replace with compact fluorescent lights?	1. Record number of CFLs____ 2. DK/Refused	
4 Installed dimmer switch / motion sensor lights or timers	1. How many dimmer switches/motion sensor lights / timers did you install?	1. Record Number of dimmer switches, timers and motion	

		sensors_____	
		2. DK/Refused	
5 Other, specify: _____			

[IF unplugged or got rid of appliances, 9F = YES] Specifically, which appliances or electronics did you unplug or get rid of? [OPEN END, DO NOT READ]			
Primary Response	Secondary Questions	Secondary Responses	Behavioural (Type)
1 Secondary refrigerator(s)	1. Did you unplug or replace the refrigerator?	1. Unplug (Behaviour – Annual) 2. Replace ( <b>ASK FOLLOW UP</b> ) 3. DK/Refused	Behaviour (Annual) if “Unplug”
	2. [IF REPLACED] What did you replace your secondary refrigerator with?	1. Brand new refrigerator 2. Used refrigerator which is under 10 years old. 3. Used refrigerator with is more than 10 years old. 4. DK/Refused.	
2 Secondary freezer(s)	1. Did you unplug or replace the freezer?	1. Unplug (Behaviour – Annual) 2. Replace ( <b>ASK FOLLOW UP</b> ) 3. DK/Refused	Behaviour (Annual) if “Unplug”
	2. [IF REPLACED] What did you replace your secondary freezer with?	1. Brand new freezer 2. Used freezer which is under 10 years old. 3. Used freezer with is more than 10 years old. 4. DK/Refused.	
3 Unplugged devices usually plugged into outlet (cell phones, digital cameras, etc.)	How many electronic devices did you unplug?		Behaviour (Annual)
4 Other electricity-using equipment (Specify):_____			

**[IF switch from electricity to natural gas, 9G = YES]** Which specific appliances or equipment did you switch from electricity to natural gas or another fuel? **[OPEN END, DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Water heater			
2 Pool / spa heater			
3 Stove / Range			
4 Dryer			
5 Heating system			
6 Other, specify: _____			

10A. **[IF BEHAVIOURAL-ANNUAL OR -SEASONAL ACTION]** How often would you [action] prior to your participation in this program, that is prior to this past summer?

- 1 All the time
- 2 Sometimes
- 3 Not at all
- 4 Not applicable **[DO NOT READ]**
- 88 Refused **[DO NOT READ]**
- 99 Don't know **[DO NOT READ]**

10B. **[IF BEHAVIOURAL-ANNUAL ACTION]** To what extent have you continued to [ACTION] since this past summer?

- 1 All the time
- 2 Sometimes
- 3 Not at all
- 4 Not applicable **[DO NOT READ]**
- 88 Refused **[DO NOT READ]**
- 99 Don't know **[DO NOT READ]**

10C. **[IF BEHAVIOURAL-SEASONAL ACTION]** How likely are you to continue [ACTION] next summer?

- 1 Extremely likely
- 3 Somewhat likely
- 5 Not at all likely
- 88 Refused
- 99 Don't know

#### **SECTION 4 – FREE-RIDERSHIP AND OTHER PROGRAMS**

11     **(Ask if at EACH item mentioned in Q10)** You stated earlier that you **[name of action mentioned in 10]**, was this in any way a result of your participation in another conservation program / initiative?

1       Yes (Go to Q11a.)

2       No (Go to Q12)

88      Refused

99      Don't know

11a.   **[IF YES]** Do you recall the name of the other conservation program that you participated in for **[action]**?

1.      Record Program Name \_\_\_\_\_

2       No

88      Refused

99      Don't know

12      How likely do you think you would have been to **[ACTION]** if you had not participated in the Summer Sweepstakes program? Would you have been...

1      Extremely likely

2      Very likely

3      Somewhat likely

4      Not very likely, or

5      Not at all likely

88      Refused [DO NOT READ]

99      Don't know [DO NOT READ]

- 13 Using a 100 point scale, please rate the influence of the Summer Sweepstakes Program on your overall decision to **[ACTION]** with 0 points indicating that Summer Sweepstakes had no influence at all and 100 points indicating that the program was the only reason for doing the action.

1. Record number (0-100) \_\_\_\_\_

88 Refused

99 Don't know

**[REPEAT 11-13 FOR EACH ACTION MENTIONED]**



## **SECTION 5 – PAST AND FUTURE PROGRAMS AND ATTITUDES**

- 14 In the summer of 2006 and 2007, a similar energy conservation program offered a bill credit to customers who reduced their electricity use by 10% or more. Did you attempt to participate in either of these programs?
- 1 Yes **(Go to Q14a)**
  - 2 No **(Skip to Q15)**
  - 88 Refused **(Skip to Q15)**
  - 99 Don't know **(Skip to Q15)**
- 14a. **[IF Q14 = YES]** And did you receive a bill credit for reducing your electricity use by 10% or more in the summer of 2006 or 2007?
- 1 Yes
  - 2 No
  - 88 Refused
  - 99 Don't know
15. Do you believe that participation in Summer Sweepstakes has helped you to understand the actions that you can take to reduce your household energy usage?
- 1 Definitely
  - 2 Likely
  - 3 Likely not
  - 4 Definitely not
  - 5 Depends **[DO NOT READ]**
  - 88 Refused **[DO NOT READ]**
  - 99 Don't know **[DO NOT READ]**

16. Has your participation in this program motivated you to participate in other energy conservation programs?
- 1 Yes [**Go to 16a**]
  - 2 No
  - 88 Refused
  - 99 Don't know
- 16a. [**IF Q16=YES**] Which other energy conservation programs have you participated in lately?
- 1 Name of program(s)\_\_\_\_\_
  - 88 Refused
  - 99 Don't know
17. What form of rewards or incentives would you prefer if the program is offered in the future? [**Do not read**]
- 1 Bill credit
  - 2 Coupons for energy saving measures
  - 3 Contributions to a charity
  - 4 Public recognition for your efforts
  - 5 Keep prizes
  - 77 Other, please specify\_\_\_\_\_
  - 88 Refused
  - 99 Don't know
18. Do you use the internet to seek out information on energy efficiency programs and opportunities to reduce your household energy usage?
- 1 Yes [**Continue to Q19**]
  - 2 No [**Skip to 24**]
  - 88 Refused
  - 99 Don't know

