

FINAL EVALUATION REPORT: 2007 EVERY KILOWATT COUNTS PROGRAM

Presented to



Ontario Power Authority™

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EXECUTIVE SUMMARY

The 2007 Every Kilowatt Counts (EKC) program was a province-wide education and incentive program targeted at Ontario's residential households. The goal of the program was to provide Ontario homeowners and tenants with the necessary tools and information to save electricity and to have a positive impact on the environment by inducing customers to implement 'easy to do' and 'low cost' energy saving measures. The program had two campaigns – one in the spring and another in the fall:

- **Spring Campaign** – The products for which discount coupons were provided in the Spring campaign included Energy Star® qualified compact fluorescent lights (CFLs), Energy Star® qualified ceiling fans, pleated fabric or electrostatic furnace filters, off outdoor solar lights, outdoor motion detectors, lighting products and dimmer switches
- **Fall Campaign** – The products for which coupons were provided in the Fall campaign were Energy Star® qualified CFLs, seasonal LED (SLED) light strings, appliance/lighting control products (timers, dimmers and motion sensors), baseboard programmable thermostats, Residential T-8 lights and fixtures, power bars with integrated timers and Energy Star® qualified residential light fixtures.

The program was supported by a media campaign, in-store point of purchase material, a program website, a toll-free hotline, as well as local promotion by LDCs.

The estimated gross and net energy and demand savings for the 2007 EKC program is summarized below.

Table 1: 2007 EKC Program Impact

	Annual Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Winter Peak Demand Savings (MW)	Summer Peak Demand Savings (MW)
Gross	187	1,476	51	7
Net	132	1,060	37	5

Based on results from Navigant Consulting's Monte Carlo simulation of the potential variability in key input parameters, there is 90% confidence that the net annual energy savings were at least 123 GWh and the net summer demand reduction was at least 4.6 MW.

The 2007 EKC program was cost-effective under both the Total Resource Cost and the Program Administrator Cost tests. Under the Total Resource Cost test, the net benefits created by the 2007 EKC program were estimated to be \$37 million and the benefit / cost ratio was estimated to be 2.5 / 1, with 90% confidence that the net benefits were at least \$27 million and that the benefit / cost ratio for the program was at least 2.1 / 1.

Only three of the products promoted through the 2007 EKC program were found to have a benefit / cost ratio less than one. The three products – furnace filters, outdoor solar lights, and SLEDs – were found to have benefit / cost ratios of 0.7, 0.2 and 0.9 respectively. Note that the overall impact of these measures on the overall cost-effectiveness of the program was not significant. Excluding these measures, the net benefits would increase from approximately \$37 million to \$38 million.

The program was found to provide a net benefit of approximately \$25 million under the Program Administrator Cost test. In simple terms, the OPA's "investment" in the 2007 EKC program is expected to realize 1,060 GWh of energy savings over the life of the various measure implemented at a cost of approximately 1.7 cents per kWh.

Overall, there were over three million products purchased as a result of the program, with more than 75% of these products being CFLs.

More than three-quarters of all EKC CFL coupon redeemers felt that their CFL had helped improve the environment and helped them save energy, and more than two-thirds felt that their CFL had helped save them money. This suggests there is a somewhat stronger linkage in consumers' minds between CFLs and the environment than between CFLs and saving money. It also suggests that consumers' actions related to relatively low cost products such as those promoted through the 2007 EKC program can be driven as much or more by environmental considerations than by economic or financial considerations.

Outside the direct impact from EKC product purchases, participants also reported increased awareness of no and low-cost energy savings opportunities due to the program.

It is interesting to note that 2007 EKC program participants were seven times as likely as non-participants to have purchased Energy Star® appliances in 2007. Similarly, EKC CFL coupon redeemers were eleven times more likely to have purchased Energy Star® appliances in 2007 than those who did not redeem EKC CFL coupons. Whether these differences are due to the 2007 EKC program or whether they simply reflect a greater propensity for consumers who purchase Energy Star® appliances to participate in programs like the 2007 EKC program is not known.

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INTRODUCTION

The report presents the results of Navigant Consulting's evaluation of the Ontario Power Authority's (OPA) 2007 Every Kilowatt Counts program.

2007 Every Kilowatt Counts Program Description

The 2007 Every Kilowatt Counts (EKC) program was a province-wide education and incentive program targeted at Ontario's residential households. The OPA sought to build upon the success and the momentum of the 2006 EKC program by continuing the program in 2007.

The goal of the 2007 EKC program was to provide Ontario homeowners and tenants with the necessary tools and information on how to save electrical energy and to have a positive impact on the environment by inducing customers to implement 'easy to do' and 'low cost' energy saving measures.

Program Timing and Key Elements

The 2007 program had two market campaigns: April 16 – June 17 (Spring campaign) and mid-September - November 30 (Fall campaign). In the Spring campaign, a direct mail booklet was sent to every Ontario household (approximately 4.5 million) during the first 10 days of the campaign. The mailing was to be done in partnership with over 80 local distribution companies (LDCs), and the booklets were co-branded with the LDC's logo. In the Fall campaign, the booklets were sent out using unaddressed mail and were not co-branded with the LDC's logo. The booklets had "easy to do" energy savings tips and instant rebate coupons for six products. The coupons were product-specific, but not manufacturer-specific or retailer-specific.

The products and discounts for the Spring Campaign were:

- \$3 off Energy Star® qualified compact fluorescent lights (CFLs)
- \$25 off Energy Star® qualified ceiling fans
- \$3 off purchase of three or more pleated fabric or electrostatic furnace filters
- \$5 off outdoor solar light products
- \$5 off outdoor motion detectors lighting products
- \$3 off dimmer switches

The products and discounts for the Fall Campaign were:

- \$2 off Energy Star® qualified CFLs
- \$2 off Seasonal LED light strings

- \$2 off appliance/lighting control products (timers, dimmers and motion sensors)
- \$15 off baseboard programmable thermostats
- \$5 off Residential T-8 lights and fixtures
- \$5 off Power bars with integrated timers
- \$7 off Energy Star® qualified residential light fixtures.

The program was supported by a media campaign (print and radio ads), in-store point of purchase (POP) material, a program website, a toll-free hotline, as well as local promotion by LDCs. The media campaign and the program website also cross-promoted other OPA program opportunities.

Program Objectives

The primary objectives of the 2007 EKC program were:

1. Increase Ontarians' awareness of ways to conserve and efficiently use electricity within their homes.
2. Achieve energy and demand savings by encouraging Ontarians to undertake behavioural changes and by providing instant discounts on the purchase of energy saving products.

Additional detailed objectives of the program, which relate to the primary objectives, include:

3. Increasing Ontarians' understanding of the benefits of the behavioural or 'no-cost' energy saving tips promoted by the EKC program.
4. Increasing Ontarians' understanding of the attributes and benefits of the energy efficient technologies featured in the EKC campaign and where to purchase the products.
5. Increasing Ontarian's awareness of other OPA or nationwide conservation programs available to households in Ontario.
6. Increasing the number of EKC-featured products that are purchased and installed in Ontario households (i.e., household penetration rate).
7. Increasing the propensity/willingness of Ontario households to undertake one or more of the energy saving tips identified in the EKC program.

Additional strategic and capacity building objectives for the OPA, related to the delivery of the program include:

8. Establishing new relationships and enhancing existing relationships with manufacturer and retailer channel partners.
9. Enhancing relationships with local distribution company (LDC) channel partners.
10. Achieve increased customer awareness of the potential positive environmental impacts associated with reducing their energy usage during peak hours.

Program Theory

The six key anticipated program effects as described by the OPA are presented below.

1. *Impact on Customer Awareness* - The Program will result in an increased customer awareness of:
 - The Every Kilowatt Counts Program
 - The opportunities to save energy through behavioural or 'no-cost' energy-saving tips promoted in the EKC campaign
 - The opportunities to save energy by purchasing and installing the featured energy-saving products in the EKC campaign
 - The OPA's other conservation and energy efficiency programs
2. *Impact on Customer Behaviours*
 - The direct mail campaign will be a significant catalyst for customers to take action, either in the form of implementing energy savings tips at home or by redeeming coupons at the store.
 - Direct mail coupons will serve as a stimulus for customers to redeem their EKC coupons at local stores. Based on market research and coupon redemption results from the 2006 campaigns, we estimate that approximately 40-50%¹ of Ontario customers will read or scan the EKC booklet sent to them by mail, and then some fraction will take one or more of the following actions:
 - Practice some of the recommended energy savings tips.

¹ From the 2006 Spring campaign post-program survey 44% recalled receiving the booklet and from the Fall campaign post-program survey 46% recalled receiving booklet.

- Redeem EKC coupons, bring the equipment back, and install the new energy saving devices. We estimate approximately 25-30%² of those that read the booklet will redeem EKC coupons. Some will use the direct mail coupons only, some will use in-store coupons only, and some will use both types of coupons to purchase the more efficient measures. Overall, we estimate that 1.5-3%³ of all households will use the direct mail coupons. The Evaluation should try to confirm what fraction of customers that redeemed coupons did so because of direct mail, direct mail plus in store coupons, or simply random visit to store coupled with in store coupons being available.
 - In Store coupons will yield the most sales of promoted products although the interaction between the call to action in the direct mail package and in store promotions is not well understood. Some customers will first encounter the EKC program in-store (rather than through the direct mail piece) and will redeem EKC coupons available in store, bring the equipment back, and install the new energy saving devices. We estimate that 80-90% of coupons redeemed in the program will be from in-store coupons (*note: this includes both customers aware of program before they came to the store based on booklet, as well as those that encounter the program in store coupons for first time*).
 - Some customers will continue to purchase energy efficient products (e.g., CFLs) after the campaign is over, at regular retail price.
3. Impact on Customer Satisfaction
- Most customers will feel satisfied that they achieved some energy savings, saved money and/or or did something of value to improve the environment as a result of participating in the program.
4. Impact on Product Suppliers
- Manufacturers and retailers will be motivated to work with the EKC program because it will potentially generate more business and positive publicity for their stores. Some manufacturers and/or retailers will use their own resources to promote the campaign, such as in flyers and on their websites, and/or further discount the promoted products through in-store sales.

² Spring 2006 research – 25% of those that recall receiving booklet indicated that they used EKC coupons; Fall research – 31.9% of those that recall receiving booklet indicated that they used EKC coupons.

³ Spring 2006 – 79,608 DM coupons (1.7% of all households); Fall 2006 – 126,482 DM coupons (2.8% of all households).

- Retailers will increase their stock and/or shelf-space of the featured energy-saving devices because of the perceived increase in customer demand for the product.
- Retailers will pass the price discount amount from the coupon on to the customer in the form of a reduced total price for the product.

5. Impact on Local Distribution Companies (LDCs)

- LDCs will be willing to participate in the EKC program and more than 80 will participate as channel partners, providing OPA with customer mailing lists and logos for the mailing and co-branding of the direct mail brochure.
- Some LDCs will use their own resources to promote the campaign, including both in-kind support (e.g., answering customer calls about program) and actual dollar investments (e.g., by hosting local community events to promote program).

6. Impact on Product Sales Promoted by the Program

- The promotion will result in increased sales of the energy efficient devices province wide due to the anticipated drop in the effective or final purchase price of the devices to the customer and the anticipated increase in customer satisfaction with the product.

The Final Evaluation Plan⁴ developed by Navigant Consulting was intended to address the extent to which the 2007 EKC program achieved the stated objectives and to test the validity of the program theory.

Over the course of the evaluation, Navigant Consulting's learned that retailer research was being undertaken through the contractor providing logistical and marketing support to the OPA for the 2007 EKC program. Given this, Navigant Consulting's evaluation efforts were exclusively targeted to better understanding consumer behaviour and actions and estimating the gross and net energy and demand savings of the program.

Overview of this Report

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

- The second section describes the survey of participants and non-participants and the sample frame for the surveys

⁴ *Final Evaluation Plan: 2007 Every Kilowatt Counts Program*, Navigant Consulting, October 4, 2007

- The third section presents Navigant Consulting's key findings and conclusions with respect to the prescriptive input assumptions for the various measures promoted through the EKC
- The fourth section presents the estimated gross energy and demand savings for the program
- The fifth section presents the key elements underlying the net-to-gross determination for the program, such as free-ridership and spillover
- The sixth section presents the estimated net energy and demand savings for the program
- The seventh section describes the Total Resource Cost (TRC) and Program Administrator Cost Test results for the program
- The eighth section presents an analysis of participant awareness of other energy saving opportunities and attitudes regarding their participation in the program.

Appendix A provides details on the Prescriptive Input Assumptions for the various 2007 EKC Program measures and Appendix B contains a copy of the telephone survey of 2007 EKC program participants and non-participants.

SURVEY OF PARTICIPANTS AND NON-PARTICIPANTS

In order to refine the measure assumptions and better estimate the overall program impacts and cost effectiveness, Navigant Consulting undertook a telephone survey of EKC participants and non-participants. The survey was undertaken by NorthStar Research Partners in late 2007 and early 2008.

The sample design and survey instruments are described in the following sections.

Study Sample Design

The sample design for the study included sample quotas for each of six regions identified by the OPA:

- GTA
- Eastern Ontario
- Northeastern Ontario
- Central Ontario
- Southwest Ontario
- Northwest Ontario

A sample of at least 70 respondents who bought CFLs with EKC coupons were surveyed from each of these regions, and the overall quota for the entire province was 500 respondents. The same requirements held for those who had not bought any products with EKC coupons (program non-participants). Surveys were conducted with any respondents who purchased the other targeted products, as the quotas for the CFL and non-participant groups were being met.

Survey Questionnaire

The EKC evaluation survey instrument was divided into the following sections:

1. Survey branch selector
2. Respondents who used EKC coupons to buy a single CFL
3. Respondents who used EKC coupons to buy multiple CFLs
4. Respondents who bought CFL(s) without using EKC coupons
5. Respondents who used EKC coupons to buy a single outdoor solar light
6. Respondents who used EKC coupons to buy multiple outdoor solar lights

7. Respondents who used EKC coupons to buy other products targeted by the program (including short subsections for each targeted product)
8. Respondents who bought none of the targeted products with EKC coupons
9. General energy efficiency activity questions
10. Demographic questions

A copy of the survey questionnaire is provided in Appendix B.

The Survey Branch Selector section collected the following data on each respondent in order to select the proper survey branch for the respondent:

- Which of the products targeted by the Every Kilowatt Counts program, if any, the respondent purchased during 2007
- Which of these purchased products were purchased with coupons
- How many coupons were used

It also asked questions common to all respondents, including questions dealing with awareness of the EKC program, and respondent recall of having received the EKC coupon booklet in the mail and having seen EKC promotions or advertising.

The two sections dealing specifically with CFLs (Sections 2 and 3) were used for respondents who reported having used coupons to buy CFLs in 2007. It first determined whether the coupons were EKC coupons. If they were not, the respondent was redirected to Section 4 for respondents who bought CFLs without EKC coupons. For those buying CFLs with EKC coupons, the questionnaire then asked a number of questions regarding existing CFLs, followed by detailed questions designed to determine how the respondent made his or her decision to buy a CFL the day they did so with an EKC coupon. For these respondents, questions were designed to estimate free ridership by determining (1) whether the respondent planned to purchase CFLs, (2) the most important factors in the respondents' purchase decisions, (3) how likely the respondent would have been to purchase the CFL at the full price if there had been no program, and (4) what action the respondent would have taken if there had been no program and no coupons. The same approach was used in the two sections dealing with outdoor solar lights purchased with coupons (Sections 5 and 6).

For those other EKC products not so likely to have been purchased, Section 7 provided a very short question battery. As with CFLs, the questionnaire first determined whether the coupons used were EKC coupons. This was followed by questions designed to estimate free ridership by determining whether the coupon was an EKC coupon, whether the purchase was planned,

and what action the respondent would have taken if there had been no program and no coupons.

Section 8 of the survey was used to determine whether those who had not bought any products with EKC coupons had bought them at the same time as the spring and fall campaigns were being implemented. This might be an indication of secondary program influence, though no impacts from these results are included in the study findings. This section also asked a few questions to ascertain the extent to which the previous year's EKC campaigns may have influenced CFL purchases made the previous year.

Section 9 asked a series of questions designed to determine to what extent the survey respondents had made other types of energy efficiency improvements (e.g., bought energy efficient appliances, dried clothes outside, washed laundry in cold water, etc.). It then asked whether the respondent felt that any of these actions were influenced by the 2007 EKC program. Again, this might be an indication of secondary program influence, though no impacts from these results are included in the study findings.