19 Specifically, what kind of information do you generally use the internet to seek out? Do you generally seek out...

	<u>Yes</u>	<u>No</u>	<u>DK/Ref</u>
A. Home Appliance Information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Home Improvement or building envelop improvements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Energy Saving Tips?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Available utility and government incentive and rebate programs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Listings of locally qualified contractors to install or perform energy saving measures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Any other type of information (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20 What type of internet sites do you generally use to seek out information? **[DO NOT READ - SELECT ALL THAT APPLY]**

- 1 Government websites
- 2 Non-governmental organizations (NGO) websites
- 3 Local Utility websites
- 4 Retail or private sector websites
- 5 Search engines (GOOGLE, YAHOO)
- 6 Discussion groups, blogs
- 7 No specific type
- 8 Other (Specify)
- 88 Refused
- 99 Don't know

20 Specifically, which website do you use most to research the desired information? **[OPEN ENDED]**

- 1 Record response\_\_\_\_\_
- 88 Refused
- 99 Don't know

- 21 Thinking of the traits and characteristics of the websites you typically visit, please rate the importance of each of the following web page characteristics using a 100 point scale, with 0 points indicating that it is not at all important to you and 100 points indicating that it's the most important reason for you visiting the website.

	SCORE	DK/Refused
A. Having pictures and photographs of the equipment or retrofit action.	_____	<input type="checkbox"/>
B. Having detailed descriptions of the process required to install the new equipment or undertake the retrofit job.	_____	<input type="checkbox"/>
C. Having energy saving calculators.	_____	<input type="checkbox"/>
D. Having a list of qualified retailers or contractors in my area who sell the desired equipment or undertake the retrofit job.	_____	<input type="checkbox"/>
E. Having customer reviews and comments about the equipment/product or contractor.	_____	<input type="checkbox"/>

- 22 How often would you use the internet to provide yourself with energy efficiency data to inform yourself on major purchase decisions (e.g., household appliances,)

1 Always

2 Sometimes

3 Never

88 Refused

99 Don't know

- 23 How often would you use the internet to provide yourself with information on how you can change your consumption behaviour or manage your energy costs to improve energy efficiency in your home.

1 Always

2 Sometimes

3 Never

88 Refused

99 Don't know

24 Are you familiar with any standards or ratings currently in place that rate the energy efficiency of appliances? (Select all that apply)

1 Energuide

2 Energy Star®

3 Canadian Standards Association standards

4 Other (specify)\_\_\_\_\_

5 None

88 Refused

99 Don't know

25 How concerned are you about each of the following issues (Randomize)

X1	The environmental impacts of electricity generation
X2	The environmental impacts of electricity consumption by consumers
X3	The environmental impacts of electricity consumption by business and industry

1 Very concerned

2 Somewhat concerned

3 Not very concerned

4 Not at all concerned

88 Refused

99 Don't know

26 Do you think that individual consumers such as yourself can make an important contribution to the overall reduction of electrical energy use in the province?

- 1 Definitely
- 2 Likely
- 3 Not likely
- 4 Definitely not likely
- 88 Refused
- 99 Don't know

27 Here are some opinions that we often hear expressed. On a scale of 1 to 5 where 1 is *Totally disagree* and 5 is *Totally agree*, how would you rate each of these statements. Randomize

z1	I am prepared to pay more for an environmentally friendly product
z2	It is acceptable that an industrial society such as ours produces a certain level of pollution
z3	I have enough trouble worrying about my own problems without worrying about others'

- 1 Totally agree
- 2 Somewhat agree
- 3 Somewhat disagree
- 4 Totally disagree
- 88 Refused
- 99 Don't know

**SECTION 3 - DEMOGRAPHIC MODULE**

28 What is the primary fuel you currently used to heat your home? Is it . . . **[READ LIST – STOP WHEN THEY ANSWER]**

- 1 Natural Gas
- 2 Electricity
- 3 Propane
- 4 Oil
- 5 Wood
- 6 Solar
- 7 Geothermal, or
- 8 Something else (Specify): \_\_\_\_\_
- 88 Refused
- 99 Don't know

29 What is the primary fuel you currently use to heat your water for showers, baths, dishwashing and laundry? Is it . . . **[READ LIST – STOP WHEN THEY ANSWER]**

- 1 Natural Gas
- 2 Electricity
- 3 Propane
- 4 Oil
- 5 Wood
- 6 Solar, or
- 8 Something else (Specify): \_\_\_\_\_
- 88 Refused
- 99 Don't know

30 What type of air conditioning, if any, do you have in your home?

- 1 Central air conditioning
- 2 Ductless Air conditioning
- 3 Window unit(s) [Go to 27a]
- 4 Other (Specify) \_\_\_\_\_
- 88 Refused
- 99 Don't know

30a **[IF WINDOW UNITS Q27=3]** How many window units?

- 1 Record answer \_\_\_\_\_
- 88 Refused
- 99 Don't know

31 What type of home do you live in? **[READ LIST – STOP WHEN THEY ANSWER]**

- 1 Single Family, detached house
- 2 Single Family, semi-detached house
- 3 Townhouse or rowhouse
- 4 Duplex, triplex or fourplex
- 4 Condominium/apartment
- 5 Other (please specify) \_\_\_\_\_
- 88 Refused
- 99 Don't know

32 Do you own or rent your home?

- 1 Own



- 2 Rent
  - 88 Refused
  - 99 Don't know
- 33 What is the approximate square footage of your home (including kitchen, bedrooms, bathrooms, foyers, dens and hallways)? The square footage of homes is often quoted to exclude the basement. Please include the basement in your estimate if it is a finished basement. **[READ LIST – STOP WHEN THEY ANSWER]**
- 1 Less than 1000 sq ft
  - 2 1001 to 1500 sq ft
  - 3 1501 to 2000 sq ft
  - 4 2001 to 2500 sq ft
  - 5 2501 to 3000 sq ft
  - 6 3001 to 3500 sq ft
  - 7 3501 to 4000 sq ft
  - 8 more than 4000 sq ft
  - 88 Refused
  - 99 Don't know
- 34 What is the last level of education that you have completed?
- 1 Grade school or less
  - 2 Some high school
  - 3 High school grad
  - 4 Vocational / Technician school
  - 5 College
  - 6 Some University

- 7 University grad
  - 8 Post graduate degree
  - 88 Refused
  - 99 Don't know
- 35 Finally, for statistical purposes only, please tell me which of the following broad categories best describes your total household income before taxes for the year 2008? **[READ LIST – STOP WHEN THEY ANSWER]**
- 1 Under \$20,000
  - 2 \$20,000 to under \$40,000
  - 3 \$40,000 to under \$60,000
  - 4 \$60,000 to under \$80,000
  - 5 \$80,000 to under \$100,000
  - 6 \$100,000 and over
  - 7 Prefer not to say **[DO NOT READ]**

Thank you very much. Your answers will help *[LDC Name (if using customer contact details from LDC) OR your local utility (if random telephone sample)]* and the Ontario Power Authority evaluate their energy efficiency efforts to better serve customers. Remember: your answers to this survey are confidential and will be used only for this research.

**Summer Sweepstakes Telephone Survey  
PARTICIPANT SURVEY**

**SECTION 1 - SCREENER**

Good morning/afternoon/evening.

**[IF CONTACT NAME IS AVAILABLE]** May I please speak with **[INSERT NAME IF AVAILABLE]**?

**[IF CONTACT NAME IS UNAVAILABLE]** I'd like to speak with the person who would be most familiar with or knowledgeable about the energy use in your home, and your electric bill? Would that be you?

**[IF NO / REFUSED]** Could I please speak with the person who is most familiar with or knowledgeable about the energy use in your home, and your electric bill?

**[If appropriate person is not available, schedule call-back]**

**[ONCE APPROPRIATE PERSON IS ON THE PHONE]** My name is \_\_\_\_\_. I'm calling from OPINION SEARCH, a public opinion and marketing research firm, on behalf of the Ontario Power Authority. Our firm has been commissioned to conduct an important survey. The information you provide will help the Ontario Power Authority to evaluate the effectiveness of their current rebate program and improve services to residential customers like you.

Please, be assured that we are not selling anything. Your participation in the study will in no way result in sales or solicitation calls.

2. Record gender **[DO NOT ASK]**

3. Does someone in your household currently receive and pay the electricity bill for your home?

10 Yes

11 No **[THANK & TERMINATE]**

## **SECTION 2 – AWARENESS AND MOTIVATIONS**

- 3 A program run by your local electricity distributor called the “Every Kilowatt Counts Summer Sweepstakes” was a province-wide energy conservation program that ran this past summer which provided Ontario residents with the opportunity to win prizes if they signed up to reduce your summer 2008 electricity consumption by 10% compared to your summer 2007 electricity usage. Have you heard of the “Every Kilowatt Counts Summer Sweepstakes” program?

- 1 Yes, has heard of program
- 2 No, has NOT heard of program
- 88 Refused
- 99 Don’t know

- 4 In order to participate in “Every Kilowatt Counts Summer Sweepstakes”, residents had to sign up and complete the entry ballot before July 15<sup>th</sup>, 2008. Do you recall if you or anyone in your household signed up for “Every Kilowatt Counts Summer Sweepstakes”?

- 1 Yes
- 2 No
- 88 Refused
- 99 Don’t know

- 12 **(ASK ONLY FOR REGISTERED PARTICIPANTS, IF Q2=1) What was your motivation for participating in the program? [SELECT ALL THAT APPLY - OPEN END, DO NOT READ]**

- 1 To reduce my electricity bill/save money
- 2 To win prizes/participate in contests
- 3 To conserve electricity/environmental reasons/do my part
- 4 Help ensure the reliability of the electricity system in Ontario
- 5 No reason
- 6 Other, please specify\_\_\_\_\_

88 Refused

99 Don't know

**3a (IF MORE THAN ONE REASON) What was your PRIMARY motivation for participating in the program? [OPEN END, DO NOT READ]**

1 To reduce my electricity bill/save money

2 To win prizes/participate in contests

3 To conserve electricity/environmental reasons/do my part

4 Help ensure the reliability of the electricity system in Ontario

5 No reason

6 Other, please specify\_\_\_\_\_

88 Refused

99 Don't know

**4 [IF Q1=1 AND Q2=NO] Were you aware there was a registration process for the Every Kilowatt Counts Summer Sweepstakes and if so, how to register for the program? [DO NOT READ]**

1 Yes

2 No

88 Refused **(Skip to Q4)**

99 Don't know **(Skip to Q4)**

**4A [IF Q4=YES] Why did you decide not to register in the Summer Sweepstakes Program? [DO NOT READ]**

1 Didn't realize I had to register in order to participate

2 Missed program deadline

3 Process was too difficult and/or confusing

4 Didn't want to participate/not interested

5 No incentive to participate

6 I already conserve energy on my own

- 7 Forgot/Too busy
  - 8 No reason
  - 9 Other (Specify): \_\_\_\_\_
  - 88 Refused
  - 99 Don't know
- 5 **(ASK ONLY IF AWARE OF PROGRAM, if Q1=1)** When did you first become aware of this program? **[OPEN END, DO NOT READ]**
- 1 I participated in the 2007 Summer Savings Challenge Program
  - 2 Before 2008
  - 3 Before the beginning of summer 2008, that is between January and July of 2008
  - 4 Sometime during the summer 2008, that is between July of 2008 and September 2008
  - 4 After summer of 2008
  - 88 Refused
  - 99 Don't know
- 6 **(ASK ONLY IF AWARE OF PROGRAM, if Q1=1)** How did you first hear about "Every Kilowatt Counts Summer Sweepstakes"? **[OPEN END, DO NOT READ]**
- 1 Newspaper
  - 2 Radio, TV
  - 3 Internet
  - 4 Electric bill
  - 5 Insert in electric bill
  - 6 Letter from local utility
  - 7 Friend, relative, word of mouth
  - 8 Announcement by public official