MEASURE ASSUMPTIONS

As part of this evaluation, NCI prepared draft measure assumptions for each of the products covered by the 2007 EKC program. After these assumptions were submitted, they were refined by NCI based on additional information from the survey research described in the following section and confidential sales data from the spring EKC campaign provided by retailers participating in the EKC program. These are presented in Table 2 on the following page.

Further, the peak demand impacts of each of the measures were recalculated based on the coincident demand methodology as defined by the OPA in *Appendix A, Average Peak Demand Methodology and Coincident Factors*. Based on this methodology described in this OPA document, the winter and summer peak impact of a measure are to be determined based on the average demand in the Winter Peak Period and Summer Peak Period multiplied by the Winter or Summer coincidence factor specific to the end-use of the measure.

For example, in Table 2 on the following page, 15W CFLs are estimated to save 3.75 kWh in the Winter Peak Period and 0.76 kWh in the Summer Peak Period. The duration of these two periods are 602 and 502 hours, respectively. The coincidence factor (CF2 = ratio of demand at top ten system peak hours to average peak demand) for residential lighting for Winter is 1.940 and for Summer is 0.914. As shown, the Winter Peak demand impact for a 15W CFL is thus:

Winter Peak Demand Impact = Average Demand in Winter Peak Period x Winter Coincidence Factor

$$\begin{aligned}
 &= \frac{3.75 \text{ kWh}}{602 \text{ hours}} \times 1.940 \\
 &= 6.2 \text{ W} \times 1.940 \\
 &= 12.1 \text{ W (or 0.0121 kW)}
 \end{aligned}$$

Similarly, the Summer Peak demand impact for a 15W CFL is thus:

$$\begin{aligned}
 &= \frac{0.76 \text{ kWh}}{522 \text{ hours}} \times 0.914 \\
 &= 1.4 \text{ W} \times 0.914 \\
 &= 1.3 \text{ W (or 0.0013 kW)}
 \end{aligned}$$

A similar approach was used in the determination of the peak impacts for all measures with the exception of outdoor motion sensors, which were based on a specific load profile developed by NCI to reflect the typical usage of exterior household lighting, such as used in porch and entry / façade lighting.

Table 2: 2007 Every Kilowatt Counts Key Measure Assumptions

Number	Measure Name	Annual Energy Savings (kWh)									Peak Demand Saving (kW)		Other		
		Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off-Peak	Annual Total	Winter	Summer	O&M Savings (\$/year)	Incremental Cost (\$)	Life (years)
1	15 W CFL Bulbs (Spring & Fall)	3.75	3.49	8.36	0.76	4.15	7.63	6.36	8.51	43.02	0.0121	0.0013	\$0.99	\$4.00	8
2	20W + CFLs Bulbs (Spring & Fall)	5.42	5.04	12.07	1.10	6.00	11.02	9.19	12.29	62.14	0.0175	0.0019	\$0.99	\$4.38	8
3	Project Porchlight CFLs	3.75	3.49	8.36	0.76	4.15	7.63	6.36	8.51	43.02	0.0121	0.0013	\$0.99	\$2.25	8
4	Energy Star Ceiling Fan	7.84	7.29	17.45	1.59	8.67	15.93	13.29	17.78	89.84	0.0253	0.0028	\$2.96	\$47.00	10
5	Furnace Filter - Average House	4.54	4.73	13.39	2.56	2.28	5.11	1.71	3.39	37.72	0.0083	0.0112		\$4.00	1
6	Solar Lights	0.00	0.00	0.00	0.00	0.63	3.14	0.24	0.80	4.81	0.0000	0.0000		\$4.75	5
7	Outdoor Motion Sensor	12.11	11.03	37.11	0.00	9.19	34.67	18.27	37.44	159.82	0.0541	0.0000		\$16.20	10
8	Dimmer Switch	2.06	1.92	4.59	0.42	2.28	4.19	3.50	4.68	23.65	0.0066	0.0007	\$1.48	\$13.00	10
9	Energy Star Light Fixtures	10.54	9.78	24.46	1.90	11.25	22.41	17.65	24.88	122.88	0.0366	0.0056	\$1.47	\$24.00	16
10	SLEDs (including SLED exchange)	3.52	3.52	6.66	0.00	0.00	0.00	0.00	0.00	13.70	0.0061	0.0000	\$1.00	\$8.70	5
11	T8	3.25	3.02	7.23	0.66	3.59	6.60	5.51	7.37	37.23	0.0105	0.0012		\$22.00	18
12	Programmable Thermostat	12.31	12.83	36.28	0.04	0.28	0.71	4.23	8.45	75.13	0.0222	0.0000		\$25.00	15
13	Power Bar with Timer	4.57	5.14	13.33	3.09	6.31	15.00	10.16	14.77	72.38	0.0090	0.0063		\$21.00	10
14	Lighting Control Devices	5.20	5.88	20.25	10.54	5.59	6.57	8.73	9.47	72.23	0.0168	0.0185	\$0.99	\$20.80	10

Further details underlying these key assumptions are provided in *Appendix A: Prescriptive Input Assumptions*.

Note that the energy and demand impacts of the three CFL-related measures at the top of Table 2 reflect NCI's finding through the survey that approximately 3% of CFLs purchased through the EKC program replaced existing CFLs in the purchasers' homes. This is perhaps not surprising given the length of time that CFLs have been available. Unfortunately, respondents were not asked whether the CFL being replaced was still working or whether they would otherwise have replaced it with another CFL anyway. Nonetheless, the energy savings and peak demand impacts above reflect this finding – 3% of CFLs purchased through the program are not yielding any incremental energy savings and peak demand impacts over the existing bulb (a CFL in these cases).

In all cases, the annual operating and maintenance savings shown are based on avoided incandescent costs given due to either: 1) the longer life of the various EKC lighting measure (eg, CFL) or 2) the beneficial impacts of the EKC lighting control devices (eg, dimmers) in terms of extending the life of the incandescent bulb controlled by the device.

Project Porchlight was a special door-to-door distribution of both CFLs and EKC coupons. As such, these CFLs are listed separately from the other CFLs purchased through retailers. Further details about Project Porchlight are given in *Project Porchlight Free-Ridership* on page 25.

GROSS ENERGY AND PEAK DEMAND IMPACT

The gross energy savings presented below in Table 5 reflect the number of coupons redeemed and NCI's estimate of the number of products purchased / coupon multiplied by the energy and demand savings estimates for each measure as provided in Table 2 in the previous chapter. Note that the gross energy savings presented below do not reflect NCI's estimate of the net-to-gross ratio for these various products – these results are presented in the following chapter.

The number of coupons redeemed for each of the EKC products is shown in Table 3.

Table 3: 2007 EKC Coupons Redemption Rate (by product)

Product	Coupons Redeemed
CFL bulbs (Spring and Fall)	1,315,644
Energy Star Ceiling Fan	19,166
Furnace Filter - Average House	25,742
Solar Lights	89,720
Outdoor Motion Sensor	23,474
Dimmer Switch	19,390
Energy Star Light Fixtures	8,390
SLEDs	620,396
T8	18,088
Programmable Thermostat	18,633
Power Bar with Timer	8,442
Lighting Control Devices	97,742

In some cases, EKC products were sold in multi-unit packs or the coupon required specific quantities per package (eg, the EKC coupon required purchases of three filters/coupon). In other cases, purchasers bought two or more single-unit packages of EKC products in a single purchase using a single coupon (the second and subsequent purchases of the EKC product would not be eligible for a discount based on the program rules). Hence, for many EKC products, a single coupon represented more than one EKC product purchased as a result of the program – in some cases, the coupon specifically allowed or required multiple unit purchases and in other cases the purchaser may have purchases additional products at full price without the discount. This was not the case for all EKC products, but it was the case for several of them. Based on analysis of survey responses and sales data, NCI's estimates of products / coupon for these EKC products are shown in Table 4. All other products (ie, those not listed in Table 4) were estimated to have one product / coupon redeemed.

Table 4: Estimated Products / Coupon Redeemed for Multi-Product / Coupon Measures

EKC Product	Products / Coupon
CFLs (except for those distributed through Project Porchlight)	2.1
Furnace Filters	3
Solar Lights	3.4
Outdoor Motion Sensors	1.3
Energy Star® Light Fixtures	1.1

In some cases, there were differences between the number of products / coupon based on the participant's survey responses and those that might be inferred based on retailers sales data. The most significant difference was for CFLs – retailer sales data indicated an average of approximately 2.7 CFLs / package for all CFLs sold during the spring EKC campaign period, whereas the average number of CFLs purchased / coupon was 2.1 for the EKC CFL coupon redeemers surveyed. Since the retailer sales data covers more than just those CFL purchases for which an EKC coupon was used (ie, EKC coupon sales were only a subset of overall retailer CFL sales), reliance on retailer sales data might overstate the actual program impacts. Given the large sample of CFL coupon redeemers surveyed, NCI has relied on this source for determination of the CFLs per coupon. Given the large number of solar light coupon redeemers, a similar approach was used for these products. For the other products with significantly smaller samples of EKC coupon redeemers, NCI developed estimates based on the retailer sales data and its professional judgment informed by the survey results.

Outdoor solar light results were discounted (through a discount to coupon redemptions for simplicity in this specific calculation) by 85% given NCI's finding that only 15% of outdoor solar lights could be expected to either replace hard-wired lights or displace the purchase and installation of hard-wired outdoor lights. Further details are provided in *Other Considerations* on page 30.

Project Porchlight, discussed in more detail in *Project Porchlight Free-Ridership* on page 25 resulted in the direct distribution of 500,000 CFLs in a door-to-door campaign as part of the EKC program. These CFLs are shown separately in Table 5.

The OPA also worked with One Change (the non-profit organization running the Project Porchlight campaign) to implement an SLED exchange program at retailers across Ontario as part of the Every Kilowatt Counts program. On November 17 and 18, 2007, at participating retailers at 28 communities across Ontario, the first 500 people to turn in a string of spent incandescent seasonal light strings for recycling received a voucher for a free second string of SLED lights when they purchased a string at the regular price. Overall, 4551 incandescent

seasonal light strings were turned in by participating customers and 4551 vouchers were issued, resulting in 9,102 SLED strings being purchased.

These results have been incorporated into the program results presented in the gross program impacts shown in Table 5. For simplicity, each voucher was modelled as two coupons each with a value equivalent to one-half of the value of an SLED string. The results reflect 4551 vouchers or 9102 equivalent coupons being redeemed. As a result, the number of coupons redeemed was increased by 9102 and the incentive for SLEDs was adjusted from \$2 (EKC SLED coupon value) to \$2.07⁵.

NCI estimated the sales mix of CFLs according to size based on sales data from the retailers. The survey did ask respondents about the wattage of the CFLs purchased, but not all respondents answered this question. Approximately 14% of CFLs sold during the spring EKC campaign were greater than 15W. Of these, NCI estimates that the energy and peak demand impacts of these higher wattage CFL can be reasonably approximated by a "20W+" CFL measure based 50% on the 20 W CFL assumptions and 50% on the 25 W CFL assumptions. This subdivision of CFL coupons (and associated gross energy and demand savings) is reflected in Table 5.

Table 5: 2007 Every Kilowatt Counts Gross Energy and Peak Demand Impact

<i>Measure</i>	<i>Annual GWh</i>	<i>Lifetime GWh</i>	<i>Winter Demand Savings (MW)</i>	<i>Summer Demand Savings (MW)</i>
1 15 W CFL Bulbs (Spring & Fall)	102	818	28.7	3.2
2 20W + CFLs Bulbs (Spring & Fall)	24	192	6.8	0.7
3 Project Porchlight CFLs	22	172	6.0	0.7
4 Energy Star Ceiling Fan	2	17	0.5	0.1
5 Furnace Filter - Average House	3	3	0.3	0.4
6 Solar Lights	10	49		
7 Outdoor Motion Sensor	5	49	1.6	
8 Dimmer Switch	0	5	0.1	0.0
9 Energy Star Light Fixtures	1	18	0.3	0.1
10 SLEDs (including SLED exchange)	9	43	3.9	
11 T8	1	12	0.2	0.0
12 Programmable Thermostat	1	21	0.4	
13 Power Bar with Timer	1	6	0.1	0.1
14 Lighting Control Devices	7	71	1.6	1.8
Total	187	1,476	50.6	7.0

⁵ As per Appendix A, the estimated average cost of an SLED string is \$13.50.

As shown, the estimated gross annual energy savings from the 2007 EKC program are 187 GWh, with winter and summer gross demand impact of approximately 51 MW and 7 MW respectively. As discussed, these results do not reflect free-riders and other factors affecting the net-to-gross ratio for each of the EKC products.

Regional Breakdown of Gross Energy and Demand Savings

The regional breakdown of gross energy and peak demand impacts is based upon survey results and the population of households in each of the six regions into which Ontario was divided for analytic purposes. Note that the allocation for CFL results is slightly different than the distribution of households by region because the incidence rate of EKC CFL coupon redeemers differed slightly by region – with the lowest incidence in the GTA. Given this, results for CFL and other EKC products are given separately below.

Table 6: 2007 Every Kilowatt Counts Gross Energy and Peak Demand Impact: Regional Breakdown

Gross Impacts									
Region	Number of Households	% of CFL Results	CFL Annual Energy Savings (GWh)	CFL Summer Demand Reduction (MW)	% of Other Product Results	Other Product Annual Energy Savings (GWh)	Other Product Summer Demand Reduction (MW)	Total Annual Energy Savings (GWh)	Total Summer Demand Reduction (MW)
Central	339,647	7.1%	10.5	0.3	6.8%	2.7	0.2	13.2	0.5
Eastern	986,672	20.6%	30.5	0.9	19.8%	7.8	0.5	38.2	1.4
GTA	1,781,600	34.0%	50.2	1.6	35.8%	14.1	0.9	64.3	2.4
Northeast	244,526	4.9%	7.2	0.2	4.9%	1.9	0.1	9.2	0.3
Northwest	113,182	2.5%	3.7	0.1	2.3%	0.9	0.1	4.6	0.2
Southwest	1,507,242	30.9%	45.6	1.4	30.3%	11.9	0.7	57.5	2.2
Total	4,972,869		147.8	4.6		39.3	2.4	187.0	7.0

Confidence Interval for Gross Energy and Demand Savings

In a mass market program such as the 2007 EKC program, there is no way to know with absolute certainty all of the myriad factors affecting the program's gross and net energy and demand savings and program cost-effectiveness. The results presented above and in the subsequent sections of this report represent NCI's best estimate based on the available information. The actual results may differ from these estimates.

In an effort to quantify the confidence interval or potential range of uncertainty around the key program results presented herein, NCI undertook a Monte Carlo simulation analysis in which the key input parameters that have the most significant impact on results were randomly varied within a specified range informed by survey results and other information. Up to 4000 simulations of the gross energy and demand savings, net energy and demand

savings or program cost-effectiveness were undertaken and the confidence interval was based upon the resultant range for the result in question.

Together, the 15W CFLs and 20W + CFLs purchased with EKC coupons accounted for 68% and 56% of the program's gross energy and demand savings respectively. Given this, NCI considered the various factors underlying these two measures' contribution to the gross program results. As discussed previously, the number of CFL bulbs per coupon was estimated based on the survey results to be 2.1, but retail sales data from the spring campaign indicated an average of 2.65 CFLs per purchase. Retailer sales data from the fall campaign was not available, but given the growing trend of multiple CFL packs in retail outlets, the average number of CFLs / purchase could have been higher in the fall campaign.

It is possible that the number of CFLs/coupon was actually higher than estimated by NCI. To account for the potential impact of this uncertainty, NCI undertook a Monte Carlo simulation (1000 simulations) with the number of CFLs / coupon randomly falling anywhere between 2.0 and 2.65 (ie, slightly less than the number reported by participants up to the number based on spring campaign retailer sales results).

The results of this simulation – randomly varying the number of CFLs / coupon to any value in the range from 2 to 2.65 – on the gross energy and demand savings are shown in Figure 1 and Figure 2. The results of this simulation indicate that there is a 90% probability that the gross energy and demand savings are at least those reported in Table 5. If the actual number of CFLs / coupon were higher than the 2.1 used in our analysis, the gross energy and demand savings would be higher than reported. Similarly if the number is less, the gross savings would be less.