- 9 School, church, community group
  - 10 Other, please specify\_\_\_\_\_
  - 88 Refused
  - 99 Don't know
- 7 **(ASK ONLY IF AWARE OF PROGRAM, if Q1=1)** Do you recall seeing any promotional material on tips to reduce your household energy consumption or how to obtain energy efficiency measures promoted by the Summer Sweepstakes Program?
- 1 Yes
  - 2 No [SKIP TO Q8]
  - 88 Refused
  - 99 Don't know
- 7a **[IF YES]** Please identify where you saw promotions for the program (select all that apply) **[DO NOT READ]**
- 1 Newspaper ads
  - 2 Radio Ads
  - 3 TV
  - 4 Internet
  - 5 Utility bill insert
  - 5 Others\_\_\_\_\_
  - 88 Refused
  - 99 Don't know
- 7b **[IF RECALL AT LEAST ONE MEDIUM]** How effective were the promotions to inform you about the program and encourage you to reduce your household energy consumption?
- 1 Extremely effective
  - 2 Somewhat effective

3 Not at all effective

88 Refused

99 Don't know



### **SECTION 3 – ACTIONS**

**8 (ALL RESPONDENTS)** Did you or anyone in your household take active steps to reduce your electricity use last summer?

1 Yes **(Go to Q9)**

2 No **(Skip to Q14)**

88 Refused **(Skip to Q14)**

99 Don't know **(Skip to Q14)**

**9 (ASK IF Q8= YES)** Which of the following actions, purchases and / or changes did you make last summer in effort to reduce your summer energy consumption and qualify for the prizes? Did you...

	<u><b>Yes</b></u>	<u><b>No</b></u>	<b>DK/Refused</b>
A. Install new energy efficient appliances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Improve the efficiency of the building shell of your home. This would include adding insulation, upgrading windows, increased weatherproofing, etc..?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Repair, replace or reduce the usage of your air conditioner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Reduce your hot water usage or change your clothes was and/or drying habits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Reduce usage of lights and/or home electronics?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Unplug or got rid of any old appliances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Switch any of your appliances/equipment from electricity natural gas or other fuel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H - Other?			

**TO CODE:**

3. IF HEARD OF Summer Sweepstakes PROGRAM (Q1=1) AND NOT REGISTERED (Q2=2 OR DK)
  - I. THEN CODE AS **"AWARE NON-PARTICIPANT"**
4. IF **NOT** HEARD OF Summer Sweepstakes PROGRAM (Q1=2 OR DK) AND NOT REGISTERED (Q2=2 OR DK),
  - I. THEN CODE AS **"UN-AWARE NON-PARTICIPANT"**
5. IF HEARD OF Summer Sweepstakes PROGRAM (Q1=1) AND REGISTERED (Q2=1)
  - I. THEN CODE AS **"AWARE RANDOM PARTICIPANT"**
6. IF TOOK ACTIVE STEPS TO REDUCE USAGE (Q8=1) AND CAN RECALL AT LEAST ONE ACTION (Q9 = YES)
  - I. THEN CODE AS **"ACTIVE NON-PARTICIPANT"**, ELSE
  - II. CODE AS **"INACTIVE NON-PARTICIPANT"**

**[IF new appliance -9A]** More specifically, which new energy efficient appliance did you install?

**[OPEN END DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Refrigerator	Was it an Energy Star refrigerator?	4. Yes 5. No 6. DK/Refused	
2 Dishwasher	Was it an Energy Star Dishwasher?	4. Yes 5. No 6. DK/Refused	
3 Freezer	Was it an Energy Star Freezer?	4. Yes 5. No 6. DK/Refused	
4 Clothes Washing machine	Was it an Energy Star Clothes Washing Machine?	4. Yes 5. No 6. DK/Refused	
5 Dryer	Was it an Energy Star Dryer?	4. Yes 5. No 6. DK/Refused	
6 Dehumidifier	Was it an Energy Star Dehumidifier?	4. Yes 5. No 6. DK/Refused	
7 Water heater	Was it an Energy Star Water Heater?	4. Yes 5. No 6. DK/Refused	
8 Air Conditioner	What type of air conditioner did you install? 5. Central air conditioner 6. Room air conditioner 7. Other	Was it an Energy Star air conditioner? 4. Yes 5. No 6. DK/Refused	

	8. DK/Refused		
9 Other (please specify:_____)			

<b>[IF improved building shell - 9b] More specifically, how did you improve the efficiency of your home's building shell? [OPEN END DO NOT READ]</b>			
<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Added ceiling / attic / wall / basement insulation	2. Specifically, where did you increase your insulation (select all that apply)	7. Attic 8. Wall 9. Basement 10. Floor 11. Hot water pipes 12. DK/Refused	
2 Closed drapes during the day to block the sun	2. On average, how many hours per day were the drapes closed to block the sun?	3. Record number of hours_____ 4. DK/Refused	Behaviour (Seasonal)
3 Replaced windows	2. How many windows did you replace?	3. Record number of windows_____ 4. DK/Refused	
4 Got an energy evaluation / audit of home			
5 Weatherproofed home / sealed around windows / doors			
6 Other, specify: _____			

**[IF reduced air conditioning - 9C]** More specifically what did you reduce the power used for air conditioning? **[OPEN END, DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Got an air-conditioner tune-up.	2. When did you last tune up your air conditioner?	6. Previous year 7. Between 2 – 4 years ago 8. Over 5 years ago 9. Never 10. DK/Refused	
2 Changed furnace filter, or changed more frequently	2. How frequently do you change your furnace filter?	7. Once per year 8. Every 6 months 9. Every 2-3 months 10. Every month 11. Never 12. DK/Refused	Behaviour (Annual)
3 Used fewer room air conditioners	2. How many fewer room air conditioners did you use?	3. Record number of room ACs_____ 4. DK/Refused	Behaviour (Seasonal)
4 Used fans instead of air conditioning	2. On average, how many hours per day would you use the fan instead of the air conditioner?	3. Record number of hours_____ 4. DK/Refused	Behaviour (Seasonal)
5 Installed a programmable thermostat	2. Did you have the programmable thermostat set to change the temperature automatically for different days of the week or times of the day?	4. Yes 5. No 6. DK/Refused	
6 Turned up thermostat setting in summer so house was not as cool / house was warmer	2. On average, how many degrees would you raise the temperature setting on your thermostat?	3. Record number of degrees_____ 4. DK/Refused  Is this Celsius or Fahrenheit?	Behaviour (Seasonal)

		3. Celsius 4. Fahrenheit	
7 Used air conditioning less frequently	2. On average, how many hours per day would you use your air conditioner less?	3. Record number of hours_____ 4. DK/Refused	Behaviour (Seasonal)
8 Installed ceiling fan	2. Was it an Energy Star ceiling fan?	4. Yes 5. No 6. DK/Refused	
9 Did not use any air conditioning	2. Did you use your air conditioner in the previous summer, that is the summer of 2007?	4. Yes 5. No 6. DK/Refused	Behaviour (Seasonal)
10 Installed a electronically commutated motor (ECM - new furnace motor) in my furnace			
11 Closed drapes during the day to block the sun	2. On average, how many hours per day were the drapes closed to block the sun?	3. Record number of hours_____ 4. DK/Refused	Behaviour (Seasonal)
12 Other, specify: ____			

**[IF reduced hot water usage changed clothes washing/drying habits – 9D]** More specifically, how did you reduce your hot water usage or change your clothes washing and/or drying habits? **[OPEN END, DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Washed laundry with cold water	2. On average, how many loads of laundry per week did you previously wash in hot or warm water but now wash in cold water?	3. Record number of hot or warm water loads saved____ 4. DK/Refused	Behaviour (Annual)
2 Dried clothes outside or inside on a rack	2. On average, how many loads of laundry per week did you previously use a dryer but now hang to dry?	3. Record number of dryer loads saved____ 4. DK/Refused	Behaviour (Annual)
3 Ran the dishwasher only when it was full	2. On average, how many loads of dishwashing per week do you believe you saved by running only when the dishwasher was full?	3. Record number of loads saved____ 4. DK/Refused	Behaviour (Annual)
4 Washed dishes by hand rather than use dishwasher	2. On average, how many loads of dishwashing per week do you believe you saved by washing your dishes by hand?	3. Record number of loads saved____ 4. DK/Refused	Behaviour (Annual)
4 Insulated hot water pipes			
5 Insulated water heater			
5 Installed low flow showerhead/faucet aerator	2. How many low flow faucet aerators or low flow showerheads did you install?	3. Record number of units installed____ 4. DK/Refused	
6 Other, specify: _____			

**[IF reduced usage of lights or electronics -9E]** More specifically, how did you reduce the use of your lights or home electronics? **[OPEN END, DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Turned off / reduced use of lights	3. On average, how many lights in your home did you turn off more frequently or use less frequently?	3. Record number of lights____ 4. DK/Refused	Behaviour (Annual)
	4. On average, approximately how many fewer hours per day was each light on?	3. Record number of hours____ 4. DK/Refused	
2 Turned off / reduced use of power to electronics (TV / DVD / VCR / computers)	5. How many sets of electronics did you turn off or use less frequently?	3. Record number of electronics____ 4. DK/Refused	Behaviour (Annual)
	6. On average, how many hours per day were the electronics reduced?	4. Record number of hours____ 5. DK/Refused	Behaviour (Annual)
	7. Did you manually turn off and/or reduce power to electronics or did you use a power bar?	3. Manually 4. Use of Power bar 6. DK/Refused	
	8. [IF POWER BAR] Did the power bar have an automatic timer and/or an automatic shut off?	4. Yes 5. No 6. DK/Refused	
3 Installed compact fluorescent lights	2. How many conventional bulbs did you replace with compact fluorescent lights?	3. Record number of CFLs____ 4. DK/Refused	
4 Installed dimmer switch / motion sensor lights or timers	2. How many dimmer switches/motion sensor lights / timers did you install?	3. Record Number of dimmer switches, timers and motion	



		sensors_____	
		4. DK/Refused	
5 Other, specify: _____			

[IF unplugged or got rid of appliances, 9F = YES] Specifically, which appliances or electronics did you unplug or get rid of? [OPEN END, DO NOT READ]			
Primary Response	Secondary Questions	Secondary Responses	Behavioural (Type)
1 Secondary refrigerator(s)	2. Did you unplug or replace the refrigerator?	4. Unplug (Behaviour – Annual) 5. Replace ( <b>ASK FOLLOW UP</b> ) 6. DK/Refused	Behaviour (Annual) if “Unplug”
	2. [IF REPLACED] What did you replace your secondary refrigerator with?	5. Brand new refrigerator 6. Used refrigerator which is under 10 years old. 7. Used refrigerator with is more than 10 years old. 8. DK/Refused.	
2 Secondary freezer(s)	2. Did you unplug or replace the freezer?	4. Unplug (Behaviour – Annual) 5. Replace ( <b>ASK FOLLOW UP</b> ) 6. DK/Refused	Behaviour (Annual) if “Unplug”
	2. [IF REPLACED] What did you replace your secondary freezer with?	5. Brand new freezer 6. Used freezer which is under 10 years old. 7. Used freezer with is more than 10 years old. 8. DK/Refused.	
3 Unplugged devices usually plugged into outlet (cell phones, digital cameras, etc.)	How many electronic devices did you unplug?		Behaviour (Annual)
4 Other electricity-using equipment (Specify):_____			

**[IF switch from electricity to natural gas, 9G = YES]** Which specific appliances or equipment did you switch from electricity to natural gas or another fuel? **[OPEN END, DO NOT READ]**

<i>Primary Response</i>	<i>Secondary Questions</i>	<i>Secondary Responses</i>	<i>Behavioural (Type)</i>
1 Water heater			
2 Pool / spa heater			
3 Stove / Range			
4 Dryer			
5 Heating system			
6 Other, specify: _____			

10A. **[IF BEHAVIOURAL-ANNUAL OR -SEASONAL ACTION]** How often would you [action] prior to your participation in this program, that is prior to this past summer?

- 1 All the time
- 2 Sometimes
- 3 Not at all
- 4 Not applicable **[DO NOT READ]**
- 88 Refused **[DO NOT READ]**
- 99 Don't know **[DO NOT READ]**

10B. **[IF BEHAVIOURAL-ANNUAL ACTION]** To what extent have you continued to **[ACTION]** since this past summer?