Figure 1: Expected Range of Gross Energy Savings (GWh)

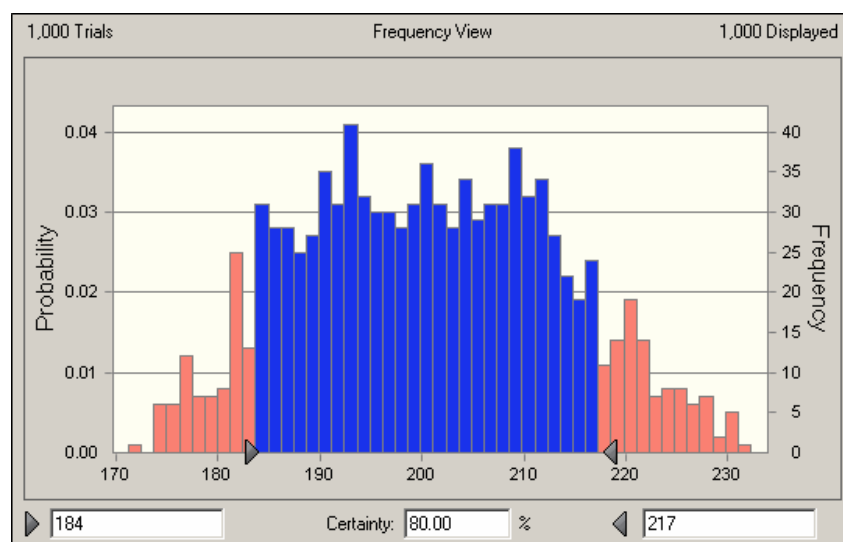
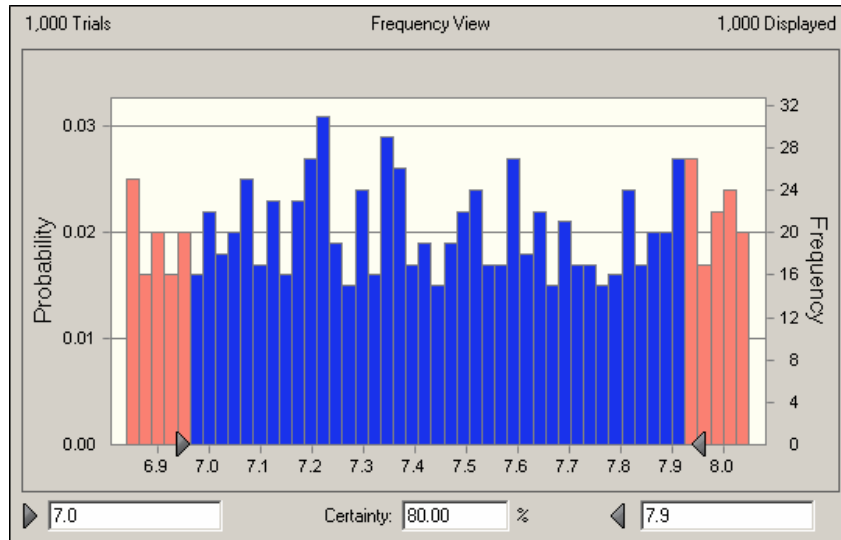


Figure 2: Expected Range of Gross Summer Demand Savings (MW)



The analysis undertaken in subsequent sections reflect uncertainty of more key parameters – such as free-ridership and incremental CFL costs – but varying these other key parameters did not impact the gross energy and demand savings. Given the interactions and correlations between these other parameters, the shape of the distribution of possible results for net saving and program cost-effectiveness tends to be more like a normal distribution than that given above for gross energy and summer demand savings (which result from a single input varying randomly in a range the distribution of which looks like a rectangle).

NET-TO-GROSS ANALYSIS

This section presents the results of Navigant Consulting's net-to-gross analysis for the 2007 EKC program, reflecting free-ridership, spillover and other considerations. Given the number of CFL coupons redeemed and the significance of CFLs in the gross energy savings for the program as given above, the focus of this analysis was on participants' CFL purchase decisions and replacement patterns in order to develop the most accurate net-to-gross estimate for CFLs.

The approach to and results from the free-ridership analysis for CFL bulbs are presented immediately below, followed by free-ridership findings for the other non-CFL EKC products, then results of the spillover analysis for CFLs and, finally, additional considerations for outdoor solar lights.

Free-Ridership for CFLs

Given the importance of CFLs in the overall program results, Navigant Consulting's analysis and estimation of free-ridership for CFL was more detailed and complex than for the other products. Free ridership for CFLs was estimated using survey responses to determine whether the respondents (1) had planned to make CFL purchases the day they did so with the EKC coupon, (2) reported that program-related factors were important to their CFL purchase that day, and (3) reported they would have purchased CFLs that day even if there had been no program. Specifically, survey questions were used to collect the following information:

- Were the respondents planning to purchase a CFL the day they purchased one or more with an Every Kilowatt Counts coupon?
- If they were planning to purchase a CFL(s), how many were they planning to purchase that day?
- Did the respondents think that a program-related factor was one of the most important factors influencing them to make their purchase(s) that day? (If they were influenced by someone else, did that person use an EKC coupon to buy a CFL(s)?) Did they think it was the most important factor?
- If there had been no program, do the respondents think they would have paid \$2-3 more per CFL to buy CFLs that day at the full price?
- If there had been no program, no discount coupons, and no program advertising, do the respondents think they would have made exactly the same purchase decision, not purchased the CFL that day, or purchased fewer CFLs that day?

If the respondent made more than one trip to buy CFLs with EKC coupons, results based on the first trip were used. If the respondent bought CFLs in both the spring campaign and the fall campaign, results from the spring campaign were used because it occurred first. The

rationale for these decisions is that it was the respondent's first exposure to participating in the program that is most important. If a respondent was not a free rider for the first trip made to purchase EKC CFLs, then all of that respondent's EKC CFL purchases that year were assumed not to have occurred in the absence of the program.

Respondents were categorized as full, partial or non-free riders – or rather the CFLs they purchased were categorized that way – based on the information they provided in answering the free ridership question battery. Free ridership percentages were assigned to each combination of survey responses.

Respondents were considered 0% free riders if they provided any of the following responses:

- They reported that a program-related factor (e.g., the discount coupon, program advertising, etc.) was the most important factor in their purchase decision.
- They reported that they would not have paid \$2 - \$3 more to buy CFLs that day if there had been no discount coupons.
- They reported that in the absence of the program, they would not have bought CFLs that day.

This approach tries to account for the possible “halo” and “self-aggrandizement” effects (respondents providing the answer they believe the surveyor wants to hear, or providing the answer they believe makes them “look good”) by requiring that respondents consistently answer all of several questions as if they are free riders before they are considered free riders.

Similarly, respondents were considered 100% free riders if they gave the types of answers a free rider would to each of the questions in this battery of questions.

More than 75% of the survey respondents fell into one of these two categories.

Those respondents whose responses would not categorize them clearly as either 0% free riders or 100% free riders were assigned partial free ridership percentages.

The matrix presented in Table 8 on the following page provides a summary of the approach. As discussed, a respondent's free-ridership percentage was based upon their specific combination of responses to several of the survey questions. For example, a respondent providing the following responses (paraphrased from the survey question and answer choices for ease of understanding) would have been categorized as a 100% free rider:

- *I planned to purchase a CFL when I went into the store that day I bought the CFLs with my EKC coupon*
- *I planned to buy x number of CFLs that day*

- The most important factors in my purchase decision were ...(anything except discount coupon, store display, utility promotion or EKC advertising & promotion)
- I would have been extremely likely to have paid \$2 - \$3 more that day to purchase the CFLs (ie, would still have purchased without the EKC coupon)
- If there had been no program, I would have made the exact same purchase

Different responses and combination were assigned different free-ridership rates as shown in Table 8.

Table 7: Summary of Free-Ridership Determination for EKC CFL Coupon Redeemers

	Free Ridership % Assigned					
Survey Question:	100%	90%	80%	75%	50%/35%	0%
Did you plan to buy a CFL when you walked into the store that day?	Yes	Yes	No		Any response	
How many did you plan to buy that day?	Any # given	Don't know	Any response			
What were the important factors in your purchase?	NOT discount coupon, store display, utility promotion or EKC advertising & promotion		If more than one factor and one of factors is discount coupon, store display, utility promotion or EKC advertising & promotion OR ↓		Any response	Any response or just discount coupon, store display, utility promotion or EKC advertising & promotion as single response
Did person recommending CFL use EKC coupon for their CFL purchase?	No or not answered		Yes or ↑		Any response	Any response
If more than one, which was most important?	NOT discount coupon, store display, utility promotion or EKC advertising & promotion				Discount coupon, store display, utility promotion or EKC advertising & promotion as the most important factor OR ↓	
How likely to have paid \$2-\$3 more that day?	Extremely likely				Very (50%) or somewhat likely (35%)	Nor very or not at all likely OR ↑ OR ↓
Without program, how would purchase have been different?	Made exactly the same purchase or bought a different wattage CFL				Bought regular incandescent or bought CFL at a later date OR ↑	

Telephone and on-line surveys of EKC CFL coupon redeemers were undertaken. One of the reasons for using both survey instruments was to explore whether there were specific biases introduced through either technique to inform future OPA evaluation efforts.

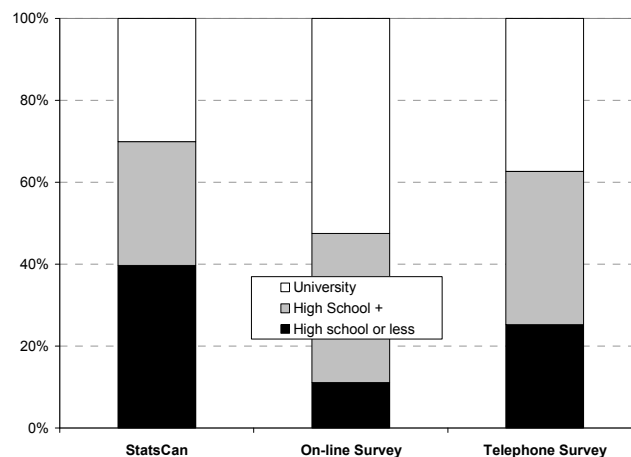
Both the telephone and on-line sample covered over 500 EKC CFL coupon redeemers, providing a combined sample size of over 1000. The telephone sample was drawn from a random sample of households across Ontario and the on-line sample was drawn from

previous respondents to OPA on-line research who indicated they were EKC CFL coupon redeemers.

The average free-ridership rate for CFLs was 41% from the telephone sample and 9% for the on-line sample. NCI explored a variety of possible reasons to explain this significant disparity in an effort to determine whether one of the survey techniques provided a more accurate picture of EKC CFL coupon redeemers.

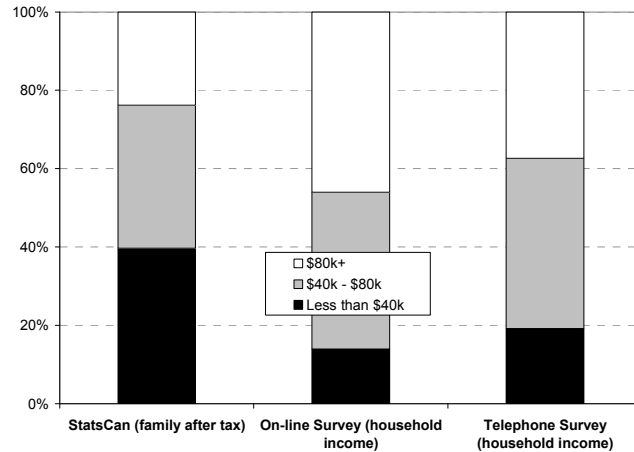
There were distinct differences in the demographics of the two samples. As shown in Figure 3, there were proportionately fewer respondents with high school as their highest level of education in both the on-line sample and the telephone sample. Comparing the two samples, the on-line sample had fewer respondents with high school as their highest level of education than the telephone sample.

Figure 3: Comparison of Education Levels – StatsCan Census Data versus Telephone and On-line Survey Samples



A similar pattern was observed for income level. As shown in Figure 4, there were proportionately fewer respondents with lower levels of household income in both the on-line sample and the telephone sample. The on-line sample had fewer respondents with household income less than \$40,000 than the telephone sample. Note that StatsCan census data was only available for household income after tax so the StatsCan distribution will be skewed towards lower income levels given the impact of income tax.

Figure 4: Comparison of Income Levels – StatsCan Census Data versus Telephone and On-line Survey Samples



To determine if these biases could explain the difference in free-ridership observed between the samples, NCI determined the distribution of non-, full and partial free-ridership by income and education level for each of the telephone and on-line samples. In both cases, the proportion of non- and low (<50%) free-ridership respondents in the on-line samples was significantly higher than in the telephone sample. These results are shown in Figure 5 and Figure 6.

Figure 5: Free-Ridership Distribution by Education Level in Telephone Sample

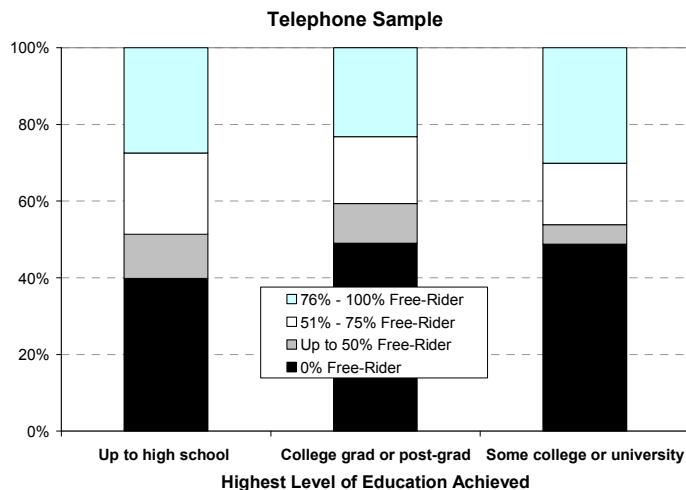
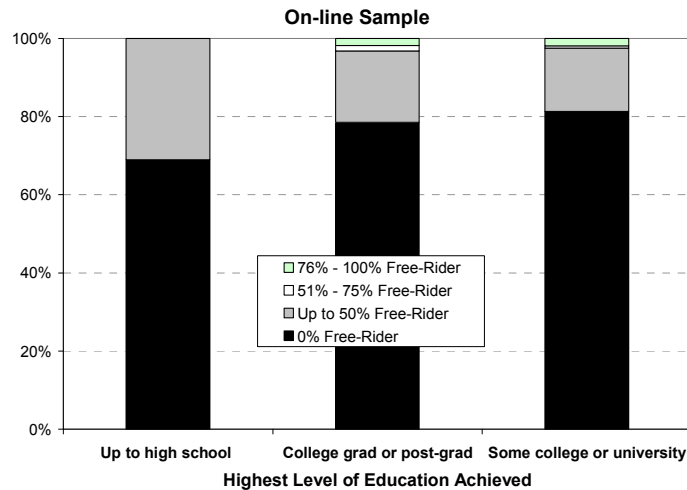


Figure 6: Free-Ridership Distribution by Education Level in On-line Sample



Various other analyses were undertaken to determine whether one of the two samples provided a more accurate representation of EKC CFL coupon redeemers. In the end, no specific determination was possible. Given the disparity in free-ridership between the samples, NCI believes that each sample may only provide a partial view of the entire population of EKC CFL coupon redeemers, but could not characterize or define the “view” provided by either of the samples. Hence, the two samples were combined for the purposes of determining EKC CFL coupon redeemers’ free-ridership. By combining the samples, any weaknesses in one or both samples were mitigated. Also, the overall sample of EKC CFL coupon redeemers was effectively doubled from any single sample.

When the free ridership percentages of the combined CFL sample were multiplied by the number of CFLs purchased by the respondent, and weighted to reflect the Ontario region the respondent was from, the distribution of free ridership was as follows:

Table 8: Distribution of Full, Partial and Zero Free-Ridership among CFL Purchasers

Free Ridership Percentage	Percentage of Respondents' CFLs
0%	63%
1% - 20%	8%
21% - 33%	1%
40%	5%
50%	1%
60%	4%
75%	5%
90%	0.2%
100%	13%
24%	Weighted Average

The same methodology as described above was used to estimate free ridership for outdoor solar lights.

Project Porchlight Free-Ridership

The following discussion reflects Navigant Consulting analysis of two reports on Project Porchlight provided by the OPA. The first report presented the 2007 program results⁶ and the second report⁷ was a summary of survey results from Project Porchlight participants in Ottawa.

Through Project Porchlight, CFLs and EKC coupon booklets were distributed on a door-to-door basis in various cities and towns across Ontario by volunteers. The CFLs, purchased in bulk by Project Porchlight program managers and reported to cost \$3 each, were provided free of charge to participants. In total, 500,000 CFLs were distributed through Project Porchlight.

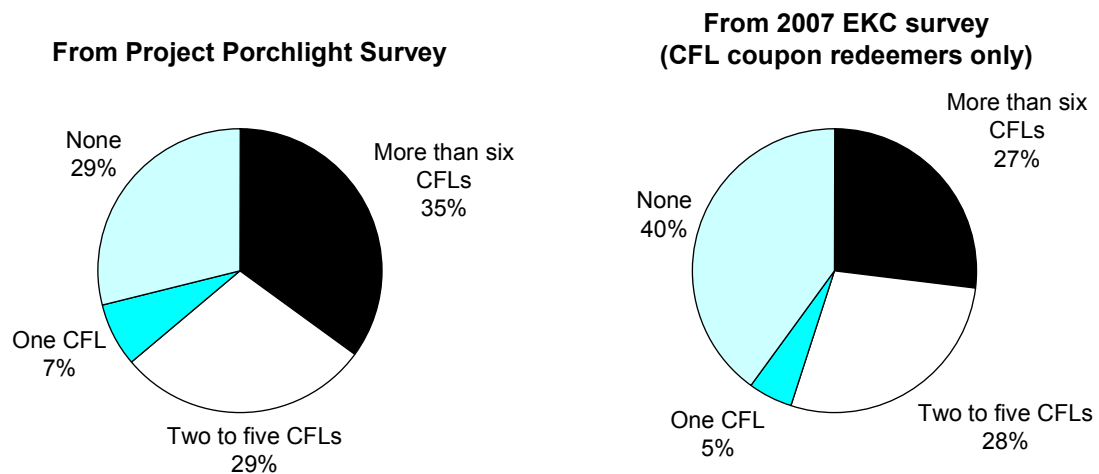
Although the two reports provided by the OPA did not specifically cover free-ridership for the CFLs distributed through Project Porchlight, Navigant Consulting was able to infer with reasonable confidence that the free-ridership rate for these CFLs was likely to be similar to that estimated for CFLs purchased with EKC coupons as discussed in the previous section.

⁶ Final Report of Overall Program Results, Presented to the Ontario Power Authority, December 31st, 2007, Stuart Hickox, Executive Director, One Change/ Project Porchlight.

⁷ Project Porchlight, Change is Within Reach, January 2006, www.ekos.com, www.onechange.org

Our basis for this inference was a comparison of the distribution of existing CFLs among Project Porchlight participants (ie, CFL recipients) with that of CFL purchasers from the telephone survey who redeemed EKC coupons for their purchase. A breakdown of these two groups according to their existing CFL inventory immediately prior to “participation” in Project Porchlight or purchase of CFLs for which EKC coupons were redeemed is shown below. Note that the overall sample size for both breakdowns is approximately 500 and that, given this sample size, results will be accurate to within +/- 4.5% 19 times out of 20. In other words, the percentages given below could be considered to have an error band of +/- 4.5%.

Figure 7: Comparison of Existing CFL Inventory between Project Porchlight Participants and EKC CFL coupon redeemers



With the exception of the participants reporting having no existing CFLs, the percentage of respondents reporting having one, two to five or six or more CFLs in the Project Porchlight survey and the 2007 EKC survey could be the same given the error band of 4.5% on each percentage. For example, the reported 35% of Project Porchlight participants with six or more CFLs could actually be as low as 30.5% (or as high as 39.5%). Similarly, the reported 27% of EKC CFL coupon redeemers with six or more existing CFLs could be as high as 31.5% (or as low as 22.5%). As stated, only the percentage of respondents reporting having no existing CFLs are likely to be different, but the difference could be as little as 2% (eg, $(40\% - 4.5\%) - (29\% + 4.5\%) = 2\%$).

Since the participants’ existing inventory of CFLs prior to participation in Project Porchlight or redemption of the EKC CFL coupon was similar, we expect that their attitudes towards CFLs and propensity to purchase CFLs in the absence of any program would be similar.

For these reasons, Navigant Consulting estimates that the free-ridership for CFLs distributed through Project Porchlight is 24%, the same as for CFLs purchased using EKC coupons as derived in the previous section.

Free Ridership for Non-CFL EKC Products

As with the CFL free-ridership analysis, respondents who reported purchasing other non-CFL products with EKC coupons (and their associated purchases) were categorized as full, partial or non-free-riders based on how they responded to up to three product-specific questions in the survey. The questions were essentially as follows:

- *On the day that you bought your (EKC product X) with the coupons this year, were you already planning to buy (EKC Product X) that particular day*
- *If there had been no price discounts and no “Every Kilowatt Counts” program information or advertising, how do you think your purchase would have been different?*
- *[If would have bough fewer of (EKC Product X)] How many (EKC Product X) would you have been likely to buy [Note – this final question was not asked in all cases]*

The derivation of full, partial and non-free riders based on their responses to these questions is summarized in the following table. For example, the free-ridership for a respondent’s purchase of a given EKC product would have been estimated to be 100% if the respondent said that 1) they planned to buy [EKC Product X] when they walked into the store that day and 2) they would have made exactly the same purchase if there had been no program.

Table 9: Derivation of Free-Ridership for non-CFL EKC Products based on Survey Responses

Question	Free Ridership %		
	100%	90%	0%+
Did you plan to buy [EKC Product X] when you walked into the store that day?	Yes	No	Any response Free-ridership percentage greater than 0% applied for certain responses
Without program, how would purchase have been different?	Would have made exactly the same purchase		Would have made a different purchase, same purchase but at a later date or no purchase Free-ridership percentage greater than 0% applied if would have purchased fewer based on ratio of fewer to amount actually purchased with EKC coupons

Since the sample frame was focused on EKC CFL coupon redeemers⁸, the number of respondents who redeemed EKC coupons for several of the non-CFL EKC products was very low, with two exceptions; there were more than 200 each of respondents who had purchased SLEDs or outdoor solar lights with EKC coupons. For each of the other non-EKC products, there were less than 40 respondents who had used an EKC coupon for the particular product and in some cases there were fewer than 10 respondents (for T8 lights and Energy Star® light fixtures).

Given these response rates and sample sizes, free-ridership for SLEDs and outdoor solar lights were determined based exclusively on responses of either SLED coupon redeemers or outdoor solar light coupon redeemers, respectively. For SLEDs, free-ridership was estimated to be 51% based on the survey responses. Free-ridership for outdoor solar lights was estimated to be 15% based on the survey responses.

Free-ridership for the other products was estimated based on aggregation of free-riders among purchasers of certain other products using EKC coupons. Free-ridership for the individual products before aggregation fell into two broad ranges. Free-ridership for one group comprising Energy Star® ceiling fans, furnace filters, outdoor motion sensors, dimmer switches, Energy Star® light fixtures, programmable thermostats for baseboard heaters and lighting control devices ranged from 36% to 81%. Weighted by number of respondents, the average free-ridership among this group of over 200 respondents was 45%. The second group comprised T8 fixtures and power bars with timers and the free-ridership for this group of 18 respondents ranged from 19% to 26% with a weighted average of 23% (ie, about half of the

⁸ Quotas were established for the number of EKC CFL coupon redeemers to be surveyed. Other EKC product coupon redeemers were only surveyed if 1) they were also EKC CFL coupon redeemers or if they were identified while trying to find EKC CFL coupon redeemers. Note that with the exception of outdoor solar lights and SLEDs, the incidence rate of non-CFL coupon redeemers was very low.

free-ridership for the other group). Although the total number of respondents comprising this second group was relatively low, use of a unique free-ridership estimate for this group based on their weighted free-ridership was considered appropriate given the relative immaturity of T8 fixtures and power bars with timers in the consumer marketplace relative to the other products. Although Energy Star® light fixtures are also relatively immature in the consumer marketplace – and hence could have been grouped with T8 lights and power bars with timers – the free-ridership among Energy Star® light fixture EKC coupon redeemers was much higher than for the T8 fixtures and power bars with timers. Given this, the responses of the Energy Star® light fixture EKC coupon redeemers were grouped with the other products yielding the free-ridership rate of 45% given above.

Based on this, the free-ridership for the non-CFL EKC products was estimated to be as shown in Table 10.

Table 10: Estimated Free-Ridership for Non-CFL EKC Products

Product	Estimated Free-Ridership
Energy Star® Ceiling Fan	45%
Furnace Filter	45%
Outdoor Solar Lights	15%
Outdoor Motion Sensor	45%
Dimmer Switch	45%
Energy Star® Light Fixtures	45%
SLEDs	51%
T8	23%
Programmable Thermostat	45%
Power Bar with Timer	23%
Lighting Control Devices	45%

No information was available regarding the free-ridership rate for the “Green the Season” SLEDs, so the free-ridership for SLEDs purchased through this component of the EKC program was assumed to be the same as for the other SLEDs purchased through the program.

Spillover

Given sample size and survey length limitations, spillover was only explored for CFLs. Analysis of the motivations and influences on CFL purchasers who did not use EKC coupons

in 2007 indicates a spillover factor of 2%. Thus, for every 100 CFLs purchased with EKC coupons, there were 2 CFLs purchased without EKC coupons that were a result of EKC program impacts in the market and on consumers.

Given the unique direct distribution method for the Project Porchlight component of the EKC Program, the 2% spillover was not applied to CFLs distributed through Project Porchlight.

Spillover for the other products was conservatively assumed to be zero.

Other Considerations

One additional net-to-gross issue for EKC program relates to outdoor solar lights. This issue is discussed in the following paragraphs. It should be noted that this potential issue was recognized during development of the survey and an extensive battery of detailed questions was developed to fully explore with participants in an effort to better understand the implications for program results (For further information on the questions asked to outdoor solar light coupon redeemers, please see sections SLS and SLM in Appendix B).

Analysis of the survey responses of outdoor solar light purchasers who used EKC coupons for their purchase suggests that only 15% of the outdoor solar lights for which EKC coupons were redeemed either:

- replaced hard-wired garden or patio outdoor lights that draw power from Ontario's electricity grid (representing ~6% of outdoor solar lights) or,
- could reasonably be inferred to have otherwise been hard-wired lights in the absence of the EKC program based on purchasers' survey responses (approximately 9% of outdoor solar lights)⁹.

Of the remaining 85% of outdoor solar lights for which EKC coupons were redeemed, some purchasers reported replacing existing outdoor SOLAR lights but not hard-wired outdoor lights. For the vast majority of the remaining 85%, there was no reasonable basis to infer that their purchasers would have otherwise purchased (and installed) hard-wired lights if they hadn't purchased the solar lights. In essence, it appears that 85% of the outdoor solar lights purchased through the EKC program did not replace or displace hard-wired outdoor lights and, therefore, did not have any impact on Ontario's electricity system.

⁹ The assumption regarding what outdoor solar light purchasers would otherwise purchase was based on a combination of those who said they would otherwise purchase hard-wired lights in the absence of the program and those whose entire inventory of existing outdoor lights was hard-wired.

The perceived value of the outdoor solar lights to these purchasers must have come from other non-energy related factors, such as convenience or esthetics. Most products that draw power from the grid (including the other EKC products) also have various non-energy attributes of value to consumers and these other attributes influence the consumer's purchase decision to some extent. However, from an energy conservation perspective, it is the energy savings of these products that are of most interest. Other tangible benefits, such as natural gas savings or avoided incandescent bulb costs, are also considered in the economic analysis, but the intangible, non-energy attributes are typically not considered. There may be perceived value in these other attributes, but they are not reflected in the economic analysis of the measure from an energy conservation perspective.

Given this general precedent of not considering intangible, non-energy benefits in the evaluation of energy conservation programs, Navigant Consulting believes that it would be appropriate to exclude 85% of the outdoor solar lights purchases from certain aspects of this evaluation because they were not driven (even partially) by energy conservation considerations, but apparently by other non-energy benefits. Note that this exclusion will only be applied to the determination of net energy savings and peak demand impacts and in the determination of the overall program TRC and benefit / cost ratio. Incentives paid to these purchasers, regardless of the motivations for their purchase and the resultant impact (or non-impact) on Ontario's electricity grid, must be considered in assessing the cost-effectiveness of the program under the Program Administrator Cost test.

Based on this exclusion, the resultant net-to-gross ratio for outdoor solar lights is thus 13%, based on the following calculation:

$$(1 - \text{free-ridership rate of 15\% from Table 10 on page 29 above}) \times 15\% \text{ "inclusion" rate} = 13\%$$

NET ENERGY AND PEAK DEMAND IMPACT

This section presents NCI's findings on the net energy and peak demand impact for the 2007 EKC program. In simple terms, the net energy and peak demand impact is the gross energy savings presented in Table 5 on page 15 adjusted to reflect the estimated net-to-gross ratio for each of the EKC products discussed in the previous chapter.

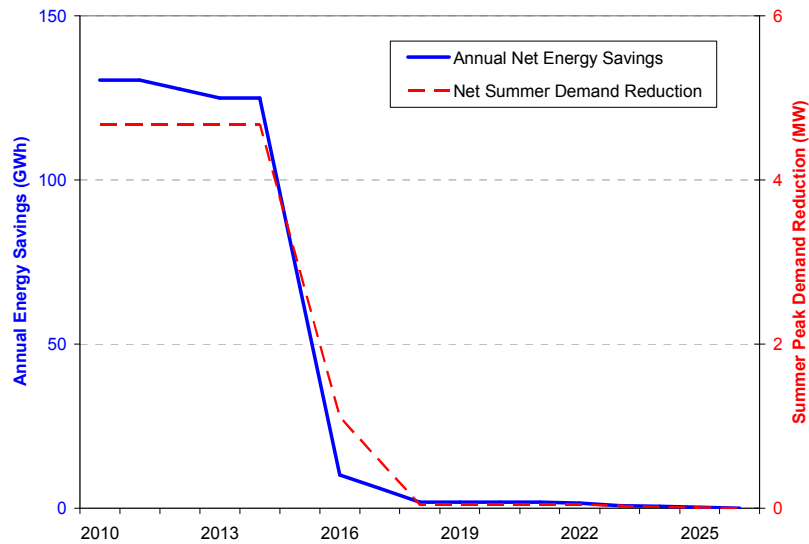
Table 11: 2007 Every Kilowatt Counts Net Energy and Peak Demand Impact

<i>Measure</i>	<i>Annual GWh</i>	<i>Lifetime GWh</i>	<i>Winter Demand Savings (MW)</i>	<i>Summer Demand Savings (MW)</i>
1 15 W CFL Bulbs (Spring & Fall)	80	638	22.4	2.5
2 20W + CFLs Bulbs (Spring & Fall)	19	150	5.3	0.6
3 Project Porchlight CFLs	16	131	4.6	0.5
4 Energy Star Ceiling Fan	1	9	0.3	0.0
5 Furnace Filter - Average House	2	2	0.2	0.2
6 Solar Lights	1	6		
7 Outdoor Motion Sensor	3	27	0.9	
8 Dimmer Switch	0	3	0.1	0.0
9 Energy Star Light Fixtures	1	10	0.2	0.0
10 SLEDs (including SLED exchange)	4	21	1.9	
11 T8	1	9	0.1	0.0
12 Programmable Thermostat	1	11	0.2	
13 Power Bar with Timer	0	5	0.1	0.0
14 Lighting Control Devices	4	39	0.9	1.0
Total	132	1,060	37.1	4.9

As shown, the net annual energy savings resulting from the 2007 EKC program are estimated to be 132 GWh and the net winter and summer demand savings are estimated to be approximately 37 MW and 5 MW respectively.

Given the significant contribution of CFLs to overall program results, the "life" of the program savings is largely driven by the expected life of the CFLs purchased through the program. As shown in Figure 8, the forecast savings and due to the 2007 EKC program drop significantly after 2015 (ie, beyond the forecast life of the CFLs purchased through the program).