- 1 All the time
- 2 Sometimes
- 3 Not at all
- 4 Not applicable **[DO NOT READ]**
- 88 Refused **[DO NOT READ]**
- 99 Don't know **[DO NOT READ]**

10C. **[IF BEHAVIOURAL-SEASONAL ACTION]** How likely are you to continue **[ACTION]** next summer?

- 1 Extremely likely
- 3 Somewhat likely
- 5 Not at all likely
- 88 Refused
- 99 Don't know

#### **SECTION 4 – FREE-RIDERSHIP AND OTHER PROGRAMS**

- 11     **(Ask if at EACH item mentioned in Q10)** You stated earlier that you **[name of action mentioned in 10]**, was this in any way a result of your participation in another conservation program / initiative?
- 1        Yes (Go to Q11a.)
  - 3        No (Go to Q12)
  - 88       Refused
  - 99       Don't know
- 11a.   **[IF YES]** Do you recall the name of the other conservation program that you participated in for **[action]**?
- 1.       Record Program Name \_\_\_\_\_
  - 2        No
  - 88       Refused
  - 99       Don't know
- 12     **[AKS ONLY IF REGISTERED IN PROGRAM, Q2=1]** How likely do you think you would have been to **[ACTION]** if you had not participated in the Summer Sweepstakes program? Would you have been...
- 1        Extremely likely
  - 2        Very likely
  - 3        Somewhat likely
  - 4        Not very likely, or
  - 5        Not at all likely
  - 88       Refused [DO NOT READ]
  - 99       Don't know [DO NOT READ]

- 13     **[ASK ONLY IF AWARE OF PROGRAM, Q1=1, OR REGISTERED IN PROGRAM, Q2=1]** Using a 100 point scale, please rate the influence of the Summer Sweepstakes Program on your overall decision to **[ACTION]** with 0 points indicating that Summer Sweepstakes had no influence at all and 100 points indicating that the program was the only reason for doing the action.

1.     Record number (0-100) \_\_\_\_\_

88     Refused

99     Don't know

**[REPEAT 11-13 FOR EACH ACTION MENTIONED]**

## **SECTION 5 – PAST AND FUTURE PROGRAMS AND ATTITUDES**

- 14 In the summer of 2006 and 2007, a similar energy conservation program offered a bill credit to customers who reduced their electricity use by 10% or more. Did you attempt to participate in either of these programs?
- 1 Yes (**Go to Q14a**)
  - 2 No (**Skip to Q15**)
  - 88 Refused (**Skip to Q15**)
  - 99 Don't know (**Skip to Q15**)
- 14a. **[IF Q14 = YES]** And did you receive a bill credit for reducing your electricity use by 10% or more in the summer of 2006 or 2007?
- 1 Yes
  - 2 No
  - 88 Refused
  - 99 Don't know
15. **[ASK ONLY IF REGISTERED IN PROGRAM, Q2=1]** Do you believe that participation in Summer Sweepstakes has helped you to understand the actions that you can take to reduce your household energy usage?
- 1 Definitely
  - 2 Likely
  - 3 Likely not
  - 4 Definitely not
  - 5 Depends [**DO NOT READ**]
  - 88 Refused [**DO NOT READ**]
  - 99 Don't know [**DO NOT READ**]

16. **[ASK ONLY IF REGISTERED IN PROGRAM, Q2=1]** Has your participation in this program motivated you to participate in other energy conservation programs?
- 1 Yes **[Go to 16a]**
  - 2 No
  - 88 Refused
  - 99 Don't know
- 16a. **[IF Q16=YES]** Which other energy conservation programs have you participated in lately?
- 1 Name of program(s)\_\_\_\_\_
  - 88 Refused
  - 99 Don't know
17. As previously mentioned, if registered customers were successful in reducing their summer 2008 electricity consumption by 10% compared to their summer 2007 electricity usage, their names were entered into a draw to win prizes. What form of rewards or incentives would you prefer if the program is offered in the future?  
**[Do not read]**
- 1 Bill credit
  - 2 Coupons for energy saving measures
  - 3 Contributions to a charity
  - 4 Public recognition for your efforts
  - 5 Keep prizes
  - 77 Other, please specify\_\_\_\_\_
  - 88 Refused
  - 99 Don't know
- 18 Do you use the internet to seek out information on energy efficiency programs and opportunities to reduce your household energy usage?
- 1 Yes **[Continue to Q19]**
  - 2 No **[Skip to 24]**



88 Refused

99 Don't know

19 Specifically, what kind of information do you generally use the internet to seek out? Do you generally seek out...

	<u>Yes</u>	<u>No</u>	<u>DK/Ref</u>
A. Home Appliance Information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Home Improvement or building envelop improvements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Energy Saving Tips?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Available utility and government incentive and rebate programs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Listings of locally qualified contractors to install or perform energy saving measures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Any other type of information (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20 What type of internet sites do you generally use to seek out information? **[DO NOT READ - SELECT ALL THAT APPLY]**

- 1 Government websites
- 2 Non-governmental organizations (NGO) websites
- 3 Local Utility websites
- 4 Retail or private sector websites
- 5 Search engines (GOOGLE, YAHOO)
- 6 Discussion groups, blogs
- 7 No specific type
- 8 Other (Specify)

88 Refused

99 Don't know

20 Specifically, which website do you use most to research the desired information? **[OPEN ENDED]**

1 Record response\_\_\_\_\_

88 Refused

99 Don't know

- 21 Thinking of the traits and characteristics of the websites you typically visit, please rate the importance of each of the following web page characteristics using a 100 point scale, with 0 points indicating that it is not at all important to you and 100 points indicating that it's the most important reason for you visiting the website.