Figure 8: Forecast Net Annual Energy Savings and Summer Demand Reduction through 2026



Regional Breakdown of Net Energy and Demand Savings

The regional breakdown of net energy and peak demand impacts is based upon survey results and the population of households in each of the six regions into which Ontario was divided for analytic purposes. Note that the allocation for CFL results is slightly different than the distribution of households by region because the incidence rate and free-ridership rate of EKC CFL coupon redeemers differed slightly by region – with the GTA having both the lowest incidence and lowest free-ridership. Given this, regional results for CFL and other EKC products are given separately below.

Table 12: 2007 Every Kilowatt Counts Net Energy and Peak Demand Impact: Regional Breakdown

		Net Impacts							
Region	Number of Households	% of CFL Results	CFL Annual Energy Savings (GWh)	CFL Summer Demand Reduction (MW)	% of Other Product Results	Other Product Annual Energy Savings (GWh)	Other Product Summer Demand Reduction (MW)	Total Annual Energy Savings (GWh)	Total Summer Demand Reduction (MW)
Central	339,647	6.8%	7.8	0.2	6.8%	1.2	0.1	9.0	0.3
Eastern	986,672	18.3%	21.0	0.7	19.8%	3.4	0.3	24.4	0.9
GTA	1,781,600	37.3%	42.8	1.3	35.8%	6.1	0.5	49.0	1.8
Northeast	244,526	4.8%	5.6	0.2	4.9%	0.8	0.1	6.4	0.2
Northwest	113,182	1.9%	2.2	0.1	2.3%	0.4	0.0	2.6	0.1
Southwest	1,507,242	30.8%	35.4	1.1	30.3%	5.2	0.4	40.6	1.5
Total	4,972,869		115	3.6		17	1.3	132	4.9

Confidence Interval for Net Energy and Demand Savings

As discussed, there is no way to know with absolute certainty all of the factors affecting the program's net energy. The results presented represent NCI's best estimate based on the available information and NCI's professional judgment.

In an effort to quantify the potential range of uncertainty for the net program energy and demand savings, NCI undertook a number of simulation with varying CFLs / coupon (as discussed) and varying free-ridership rates for CFLs purchased through the program, CFLs distributed through Project Porchlight and many of the other program measures. The range of variability and rationale for the range used in the Monte Carlo analysis are discussed below, followed by a summary table of the inputs and variability used.

- As discussed, the telephone survey and on-line survey yielded very different free-ridership rates for EKC CFL coupon redeemers. After much analysis and exploration, NCI was not able to determine which of the two survey techniques provided a more accurate representation of EKC CFL coupon redeemers. Based on this finding, NCI combined the telephone and on-line samples to maximize the sample size for the purpose of estimating CFL free-ridership. The resultant free-ridership of 24% thus could be considered to represent an average of the free-ridership from the two surveys (41% for the telephone survey and 9% for the on-line survey). Given the disparate findings from the two survey techniques, NCI believes that the actual free-ridership for EKC CFL coupon redeemers is likely to fall somewhere between the two free-ridership estimates. For simulation purposes, we have modeled the potential range of free-ridership as a normal distribution about 24% with a standard deviation of 7.5%. Based on this variability, the free-ridership in our simulations will fall between 9% and 41% for approximately 95% of the simulations.
- The net energy and demand savings presented in Table 11 reflect NCI's determination that the free-ridership rate among those program participants who received a CFL through Project Porchlight was the same as for EKC CFL coupon redeemers – 24%. Given the delivery method used in Project Porchlight, it is possible that the free-ridership rate among these program participants was different than for EKC CFL coupon redeemers. The account for this possibility in our simulations, NCI modeled the impact of Project Porchlight free-ridership randomly falling anywhere from 5% less than that for EKC CFL coupon redeemers to 5% more (this distribution would be shaped like a rectangle ranging from -5% to + 5%). Note that for each simulation, this difference was applied to the free ridership randomly drawn for EKC CFL coupon redeemers from on the range described in the preceding paragraph.

- The free-ridership for many of the other products was based on a relatively small sample size for any specific product given the sample bias towards EKC CFL coupon redeemers. As such, there could be considerable uncertainty in the free-ridership for these other products. For simulation purposes, we have modeled the potential range of free-ridership for most of the other EKC products as a normal distribution about 45% with a standard deviation of 10% and (for those products with lower free-ridership) as a normal distribution about 23% with a standard deviation of 5%.

The four key input parameters that were varied in the net energy and demand savings sensitivity analysis are summarized in

Table 13: Input Parameters and Range of Uncertainty for Net Energy and Summer Demand Savings Monte Carlo Simulations

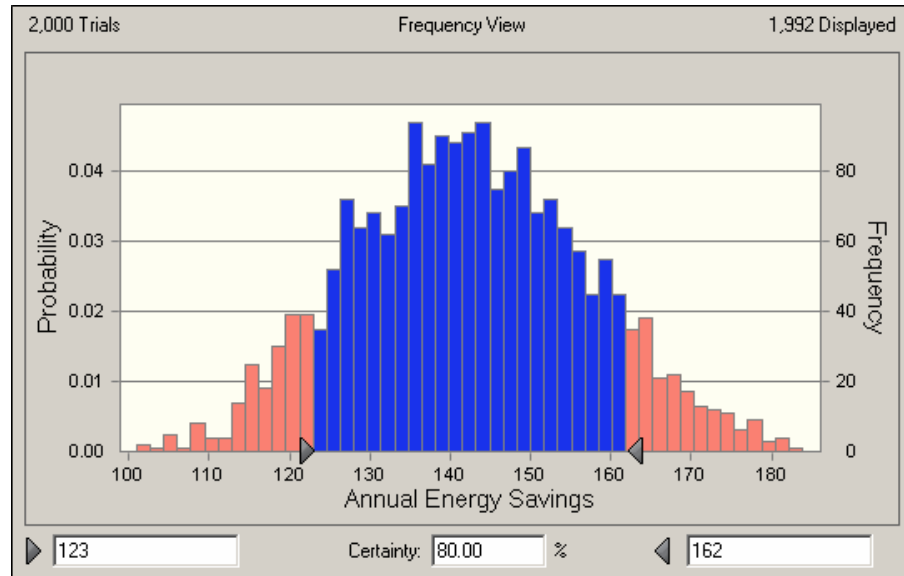
Key Parameter	Base Value	Range	Comment
CFLs / coupon	2.1	2.0 – 2.65 (random)	As discussed in <i>Regional Breakdown of Gross Energy and Demand Savings</i>
EKC CFL free-ridership	24%	Normally distributed 7.5% standard deviation	
Project Porchlight free-ridership relative to EKC CFL coupon redeemers' free-ridership	0% ¹⁰	-5% to 5% (random)	
Free-ridership for all other EKC products except outdoor solar lights and SLEDs	45% or 23%	Normally distributed 10% standard deviation or Normally distributed 5% standard deviation	

The results of the simulation for net energy savings and net summer demand savings are shown in Figure 9 and Figure 10 respectively. These results reflect results from 2000 simulations – the distributions would be expected to “smooth” out with more simulations but the conclusions are unlikely to change significantly.

As shown in Figure 9 and based on the assumptions given above, there is an 80% probability that the net energy savings for the 2007 EKC program fall within the range of 123 GWh to 162 GWh (ie, the range covered by the blue bars in Figure 9). Another way expressing this is that NCI has 90% confidence that the net energy savings for the 2007 EKC program were at least 123 GWh (ie, ignoring the 10% of results below 123 GWh).

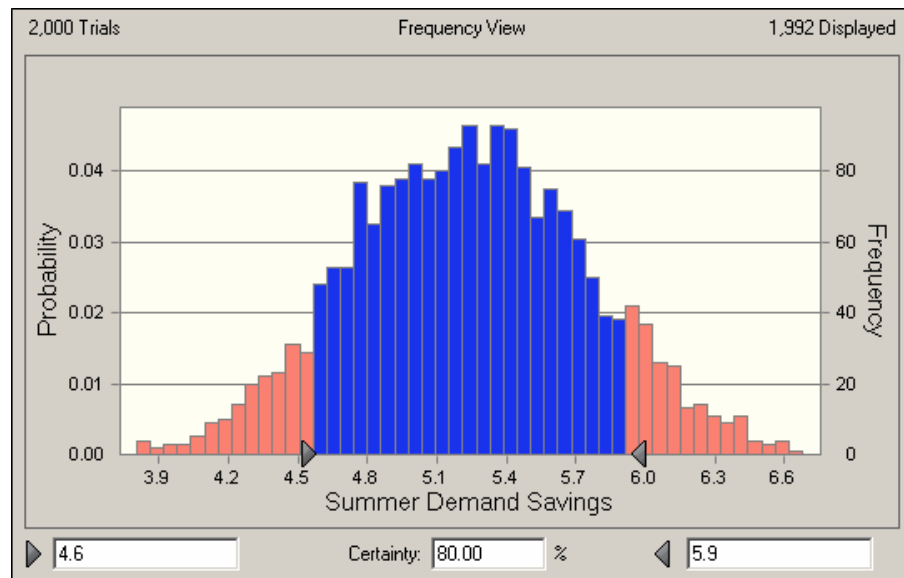
¹⁰ Spillover of 2% was applied to EKC CFL coupon redeemers, but not to CFLs delivered through Project Porchlight. Hence, the Net-to-Gross ratio for Project Porchlight was 2% less than for EKC CFL coupon redeemers.

Figure 9: Expected Range of Net Energy Savings



Similarly, as shown in Figure 10, there is an 80% probability that the net summer demand savings for the EKC program fall within the range of 4.6 MW to 5.9 MW. Based on this analysis, NCI has 90% confidence that the net summer demand savings for the 2007 EKC program were at least 4.6 MW.

Figure 10: Expected Range of Net Summer Demand Savings



ECONOMIC ANALYSIS

This section presents the results of Navigant Consulting's economic analysis of the 2007 EKC program. The avoided energy and capacity costs from the OPA's Integrated Power System Plan that were used in the economic analysis are presented first, followed by results from the TRC test and the expected confidence interval for the TRC results. The last section of this chapter presents the results of the Program Cost (or Program Administrator Cost) Test for the program.

Note that the gross and net savings presented in the previous chapters do not reflect losses in either the transmission or distribution system (ie, they represent savings at the customer level). However, the economic analysis presented below does reflect losses in the transmission or distribution system. Specifically, to more accurately reflect the actual economic benefits of the program, the estimated customer savings were adjusted to reflect losses in the transmission and distribution system. Transmission losses were assumed to be 2.5% as per the OEB's CDM guidelines and average distribution losses were assumed to be 4%. Hence, the net savings presented in the previous chapter were grossed up by a loss adjustment factor of 1.0695 (ie, $1/(1-6.5\%)$).

Avoided Costs

The avoided costs (in 2007\$) used in the economic analysis were taken from Table 3 of Exhibit D, Tab 4, Schedule 1, Attachment 3 of the Integrated Power System Plan recently submitted to the Ontario Energy Board by the OPA and are reproduced in Table 14.

The following items should be noted with respect to the use of this table:

- The original table from the IPSP does not provide avoided energy and peak demand values for 2007. Since the 2007 EKC program realized energy and peak demand savings in 2007, we have assumed that the avoided costs in 2007 were the same as the avoided costs for 2008 from the OPA's IPSP.
- The IPSP presents summer Peak, Mid-Peak and Off-Peak energy avoided costs in the left-most columns, but the table below presents the corresponding winter values in the left-most columns to align with the structure of the energy savings for the various program measures provided in previous sections of this report.

Table 14: Avoided Energy and Peak Demand Costs (2007\$)

Year	Energy Value (\$/MWh)								Capacity Value (\$ / kW-year)		
	Winter Peak	Winter Mid-Peak	Winter Off-Peak	Summer Peak	Summer Mid-Peak	Summer Off-Peak	Shoulder Mid-Peak	Shoulder Off-Peak	Generation	Transmission	Distribution
2007	71.5	68.3	35.7	73.4	59.5	34.3	38.2	29.3	81.1	3.4	4.2
2008	71.5	68.3	35.7	73.4	59.5	34.3	38.2	29.3	81.1	3.4	4.2
2009	68.1	66.5	36.2	67.6	57.2	34.0	39.1	28.6	81.1	3.4	4.2
2010	60.9	58.5	34.1	62.1	54.6	34.3	36.6	26.7	81.1	3.4	4.2
2011	56.9	53.6	32.1	62.5	52.8	31.5	35.0	26.4	81.1	3.4	4.2
2012	57.9	58.3	32.5	62.9	53.8	31.8	33.7	23.4	81.1	3.4	4.2
2013	56.5	54.6	30.6	60.1	51.5	30.8	33.3	23.1	81.1	3.4	4.2
2014	57.0	55.4	30.9	60.7	51.9	31.2	35.0	25.4	81.1	3.4	4.2
2015	66.8	65.9	40.2	71.7	62.3	37.6	48.8	30.3	81.8	3.4	4.2
2016	68.3	66.5	44.3	73.6	64.7	38.9	49.7	30.0	81.8	3.4	4.2
2017	69.3	66.6	44.7	76.2	67.0	39.7	48.7	30.2	81.8	3.4	4.2
2018	70.3	68.4	45.0	75.8	68.5	39.7	51.5	30.1	81.8	3.4	4.2
2019	71.6	69.5	45.3	77.7	70.8	41.4	52.7	31.0	81.8	3.4	4.2
2020	70.1	65.3	41.6	74.2	66.5	39.4	44.8	31.2	82.5	3.4	4.2
2021	70.4	67.7	41.9	74.2	66.2	39.3	54.4	30.6	82.5	3.4	4.2
2022	65.7	63.6	37.4	68.0	59.8	35.9	42.5	27.3	82.5	3.4	4.2
2023	62.4	59.0	34.5	66.8	57.7	34.1	35.8	25.1	82.5	3.4	4.2
2024	61.9	57.7	34.7	67.9	58.7	34.9	35.9	26.2	82.5	3.4	4.2
2025	64.1	60.6	35.1	68.6	59.1	34.8	37.2	25.8	82.5	3.4	4.2
2026	68.3	65.3	37.0	69.9	61.0	36.8	45.6	27.1	82.5	3.4	4.2
2027	71.0	66.2	38.7	72.9	63.4	38.0	46.2	28.5	82.5	3.4	4.2

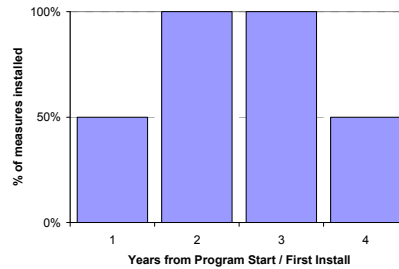
Total Resource Cost Test

The total resource cost test results for individual measures and the overall program are presented below.

Consistent with the OPA's IPSP, future avoided costs and other maintenance / operating cost savings (eg, avoided incandescent replacement costs for CFLs) in real \$ (eg, 2007\$) were discounted at a 4% real discount rate.

To reflect the fact that some of the measures were installed in the spring of 2007 and some of the measures were installed in the fall of 2007, the analysis reflects the simplifying assumption that 50% of the measures were installed in 2007, with 100% of the measures installed for the remaining life of the measure less one year, with the final year also having 50% of the measures installed. For an illustrative measure with a 3 year life, the assumed percentage of units installed (and contributing to energy and peak demand savings) is shown in Figure 11:

Figure 11: Illustration of Percentage of Measures Installed over 3 Year Measure Life



Total Resource Cost Test Results

The overall program TRC results are shown in Table 15. As shown, the 2007 EKC program is estimated to provide net benefits to Ontario ratepayers of approximately \$37 million. Correspondingly, the 2007 EKC program was found to have a benefit cost ratio of 2.5 / 1. These favourable results are largely driven by the significant contribution of CFLs – both in coupons redeemed and products purchased through the program – to the program results and also by the very favourable benefit / cost ratio of roughly 5 or more for the three CFL “measure types” covered by the program.