	SCORE	DK/Refused
A. Having pictures and photographs of the equipment or retrofit action.	_____	<input type="checkbox"/>
B. Having detailed descriptions of the process required to install the new equipment or undertake the retrofit job.	_____	<input type="checkbox"/>
C. Having energy saving calculators.	_____	<input type="checkbox"/>
D. Having a list of qualified retailers or contractors in my area who sell the desired equipment or undertake the retrofit job.	_____	<input type="checkbox"/>
E. Having customer reviews and comments about the equipment/product or contractor.	_____	<input type="checkbox"/>

- 22 How often would you use the internet to provide yourself with energy efficiency data to inform yourself on major purchase decisions (e.g., household appliances,)

1 Always

2 Sometimes

3 Never

88 Refused

99 Don't know

- 23 How often would you use the internet to provide yourself with information on how you can change your consumption behaviour or manage your energy costs to improve energy efficiency in your home.

- 1 Always
- 2 Sometimes
- 3 Never
- 88 Refused
- 99 Don't know
- 24 Are you familiar with any standards or ratings currently in place that rate the energy efficiency of appliances? (Select all that apply)
- 1 Energuide
- 2 Energy Star®
- 3 Canadian Standards Association standards
- 4 Other (specify)\_\_\_\_\_
- 5 None
- 88 Refused
- 99 Don't know
- 25 How concerned are you about each of the following issues (Randomize)

X1	The environmental impacts of electricity generation
X2	The environmental impacts of electricity consumption by consumers
X3	The environmental impacts of electricity consumption by business and industry

- 1 Very concerned
- 2 Somewhat concerned
- 3 Not very concerned
- 4 Not at all concerned
- 88 Refused
- 99 Don't know

26 Do you think that individual consumers such as yourself can make an important contribution to the overall reduction of electrical energy use in the province?

- 1 Definitely
- 2 Likely
- 3 Not likely
- 4 Definitely not likely
- 88 Refused
- 99 Don't know

27 Here are some opinions that we often hear expressed. On a scale of 1 to 5 where 1 is *Totally disagree* and 5 is *Totally agree*, how would you rate each of these statements. Randomize

z1	I am prepared to pay more for an environmentally friendly product
z2	It is acceptable that an industrial society such as ours produces a certain level of pollution
z3	I have enough trouble worrying about my own problems without worrying about others'

- 1 Totally agree
- 2 Somewhat agree
- 3 Somewhat disagree
- 4 Totally disagree
- 88 Refused
- 99 Don't know

**SECTION 3 - DEMOGRAPHIC MODULE**

- 28 What is the primary fuel you currently used to heat your home? Is it . . . **[READ LIST – STOP WHEN THEY ANSWER]**
- 1 Natural Gas
  - 2 Electricity
  - 3 Propane
  - 4 Oil
  - 5 Wood
  - 6 Solar
  - 7 Geothermal, or
  - 8 Something else (Specify): \_\_\_\_\_
  - 88 Refused
  - 99 Don't know
- 29 What is the primary fuel you currently use to heat your water for showers, baths, dishwashing and laundry? Is it . . . **[READ LIST – STOP WHEN THEY ANSWER]**
- 1 Natural Gas
  - 2 Electricity
  - 3 Propane
  - 4 Oil
  - 5 Wood
  - 6 Solar, or
  - 8 Something else (Specify): \_\_\_\_\_
  - 88 Refused
  - 99 Don't know

30 What type of air conditioning, if any, do you have in your home?

- 1 Central air conditioning
- 2 Ductless Air conditioning
- 3 Window unit(s) [Go to 27a]
- 4 Other (Specify)\_\_\_\_\_

88 Refused

99 Don't know

30a **[IF WINDOW UNITS Q27=3]** How many window units?

- 1 Record answer \_\_\_\_\_

88 Refused

99 Don't know

31 What type of home do you live in? **[READ LIST – STOP WHEN THEY ANSWER]**

- 1 Single Family, detached house
- 2 Single Family, semi-detached house
- 3 Townhouse or rowhouse
- 4 Duplex, triplex or fourplex
- 4 Condominium/apartment
- 5 Other (please specify) \_\_\_\_\_

88 Refused

99 Don't know

32 Do you own or rent your home?

- 1 Own
- 2 Rent
- 88 Refused

- 99 Don't know
- 33 What is the approximate square footage of your home (including kitchen, bedrooms, bathrooms, foyers, dens and hallways)? The square footage of homes is often quoted to exclude the basement. Please include the basement in your estimate if it is a finished basement. **[READ LIST – STOP WHEN THEY ANSWER]**
- 1 Less than 1000 sq ft
  - 2 1001 to 1500 sq ft
  - 3 1501 to 2000 sq ft
  - 4 2001 to 2500 sq ft
  - 5 2501 to 3000 sq ft
  - 6 3001 to 3500 sq ft
  - 7 3501 to 4000 sq ft
  - 8 more than 4000 sq ft
  - 88 Refused
  - 99 Don't know
- 34 What is the last level of education that you have completed?
- 1 Grade school or less
  - 2 Some high school
  - 3 High school grad
  - 4 Vocational / Technician school
  - 5 College
  - 6 Some University
  - 7 University grad
  - 8 Post graduate degree

88 Refused

99 Don't know

35 Finally, for statistical purposes only, please tell me which of the following broad categories best describes your total household income before taxes for the year 2008? **[READ LIST – STOP WHEN THEY ANSWER]**

1 Under \$20,000

2 \$20,000 to under \$40,000

3 \$40,000 to under \$60,000

4 \$60,000 to under \$80,000

5 \$80,000 to under \$100,000

6 \$100,000 and over

7 Prefer not to say **[DO NOT READ]**

Thank you very much. Your answers will help *[LDC Name (if using customer contact details from LDC) OR your local utility (if random telephone sample)]* and the Ontario Power Authority evaluate their energy efficiency efforts to better serve customers. Remember: your answers to this survey are confidential and will be used only for this research.



## APPENDIX B: BILLING AND REGRESSION ANALYSIS

In an effort to estimate the impact of the various actions that participants took on their summer and annual consumption, a billing and regression analysis was undertaken linking customer's survey responses with their consumption information provided by the LDCs. Unfortunately, the analysis provided few statistically significant estimates for any of the actions for use in subsequent analysis.

Navigant Consulting used a traditional cross-sectional ordinary least squares (OLS) methodology to determine the major fundamental drivers from the actions taken by the surveyed customers. This methodology is ideally suited to this type of analysis due to a number of factors including ease of interpretation and model construction as well as the ability to assess a number of factors and potential cross-effects present between variables.