Table 15: Overall Program TRC Results

<i>Measure</i>	<i>Benefits (\$M)</i>	<i>Costs (\$M)</i>	<i>Net Benefits (\$M)</i>	<i>Benefit / Cost Ratio</i>
1 15 W CFL Bulbs (Spring & Fall)	\$37.6	\$7.4	\$30.2	5.1
2 20W + CFLs Bulbs (Spring & Fall)	\$7.9	\$1.3	\$6.6	6.0
3 Project Porchlight CFLs	\$7.7	\$0.9	\$6.9	9.0
4 Energy Star Ceiling Fan	\$0.6	\$0.5	\$0.1	1.3
5 Furnace Filter - Average House	\$0.1	\$0.2	\$0.0	0.7
6 Solar Lights	\$0.2	\$1.2	-\$1.0	0.2
7 Outdoor Motion Sensor	\$0.9	\$0.3	\$0.6	3.4
8 Dimmer Switch	\$0.2	\$0.1	\$0.1	1.7
9 Energy Star Light Fixtures	\$0.5	\$0.1	\$0.3	3.8
10 SLEDs (including SLED exchange)	\$2.4	\$2.7	-\$0.3	0.9
11 T8	\$0.3	\$0.3	\$0.0	1.1
12 Programmable Thermostat	\$0.4	\$0.3	\$0.2	1.7
13 Power Bar with Timer	\$0.2	\$0.1	\$0.1	1.5
14 Lighting Control Devices	\$2.7	\$1.1	\$1.6	2.5
Total	\$61.9	\$16.5	\$45.4	3.8
Program Costs		\$8.3		
Total Benefits and Costs	\$61.9	\$24.8	\$37.1	2.5

The program costs given in Table 15 were provided by the OPA and are exclusive of GST. The program costs also do not reflect incentive costs paid to participants for coupons redeemed. Additionally, \$1.5 million of what the OPA had counted as “program costs” for the 500,000 CFLs distributed through Project Porchlight were considered as incentive costs and, hence, removed from the program costs for the purpose of determining the program’s Total Resource Cost.

Only three of the measures were found to have a benefit / cost ratio less than one – furnace filters, outdoor solar lights, and seasonal LEDs (SLEDs) with benefit / cost ratios of 0.7, 0.2 and 0.9 respectively. The overall impact of these measures on the overall cost-effectiveness of the program was not significant – excluding these measures, the net program benefits would increase from approximately \$37 million to \$38 million.

Confidence Interval for Total Resource Cost Test Results

NCI’s analysis of the confidence interval for the TRC results builds on the analysis of the confidence interval for the net energy and summer demand savings discussed in the previous

chapter. The additional parameters varied for the TRC confidence interval simulations were incandescent bulb costs, CFL incremental costs and CFL life. Specifically, the distribution and rationale for each of these parameters are as follows:

- NCI has estimated that “name brand” incandescent bulbs cost approximately 75 cents each based on a review of retailer’s websites and sales literature. This cost was used in our analysis of the cost-effectiveness of the EKC program. However, consumers can also purchase less expensive “generic” incandescent bulbs. To reflect this possibility in the simulation model, NCI set possible incandescent bulb costs to range from 38 cents to 75 cents each.
- NCI has estimated that the incremental cost for CFLs (over an incandescent bulb) in the EKC program was \$4 for 15W CFLs and \$4.38 for higher wattage CFLs. This is based on retailer sales data from the spring campaign and a review of retailer promotional material over the two campaign periods. Given the general downward trend in CFL prices and the higher EKC CFL coupon redemption rate during the fall campaign, it is possible that the incremental CFL costs were lower than this. To account for this, and to reflect the preceding discussion regarding incandescent costs, possible CFL incremental costs were assumed to range from \$3 to \$4.25. The incremental cost for CFLs in the simulation model was also set to be negatively correlated with the number of CFLs / coupon (ie, a higher number of CFLs / coupon will generally be correlated with a lower incremental CFL cost) and with incandescent bulb costs (ie, higher incandescent bulb costs will generally be correlated with lower incremental CFL costs).
- In our research we found that the reported lifetime of CFLs ranged from approximately six years to ten years. NCI’s base estimate of CFL life was the midpoint of this range – eight years. To account for the potential range of CFL lives, NCI modeled the possible range of CFL lives as being normally distributed about a mean of eight years with a standard deviation of 0.75 years.

Including those parameters defined in previous chapters, the seven parameters that were varied for the net benefit and benefit / cost simulations are summarized in Table 16.

Table 16: Input Parameters and Range of Uncertainty for TRC Monte Carlo Simulations

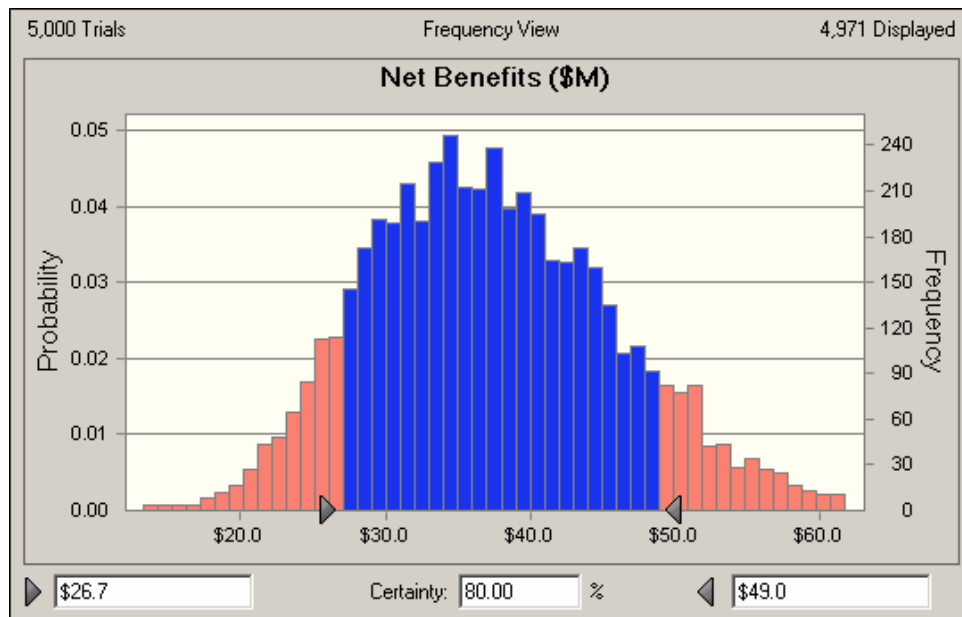
Key Parameter	Base Value	Range	Comment
CFLs / coupon	2.1	2.0 – 2.65 (random)	As discussed in <i>Confidence Interval for Gross Energy and Demand Savings</i>
EKC CFL free-ridership	24%	Normally distributed 7.5% standard deviation	As discussed in <i>Confidence Interval for Net Energy and Demand Savings</i>
Project Porchlight free-ridership	0%	-5% to 5% (random)	

Key Parameter	Base Value	Range	Comment
relative to EKC CFL coupon redeemers' free-ridership			
Free-ridership for all other EKC products except outdoor solar lights and SLEDs	45% or 23%	Normally distributed 10% standard deviation or Normally distributed 5% standard deviation	
Incandescent bulb costs	\$0.75	\$0.38 - \$0.75 (random)	20W + CFLs assumed to be \$0.38 more expensive
Incremental CFL costs (15W)	\$4	\$3 - \$4.25 (random)	Negatively correlated (-0.7) with incandescent bulb cost and CFLs / coupon
CFL life	8 years	Normally distributed 0.75 year standard deviation	

The results from 4000 random simulations for the net program benefits and benefit / cost ratio are shown in Figure 12 and Figure 13 respectively.

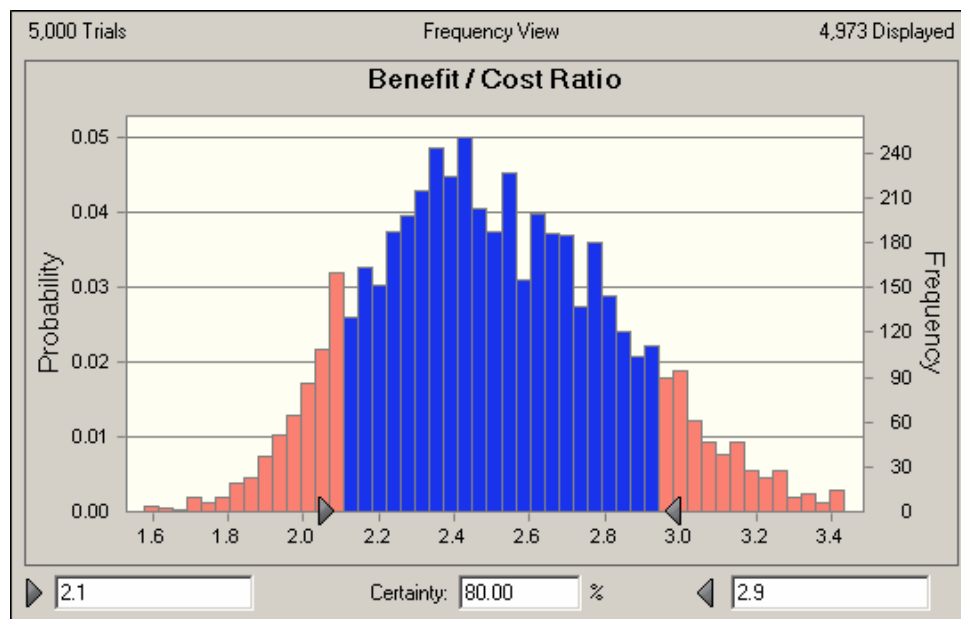
As shown in Figure 12 and based on the assumptions given above, there is an 80% probability that the net benefits for the 2007 EKC program fell within \$27 million to \$49 million (ie, the blue bars in Figure 12). Given these results, NCI has 90% confidence that the net benefits for the 2007 EKC program were at least \$27 million (ie, ignoring the 10% of results below \$27 million).

Figure 12: Expected Range of 2007 EKC Program Net Benefits



As shown in Figure 13 and based on the assumptions given above, there is an 80% probability that the benefit / cost ratio for the 2007 EKC program fell within the range of 2.1 to 2.9 (ie, the blue bars in Figure 13). Given these results, NCI has 90% confidence that the benefit / cost ratio for the 2007 EKC program was at least 2.1 / 1 (ie, ignoring the 10% of results below 2.1 in Figure 13).

Figure 13: Expected Range of 2007 EKC Program Benefit / Cost Ratio



Program Administrator Cost Test

The Total Resource Cost results presented above do not reflect the cost of incentives provided to EKC program participants through the discount value on the various EKC coupons since these incentives are essentially transfer payments between different parties in Ontario (eg, the OPA and participants). Incentive costs are considered in the Program Administrator Cost Test as described below.

The incentive payments from OPA to EKC program participants (ie, EKC coupon redeemers) were almost \$10M as shown in Table 17. The most significant incentive costs were \$3.8 million for CFLs (including the cost of the CFLs provided through the Project Porchlight campaign), \$3 million for outdoor solar lights and \$1.3 million for SLEDs. Note that the \$3 million incentive cost for the outdoor solar lights reflects the cost for all of the coupons redeemed, even though only 15% of these coupons were estimated to be related to outdoor solar light purchases that would have impacted the Ontario electricity system.

Table 17: EKC Incentive Payments by Measure

<i>Measure</i>	<i>Incentive Costs (\$M)</i>
15 W CFL Bulbs (Spring & Fall)	\$2.7
20W + CFLs Bulbs (Spring & Fall)	\$0.4
Project Porchlight CFLs	\$0.7
Energy Star Ceiling Fan	\$0.5
Furnace Filter - Average House	\$0.1
Solar Lights	\$3.0
Outdoor Motion Sensor	\$0.1
Dimmer Switch	\$0.1
Energy Star Light Fixtures	\$0.1
SLEDs (including SLED exchange)	\$1.3
T8	\$0.1
Programmable Thermostat	\$0.3
Power Bar with Timer	\$0.0
Lighting Control Devices	\$0.2
Total Incentive Cost	\$9.5

Inclusive of these incentive costs, the total program cost to the OPA for the 2007 Every Kilowatt Counts program was \$17.8 million (ie, \$8.3 million program costs as shown in Table 15, plus \$9.5 million for incentives).

The Program Administrator Cost Test does not consider the net participant costs incurred to realize the program savings nor does it consider other, non-energy related savings realized by participants. In the case of the 2007 EKC program, avoided incandescent bulb purchase costs are estimated to represent \$19.5 million of the \$61.9 million of present value benefits realized through the program and reflected in the TRC results above. Exclusive of the avoided incandescent bulb purchase costs, the benefits of the program – strictly related to avoided electric energy and capacity-related costs – decrease to \$42.5 million

Given these overall program costs (\$17.8 million) and benefits (\$42.5 million), the 2007 EKC program provides a net benefit of approximately \$25 million under the Program Administrator Cost Test. In simple terms, the 2007 EKC program is expected to decrease the overall costs to operate Ontario's electricity system by approximately \$25 million.

Another perspective on the overall program cost-effectiveness is to consider the net lifetime energy savings and summer peak demand savings relative to the overall program cost of \$17.8 million (inclusive of incentive costs). As shown in Table 11 on page 32, the 2007 EKC

program is expected to realize net lifetime energy savings of 1,060 GWh and summer peak demand savings of 4.9 MW. The OPA's "investment" in the 2007 EKC program is expected to realize 1,060 GWh of energy savings at a cost of approximately 1.7 cents per kWh. Alternatively, the investment achieved 4.9 MW of summer demand reduction at a cost of approximately \$3,600 per kW. Note that these two perspectives are mutually exclusive given that each allocates the total program costs over either the energy savings or summer demand savings. An approach where the total program costs are allocated between energy savings and demand reduction would yield costs lower per unit than those given above. For example, if the total program costs were allocated 50% to energy savings and 50% to demand reduction, the cost per kWh saved would decrease to less than 1 cent per kWh and the cost per summer kW demand reduction would fall below \$2,000 per kW.

AWARENESS AND OTHER RESULTS

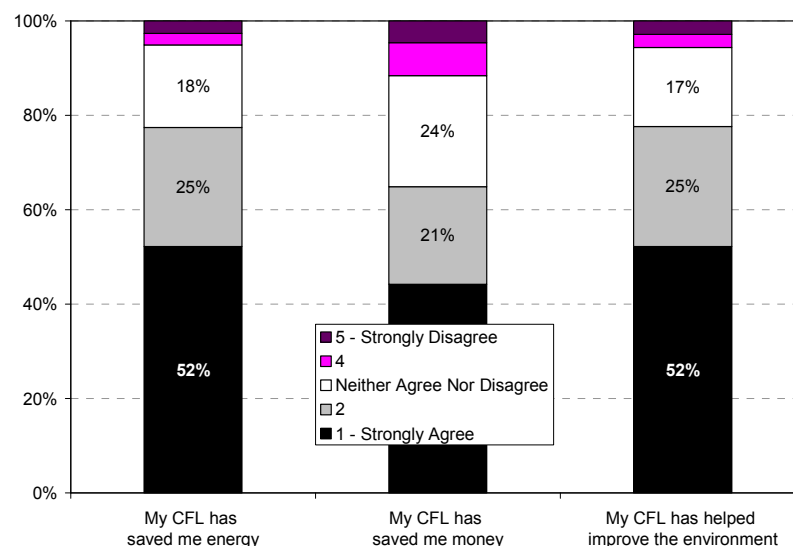
This section provides a summary of EKC participant awareness and attitudes relative to non-participants. Results presented herein are based on survey questions related to the perceived benefits of CFL, awareness of no and low cost energy saving opportunities, source of coupon and other factors.

Given the focus of the participant survey was on CFL coupon redeemers, most of the results presented below either relate directly to CFLs and EKC CFL coupon redeemers or compare EKC CFL coupon redeemers with respondents who did not purchase one or more CFLs using EKC coupons. The sample sizes for other analyses or comparison of other participants and/or non-participants were generally too small to draw any meaningful conclusions and have not been presented.

Perceived Benefits of CFLs

Figure 14 presents EKC CFL coupon redeemers responses about their relative agreement with three statements about the benefits of CFLs.

Figure 14: Perceived Benefits of CFL purchased with EKC Coupons



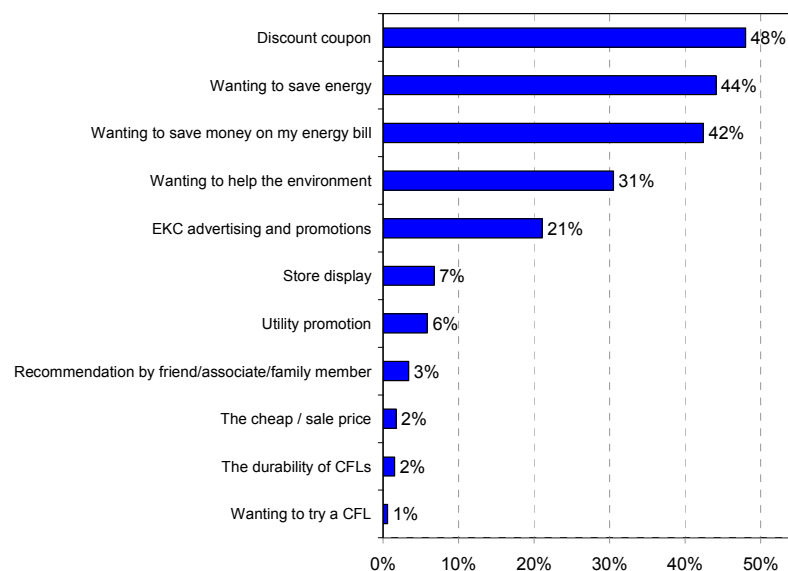
More than three-quarters of all EKC CFL coupon redeemers either strongly agreed or agreed with two of the three statements - "My CFL has helped improve the environment" and "My CFL has saved me energy". Just over two-thirds of strongly agreed or agreed with the statement that "My CFL has saved me money." The slightly lower level of agreement with the last statement suggests that respondents recognize the energy and environmental benefits of CFLs, but have

not or do not expect to see a difference in their electricity bills given the relatively small savings in absolute \$ terms for each CFL.

Important Factors in CFL Purchase

As shown in Figure 15, the EKC coupon was cited as an important factor by 48% of EKC CFL coupon redeemers followed by factors related to saving energy, saving money and wanting to help the environment. EKC advertising and promotions were cited as an important factor by 21% of EKC CFL coupon redeemers. These findings suggest that the EKC program had an important influence on participants' decision-making.

Figure 15: Important Factors in Decision to Purchase CFL(s) (multiple responses allowed)



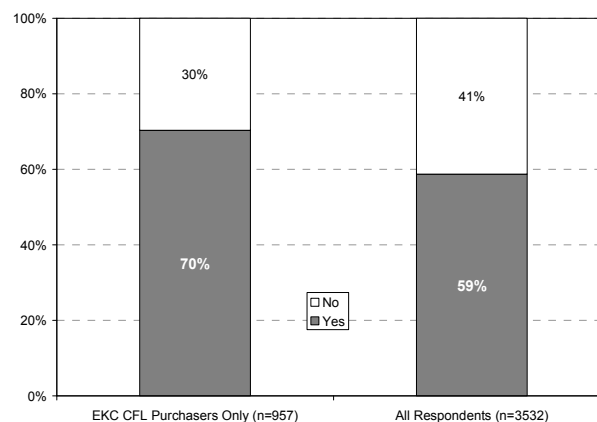
Awareness of No and Low Cost Energy Saving Opportunities

Respondents were asked about their current awareness of the no and low cost opportunities to save energy that were listed in the EKC booklet. These opportunities included:

- Using an existing programmable thermostat to automatically shift temperature in your home?
- Turning up your thermostat by 2 degrees or more during the summer to reduce central air conditioning use?
- Closing drapes during the day to block out the sun?
- Drying clothes naturally outdoors on a clothesline or inside on a rack?

As shown in Figure 16, a higher percentage (70%) of EKC CFL coupon redeemers thought that they were more aware of these opportunities in 2007 than they were in 2006 compared with respondents who did not purchase one or more CFLs using EKC coupons (59%). It is also interesting to note that 94% of EKC CFL coupon redeemers reporting a greater awareness of no and low cost opportunities believed that the EKC program contributed to their greater awareness. Of respondents who did not purchase one or more CFLs using EKC coupons who reported greater awareness, 74% attributed their greater awareness to the EKC program.

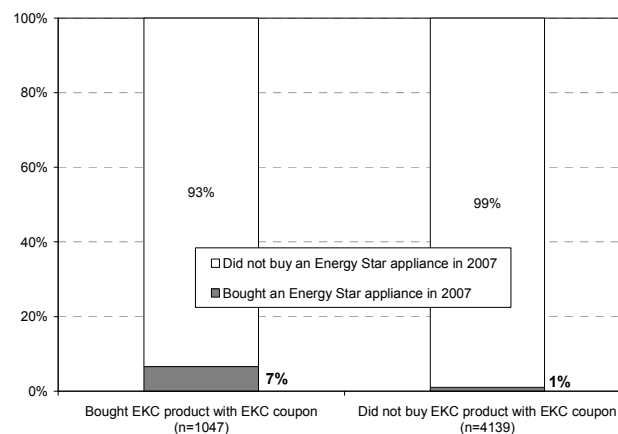
Figure 16 – Awareness of No and Low Cost Opportunities to Save Energy



Incidence of Energy Star® Appliance Purchases in 2007

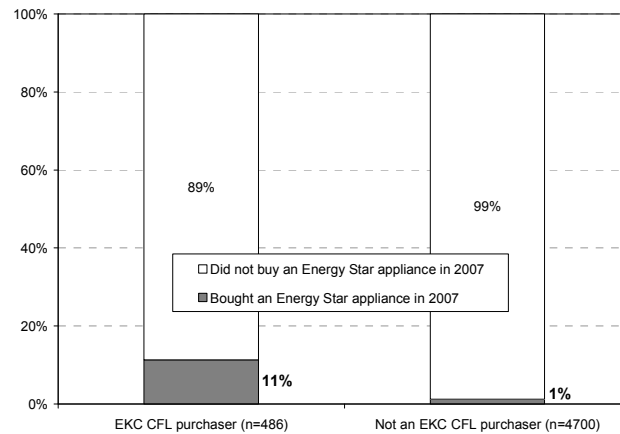
Program participants (ie, those redeeming any EKC coupon) were more than seven times as likely to have purchased Energy Star® appliances in 2007 as non-participants.

Figure 17: Comparison of 2007 Energy Star® Appliance Purchases: EKC Participants versus Non-Participants



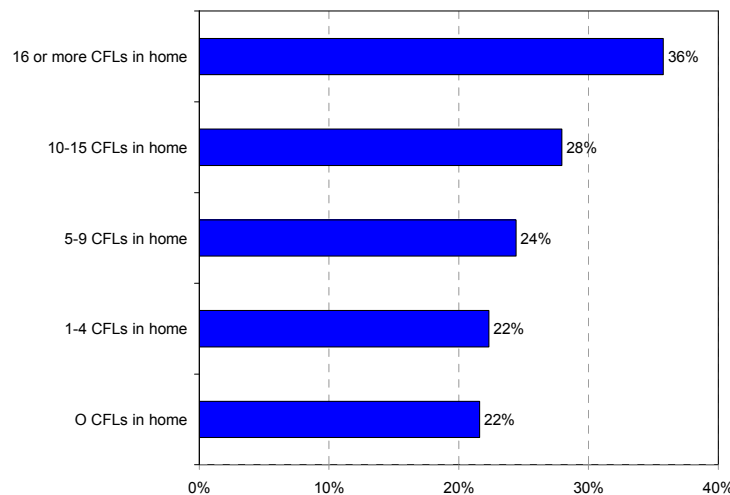
The difference is even more marked when comparing EKC CFL coupon redeemers with respondents who did not purchase one or more CFLs using EKC coupons.

Figure 18: Comparison of 2007 Energy Star® Appliance Purchases: EKC CFL Coupon Redeemers versus non-EKC CFL coupon redeemers



Not surprisingly, free-ridership generally increases with the number of existing CFLs in the house – ranging from 22% among EKC CFL coupon redeemers with up to four existing CFLs in their home to 36% for EKC CFL coupon redeemers with 16 or more existing CFLs in their home.

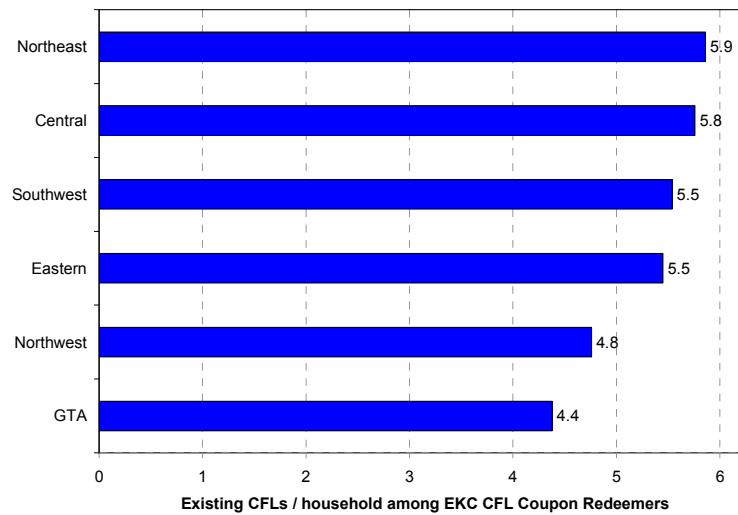
Figure 19 – Free-ridership by Number of Existing CFLs



Respondents from the GTA had the lowest number of existing CFLs per household (4.4) and respondents from Northeastern Ontario had the highest (5.9). Given these results, it is not surprising that GTA had the lowest CFL free-ridership among the six regions (16%), but also

somewhat anomalous that Northwestern Ontario – with an average of 4.8 existing CFLs per household – would have the highest free-ridership among the six regions (42%).

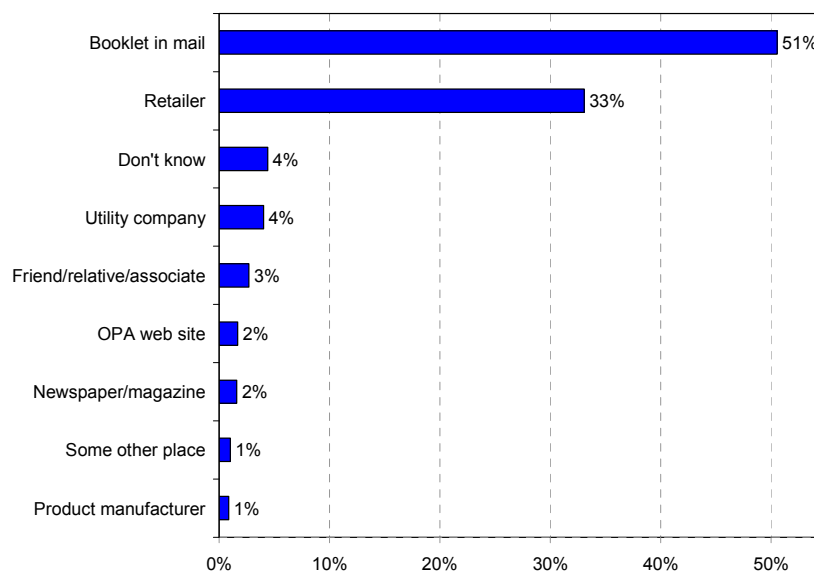
Figure 20: Number of Existing CFLs by Region



Source of EKC Coupon Used for Purchase

Just over half (51%) of program participants reported getting their discount coupons from the EKC booklet and almost a third reported getting their coupons from the retailer.

Figure 21 – Source of EKC Coupon



CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis described in the previous chapters, NCI's estimated impact for the 2007 EKC program is summarized in Table 18.

Table 18: 2007 EKC Program Impact

	Annual Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Winter Peak Demand Savings (MW)	Summer Peak Demand Savings (MW)
Gross	187	1,476	51	7
Net	132	1,060	37	5

Based on Monte Carlo simulations in which key input parameters were varied within a range informed by the survey results, retailer sales data and Navigant Consulting's professional judgment, there is 90% confidence that the net annual energy savings were at least 123 GWh and the net summer demand reduction was at least 4.6 MW.

As shown, the net-to-gross ratio for the program as a whole is approximately 70%, although free-ridership varied significantly between the different products promoted through the program.

Navigant Consulting has concluded that the 2007 EKC program was cost-effective under both the Total Resource Cost and the Program Administrator Cost tests:

- Under the Total Resource Cost test, the net benefits created by the 2007 EKC program were estimated to be \$37 million and the benefit / cost ratio was estimated to be 2.5 / 1. Based on the Monte Carlo simulation undertaken by Navigant Consulting, there is a 90% confidence that the net benefits were at least \$27 million and that the benefit / cost ratio for the program was at least 2.1 / 1.
- Only three of the measures were found to have a benefit / cost ratio less than one – furnace filters, outdoor solar lights, and seasonal LEDs (SLEDs) with benefit / cost ratios of 0.7, 0.2 and 0.9 respectively. The overall impact of these measures on the overall cost-effectiveness of the program was not significant – excluding these measures, the net program benefits would increase from approximately \$37 million to \$38 million.
- The 2007 EKC program was estimated to provide a net benefit of approximately \$25 million under the Program Administrator Cost test (this test includes incentives as a program cost, but also does not consider customer operational cost savings as a benefit). In simple terms, the OPA's "investment" in the 2007 EKC program is expected to realize

1,060 GWh of energy savings at a cost of approximately 1.7 cents per kWh. Alternatively (and without attributing any value to the energy savings realized), the investment achieved 4.9 MW of summer demand reduction at a cost of approximately \$3,600 per kW.

The program results given above are exclusively due to increased penetration of EKC-featured products. Overall, it is estimated that there were over three million products purchased as a result of the program, with more than 75% of these purchases being CFLs.

More than three-quarters of all EKC CFL coupon redeemers felt that their CFL had helped improve the environment and helped them save energy. Similarly, more than two-thirds felt that their CFL had helped save them money. This suggests there is a somewhat stronger linkage in consumers' minds between CFL and the environment than between CFLs and saving money. It also suggests that consumers' actions related to relatively low cost products such as those promoted through the 2007 EKC program can be driven as much or more by environmental considerations than by economic or financial considerations.

Just over half (51%) of program participants reported getting their discount coupons from the EKC booklet and almost a third reported getting their coupons from the retailer, which suggests that future campaigns should continue to offer discount coupons through the mail to help drive consumers into retail outlets.

Purchase rates of CFLs were found to be more than 30% higher in stores with in-store promotional displays or events than those stores without, indicating that such displays and events can help to boost sales.

Outside the direct impact from EKC product purchases, no savings have been attributed to program-induced behavioural changes of consumers although participants did report increased awareness of no and low-cost energy savings opportunities due to the program.

It is interesting to note that 2007 EKC program participants were seven times as likely as non-participants to have purchased Energy Star® appliances in 2007. Similarly, EKC CFL coupon redeemers were eleven times more likely to have purchased Energy Star® appliances in 2007 than those who did not redeem EKC CFL coupons. Whether these differences are due to the program or whether they simply reflect the greater willingness of consumers who purchase Energy Star® appliances to participate in programs like the 2007 EKC program is not known.

Recommendations

Based on our analysis, Navigant Consulting offers the following recommendations for future EKC and similar campaigns by the OPA and LDCs:

1. The penetration of existing CFLs and free-ridership rate of EKC CFL coupon redeemers were all lowest in the GTA compared with the other five regions of Ontario¹¹. Similarly, the incidence rate of EKC CFL coupon redeemers among all respondents was somewhat lower (11%) in the GTA compared with other regions (12%). This suggests that there may be local opportunities to cost-effectively promote and increase penetration of CFLs in the GTA relative to other regions of the province. Given the relatively high multi-cultural population in the GTA relative to other regions of Ontario, a multi-lingual campaign in the GTA may prove particularly effective. More detailed analysis and/or surveying within the GTA as part of the 2008 program research to further explore these opportunities may be warranted.
2. Outdoor solar lights should not be promoted unless specifically for niche applications that are highly likely to yield net energy and demand savings. The survey results indicate that the vast majority of outdoor solar lights did not reduce energy and demand in Ontario.
3. Unless prices continue to decline (as they have in the past), seasonal LEDs may not be cost-effective from a TRC benefit / cost ratio perspective. Additionally, the survey results suggest that some of the SLED purchasers may be replacing SLED strings purchased earlier. This is not surprising since the range and colour of SLEDs have improved in recent years. This behaviour will likely increase in the future as the population of existing SLEDs increases. However, it should also be noted that SLEDs may help to build consumer awareness of other energy savings opportunities and increase consumer commitment to undertake energy savings measures, so it is possible that any "loss" associated with SLEDs (from a TRC perspective) may be more than offset by other favourable impacts.
4. The OPA should encourage more uniform sales reporting from retailers. Ideally, the sales data from each participating retailer should include both current and previous year packages sold, products / package, price and sales revenue. This will facilitate

¹¹ Although the sample size of respondents within the GTA limits the extent to which any definitive conclusions can be drawn from a further breakdown of the GTA results into the 416 and 905 area codes, it appears that 1) the free-ridership rate of EKC CFL coupon redeemers is somewhat lower in the 905 area code than the 416 area code and 2) the penetration of existing CFLs is somewhat higher in the 905 area code than the 416 area code.