The OLS estimator, in general, takes the form shown below in Figure 7, where  $y_i$  is the dependent variable, in this case the change in summer savings period consumption, for individual  $i$ . The Beta ( $\beta$ ) is the vector of coefficients and  $x_{it}$  is the set of regressors for the same individual representing actions taken by that individual, and in this case is based fully on the results of the survey. Finally,  $\mu_{it}$  is the error term for a given individual and time.

*Figure 16: Ordinary least squares (OLS) estimator variables*

$$y_i = x_i\beta + \mu_i \quad i = 1, \dots, N$$

Using this methodology, we created two candidate models for the billing analysis. The first model assessed the influence of customer actions on absolute changes in consumption expressed in kilowatt hours (kWh), while the second model described the influence of customer actions on percentage changes in kWh. For independent variables in each model, Navigant Consulting created a series of dummy variables or 'switches' to describe the primary actions, if any, the customer took. For example, if the surveyed customer stated they purchased a new refrigerator, they received a "1" indicating that action was taken. Whenever a customer does not respond to a specific action, they receive a "0" indicating the action described by the variable was not taken.

The resulting models provide minimal explanatory power in relating customer actions to their influence on consumption in both percentage and absolute (i.e., kWh) terms.  $R^2$  measures, which assess the efficacy of the model in explaining the data, are frequently in the single digit percentages, indicating that the model does not accurately describe the data. Furthermore, a clear majority of the estimators are highly insignificant across both models. Further iterations of the modeling process to refine customer actions and uncover clearer marginal effects do not appear to be successful with additional, single-digit  $R^2$  measures and no clearly significant action driving percentage or absolute consumption changes.

A final effort to broadly re-classify all actions into three macro categories: behavioural actions, small appliance and control device purchases, and large appliance purchases. Unfortunately, this classification does not yield significant effects for any type of action at a reasonable confidence level nor improved  $R^2$  measures. These results indicate that a latent, unspecified driver of consumption behaviour could be influencing consumption behaviour and the model's ability to accurately account for the variability of actions and consumption in the survey data. However, it is interesting to note the general magnitude and directionality of the estimators in this final effort as demonstrated by the chart below.

*Table 19: Estimator and p-values for actions classified into three macro categories*

Most Frequent Actions	Estimator	p-values
Behavioural Actions	11.55	0.8132
Small Appliances and Control Devices	-5.20	0.9129
Large Appliances	-51.60	0.2838
Intercept	-99.39	0.0223
$R^2$	0.003	

Without considering the overall 'fit' of the model, that there does appear to be an overall trend towards a decrease in consumption on the part of survey participants year-over-year without participating in the actions described by the survey. In addition, appliance purchases, without accounting for the individual significance of the estimators, appear to have a decreasing effect on consumption with small appliances and control devices displaying one-tenth the effect of large appliances on absolute consumption expressed in kWh. Surprisingly, behavioural actions appeared to increase consumption measured in kWh.

Therefore, Navigant Consulting has determined the regression analysis revealed few significant estimators at even the 10% significance level. However, with so many potential actions responsible for variance in customer electricity consumption between 2007 and 2008 not captured or included in the analysis, one would expect to see few significant results. It is also likely that factors not captured in the survey responses contributed to the year-over-year savings. Given that no independent variables were able to fully account for these other factors, the regression model attempted to explain all of the variability with the dummy variables provided.

## APPENDIX C: LDC DATA REQUEST AND FORMAT REQUIREMENTS

The following data request was submitted to all participating LDCs:

### Registered Customers

NCI will require the following information for registered customers from all participating LDCs.

1. Contact information – account number (or other reference number for linking), name, address, city / town, phone number (if available)
2. Actual kWh consumption and read date for each actual (not estimated) meter read from January 2007 through to latest read after September 2008. Ideally, the data would be structured as two columns per customer – with one column being the meter read date and the other being the recorded consumption from the previous meter read to the current meter read. Note that Navigant Consulting should also be able to manipulate LDC's meter read file, provided that each of the data fields is accurately labeled.
3. Summer-over-summer % change in consumption and kWh change in consumption for each non-registered customer after application of the OPA's prescribed weather correction factor and methodology to the customer's meter readings / consumption history. The format for this component of the data should be as follows:

<b>Customer Number</b> <i>(does not need to be their account number, but must allow this data to be linked with the consumption history and contact details)</i>	<b>% change in consumption (Summer 2008 versus Summer 2007)</b> <i>(NB - A decrease in consumption for the summer of 2008 relative to the summer of 2007 should be shown as a negative)</i>	<b>kWh change in consumption (Summer 2008 versus Summer 2007)</b> <i>(NB - A decrease in consumption for the summer of 2008 relative to the summer of 2007 should be shown as a negative)</i>
	<b>%</b>	<b>KWh</b>
1	-5.3%	-100
2	-4.1%	-105
1	2%	45
1	-1.3%	-27

All of this information will be linked with a common customer number so that contact information, consumption history and summer-over-summer savings for each registered customer

can be synchronized and analyzed. This does not need to be the customer account number, but using this account number may be simplest.

## Non-Registered Customers

NCI will require Summer-over-summer % change in consumption and kWh change in consumption for each non-registered customer after application of the OPA's prescribed weather correction factor and methodology to the customer's meter readings / consumption history.

Ideally, the data should be provided in a simple list format, as follows (CSV or Excel format):

<b><i>Random Customer Number (does not need to be their account number, could be sequentially numbered from one)</i></b>	<b><i>% change in consumption (Summer 2008 versus Summer 2007) (NB - A decrease in consumption for the summer of 2008 relative to the summer of 2007 should be shown as a negative)</i></b>	<b><i>kWh change in consumption (Summer 2008 versus Summer 2007) (NB - A decrease in consumption for the summer of 2008 relative to the summer of 2007 should be shown as a negative)</i></b>
	<b><i>%</i></b>	<b><i>KWh</i></b>
1	-5.3%	-100
2	-4.1%	-105
1	2%	45
1	-1.3%	-27

If you have any questions regarding the data requirements for this program, please contact:

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