- analysis of units / coupon, average price and other key parameters for program analysis.
5. The OPA should consider further investigations into the differences between on-line surveys and telephone surveys and their impact on program results (eg, free-ridership and net-to-gross ratio). The 2007 EKC program evaluation found that the two survey techniques can yield different results, but it was not possible to determine whether one of the techniques provided a more representative picture of the market than the other.

APPENDIX A: EKC MEASURES PRESCRIPTIVE INPUT ASSUMPTIONS

See following pages

CFL SCREW – IN (15 W)

Efficient Equipment and Technologies Description	
Energy Star® Compact fluorescent lamps (CFL) can be used as a direct replacement for incandescent lamps consuming up to 75% less energy. Although the retail price is higher than a traditional incandescent bulb, CFLs are expected to last up to 10 times longer. CFL bulbs come in a variety of shapes and sizes however the 15 Watt CFL with a screw in base and integrated ballast remains the most commonly installed bulb, with the majority replacing the traditional 60 Watt incandescent ¹⁻² . Ontario households are becoming increasingly aware of CFLs with 64% having at least one CFL in their house, up from 25% in 1994 ³ , with the majority of CFLs being installed indoors ⁴ .	
Base Equipment and Technologies Description	
The majority of residential lighting consists of medium sized incandescent bulbs with wattage ranging between 50-100W. However studies have shown that the average wattage for incandescent bulbs remains the 60W bulb ⁵⁻⁶ , which is used for the baseline equipment comparison.	
Codes, Standards, and Regulations	
Compact Fluorescent Lamp (CFL) products eligible under the EKC program must be registered with the United States Energy Star® Program where it must meet the minimum energy efficient standards based on input wattage, lamp efficacy, lumen maintenance and average rated lifetimes. Canada's Energy Star Program does not qualify CFL products.	
The Canadian Federal government announced in Spring 2007 its commitment to setting performance standards for all lighting that would phase out the use of inefficient incandescent light bulbs in common applications by 2012, through the Regulations under Canada's Energy Efficiency Act ⁷ .	
Decision Type	Load Type
Retirement	OPA Res Indoor Lighting

¹ Kema Inc. 2005. CFL Metering Study: Final Report. Prepared for Pacific Gas & Electric Company San Francisco, California, San Diego Gas & Electric Company San Diego, and California Southern California Edison Company, Rosemead, California.

² California Energy Commission (CEC), 1999c, "Lighting Efficiency and Technical Report", Volume II Appendix: Description of the California Model and It's Inputs, Prepared by Hescong Mahone Group.

³ Statistics Canada, Households and the Environment 2006, Environmental Accounts and Statistics Division System of National Accounts, Minister of Industry, Ottawa, 2007

⁴ Kema Inc. 2005. CFL Metering Study: Final Report. Prepared for Pacific Gas & Electric Company San Francisco, California, San Diego Gas & Electric Company San Diego, and California Southern California Edison Company, Rosemead, California.

⁵ California Energy Commission (CEC), 1999a, "Lighting Efficiency and Technical Report", Volume 1: California Baseline, Prepared by Hescong Mahone Group

⁶ Kema Inc. 2005. CFL Metering Study: Final Report. Prepared for Pacific Gas & Electric Company San Francisco, California, San Diego Gas & Electric Company San Diego, and California Southern California Edison Company, Rosemead, California.

⁷ Natural Resource Canada, Canada's Energy Efficiency Regulations, Proposed Regulations, Bulletin February 2007, Office of Energy Efficiency, <http://www.oee.nrcan.gc.ca/regulations/bulletin/torchiere-bulletin-feb-2007.cfm?text=N&printview=N>, 2007

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Resource Savings Assumptions

Annual Electricity Savings		43.0	kWh
<p>Using average hours of operation per day = 2.7 hours/day⁸</p> <p>Annual electricity savings (AES) = $\Delta \text{Wattage} \times \text{daily usage hours} \times \text{days per year} \times \text{Replacement Rate}^*$</p> <p>AES = $(60 \text{ W} - 15 \text{ W}) \times 2.7 \text{ hrs/day} \times 365 \text{ days/year} \times 0.97$</p> <p>AES = 43.0 kWh</p> <p>* Replacement rate of 97% based on EKC survey data indicating that for every 100 CFL bulbs sold, 3 were used to replace existing CFLs</p>			
Average Demand Savings	Winter On-Peak	0.0062	kW
	Summer On-Peak	0.0014	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0121	kW
	Summer On-Peak	0.0013	kW
<p>The average demand savings and the coincident peak demand savings were calculated using the OPA end-use load shapes (OPA Res Indoor Lighting) and the OPA's average peak demand savings methodology and coincident factors⁹. As mentioned above, a replacement rate of 97% was also applied to the demand savings values. The average demand savings were calculated to be 0.0062 kW winter on-peak and 0.0014 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0121 kW winter on-peak and 0.0013 kW summer on-peak.</p>			
Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

⁸ Navigant Consulting Inc., Review of Prescriptive Input Assumptions: 2007 Every Kilowatt Counts Program, Toronto, Canada, September 2007.

⁹ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	3.75	3.49	8.36	0.76	4.15	7.63	6.36	8.51	kWh
Average Demand Savings	0.0062	0.0051	0.0052	0.0014	0.0052	0.0047	0.0049	0.0052	kW
Coincident Peak Demand Savings	0.0121			0.0013					kW
Description / References: The values given in this table were obtained from OPA Res Indoor Lighting load shapes.									

Other Input Assumptions

Effective Useful Life	8.1	years
Based on 2.7 hours/day usage and an effective lifetime use of 8,000 hours ¹⁰		
Incremental Cost (Cust. / Contr. Install)	\$ 4.00	\$
<ul style="list-style-type: none"> Average cost of 60 W incandescent bulb = \$0.75 / bulb based on Canadian Tire website (2007). Average cost of 15 W CFL = \$4.75 / bulb based on 2007 EKC distributor sales data and average bulb per coupon 		

¹⁰ Navigant Consulting Inc., Review of Prescriptive Input Assumptions: 2007 Every Kilowatt Counts Program, Toronto, Canada, September 2007.

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
Efficiency Maine Residential Technical Manual No. 2006-1¹¹	44	N/A	N/A	7.6	4.72
Comments: Based on 2.7 hours/day usage (986 hours/year) and life of 7,500 hours. Annual demand savings = 0.175 kW.					
Ontario Energy Board, Total Resource Cost Guide, October 2006¹²	104	0.023	0.0	4.3	2.50
Comments: Based on daily usage of 8 hrs/day for 7 months, 4 hours/day for 5 months (2,320 hours/year), annual base energy use of 139 kWh vs 35 kWh for 15 W CFL, incandescent lifetime use of 1000 hours, CFL lifetime use 10,000 hrs.					
California Database for Energy Efficient Resources (DEER) Version 2.01 October 26, 2005	34.59	N/A	N/A	9.4	5.39
Comments: Values based on "CFL Metering Study", prepared for Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison by Kema ¹³ .					

¹¹ Efficiency Maine, 2006, Technical Reference User Manual (TRM) No. 2006-1, Measure Saving Algorithms and Cost Assumptions, Augusta, Maine.

Energy Solutions Alberta Website, <http://www.energysolutionsalberta.com>

¹² Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

¹³ Kema Inc. 2005. CFL Metering Study: Final Report. Prepared for Pacific Gas & Electric Company San Francisco, California, San Diego Gas & Electric Company San Diego, and California Southern California Edison Company, Rosemead, California.

CFL SCREW – IN (20 W)

Efficient Equipment and Technologies Description
CFL screw-in 20W
Base Equipment and Technologies Description
75W Incandescent

Codes, Standards, and Regulations

Compact Fluorescent Lamp (CFL) products eligible under the EKC program must be registered with the United States Energy Star® Program where it must meet the minimum energy efficient standards based on input wattage, lamp efficacy, lumen maintenance and average rated lifetimes. Canada's Energy Star Program does not qualify CFL products.

The Canadian Federal government announced in Spring 2007 its commitment to setting performance standards for all lighting that would phase out the use of inefficient incandescent light bulbs in common applications by 2012, through the Regulations under Canada's Energy Efficiency Act¹.

Decision Type	Load Type
Retirement	OPA Res Indoor Lighting

¹ Natural Resource Canada, Canada's Energy Efficiency Regulations, Proposed Regulations, Bulletin February 2007, Office of Energy Efficiency, <http://www.oee.nrcan.gc.ca/regulations/bulletin/torchiere-bulletin-feb-2007.cfm?text=N&printview=N>, 2007

Resource Savings Assumptions

Annual Electricity Savings		52.6	kWh
<p>Using average hours of operation per day = 2.7 hours/day²</p> <p>Annual electricity savings (AES) = ΔWattage \times daily usage hours \times days per year \times Replacement Rate*</p> <p>AES = $(75\text{ W} - 20\text{ W}) \times 2.7\text{ hrs/day} \times 365\text{ days/year} \times 0.97$</p> <p>AES = 52.6 kWh</p> <p>* Replacement rate of 97% based on EKC survey data indicating that for every 100 CFL bulbs sold, 3 were used to replace existing CFLs</p>			
Average Demand Savings	Winter On-Peak	0.0076	kW
	Summer On-Peak	0.0018	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0148	kW
	Summer On-Peak	0.0016	kW
<p>The average demand savings and the coincident peak demand savings were calculated using the OPA end-use load shapes (OPA Res Indoor Lighting) and the OPA's average peak demand savings methodology and coincident factors³. As mentioned above, a replacement rate of 97% was also applied to the demand savings values. The average demand savings were calculated to be 0.0076 kW winter on-peak and 0.0018 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0148 kW winter on-peak and 0.0016 kW summer on-peak.</p>			
Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

² Navigant Consulting Inc., Review of Prescriptive Input Assumptions: 2007 Every Kilowatt Counts Program, Toronto, Canada, September 2007.

³ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	4.59	4.26	10.21	0.93	5.08	9.32	7.78	10.40	kWh
Average Demand Savings	0.0076	0.0062	0.0063	0.0018	0.0064	0.0058	0.0060	0.0064	kW
Coincident Peak Demand Savings	0.0148			0.0034					kW
Description / References: The values given in this table were obtained from OPA Res Indoor Lighting load shapes.									

Other Input Assumptions

Effective Useful Life	8.1	years
Based on 2.7 hours/day usage and an effective lifetime use of 8,000 hours ⁴		
Incremental Cost (Cust. / Contr. Install)	\$ 4.25	\$
<ul style="list-style-type: none"> Average cost of 75 W incandescent bulb = \$0.75 / bulb based on Canadian Tire website (2007). Average cost of 20 W CFL = \$5.00 / bulb based on 15 W CFL cost from 2007 EKC distributor sales data and an additional 5% in cost for the increase in wattage. 		

⁴ Skumatz, et.al. 2004, Skumatz, et. al. 2005, California DEER, 2005

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
Efficiency Maine Residential Technical Manual No. 2006-1⁵	44	N/A	N/A	7.6	4.72
Comments: Based on 2.7 hours/day usage (986 hours/year) and life of 7,500 hours. Annual demand savings = 0.175 kW.					
Ontario Energy Board, Total Resource Cost Guide, October 2006⁶	104	0.023	0.0	4.3	2.50
Comments: Based on daily usage of 8 hrs/day for 7 months, 4 hours/day for 5 months (2,320 hours/year), annual base energy use of 139 kWh vs 35 kWh for 15 W CFL, incandescent lifetime use of 1000 hours, CFL lifetime use 10,000 hrs.					
California Database for Energy Efficient Resources (DEER) Version 2.01 October 26, 2005	34.59	N/A	N/A	9.4	5.39
Comments: Values based on "CFL Metering Study", prepared for Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison by Kema ⁷ .					

⁵ Efficiency Maine, 2006, Technical Reference User Manual (TRM) No. 2006-1, Measure Saving Algorithms and Cost Assumptions, Augusta, Maine.

Energy Solutions Alberta Website, <http://www.energysolutionsalberta.com>

⁶ Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

⁷ Kema Inc. 2005. CFL Metering Study: Final Report. Prepared for Pacific Gas & Electric Company San Francisco, California, San Diego Gas & Electric Company San Diego, and California Southern California Edison Company, Rosemead, California.

CFL SCREW – IN (25 W)

Efficient Equipment and Technologies Description
CFL screw-in 25W
Base Equipment and Technologies Description
100W Incandescent

Codes, Standards, and Regulations

Compact Fluorescent Lamp (CFL) products eligible under the EKC program must be registered with the United States Energy Star® Program where it must meet the minimum energy efficient standards based on input wattage, lamp efficacy, lumen maintenance and average rated lifetimes. Canada's Energy Star Program does not qualify CFL products.

The Canadian Federal government announced in Spring 2007 its commitment to setting performance standards for all lighting that would phase out the use of inefficient incandescent light bulbs in common applications by 2012, through the Regulations under Canada's Energy Efficiency Act⁸.

Decision Type	Load Type
Retirement	OPA Res Indoor Lighting

Resource Savings Assumptions

Annual Electricity Savings		71.7	kWh
<p>Using average hours of operation per day = 2.7 hours/day⁹</p> <p>Annual electricity savings (AES) = $\Delta \text{Wattage} \times \text{daily usage hours} \times \text{days per year} \times \text{Replacement Rate}^*$</p> <p>$\text{AES} = (100 \text{ W} - 25 \text{ W}) \times 2.7 \text{ hrs/day} \times 365 \text{ days/year} \times 0.97$</p> <p>$\text{AES} = 71.7 \text{ kWh}$</p> <p>* Replacement rate of 97% based on EKC survey data indicating that for every 100 CFL bulbs sold, 3 were used to replace existing CFLs</p>			
Average Demand Savings	Winter On-Peak	0.0104	kW
	Summer On-Peak	0.0024	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0202	kW
	Summer On-Peak	0.0022	kW

⁸ Natural Resource Canada, Canada's Energy Efficiency Regulations, Proposed Regulations, Bulletin February 2007, Office of Energy Efficiency, <http://www.oeenrncan.gc.ca/regulations/bulletin/torchiere-bulletin-feb-2007.cfm?text=N&printview=N>, 2007

⁹ Navigant Consulting Inc., Review of Prescriptive Input Assumptions: 2007 Every Kilowatt Counts Program, Toronto, Canada, September 2007.

The average demand savings and the coincident peak demand savings were calculated using the OPA end-use load shapes (OPA Res Indoor Lighting) and the OPA's average peak demand savings methodology and coincident factors¹⁰. As mentioned above, a replacement rate of 97% was also applied to the demand savings values. The average demand savings were calculated to be 0.0104 winter on-peak and 0.0024 summer on-peak. The coincident peak demand savings were calculated to be 0.0202 winter on-peak and 0.0022 kW summer on-peak.

Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	6.25	5.81	13.93	1.27	6.92	12.72	10.60	14.19	kWh
Average Demand Savings	0.0104	0.0085	0.0086	0.0024	0.0087	0.0079	0.0082	0.0087	kW
Coincident Peak Demand Savings	0.0202			0.0022					kW
Description / References:									
The values given in this table were obtained from OPA Res Indoor Lighting load shapes.									

Other Input Assumptions

Effective Useful Life	8.1	years
Based on 2.7 hours/day usage and an effective lifetime use of 8,000 hours ¹¹		
Incremental Cost (Cust. / Contr. Install)	\$ 4.50	\$
<ul style="list-style-type: none"> Average cost of 100 W incandescent bulb = \$0.75 / bulb based on Canadian Tire website (2007). Average cost of 25 CFL = \$5.25 bulb based on 15 W CFL cost from 2007 EKC distributor sales data and an additional 10% in cost for the increase in wattage. 		

¹⁰ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

¹¹ Skumatz, et.al. 2004, Skumatz, et. al. 2005, California DEER, 2005

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
Efficiency Maine Residential Technical Manual No. 2006-1¹²	44	N/A	N/A	7.6	4.72
Comments: Based on 2.7 hours/day usage (986 hours/year) and life of 7,500 hours. Annual demand savings = 0.175 kW.					
Ontario Energy Board, Total Resource Cost Guide, October 2006¹³	104	0.023	0.0	4.3	2.50
Comments: Based on daily usage of 8 hrs/day for 7 months, 4 hours/day for 5 months (2,320 hours/year), annual base energy use of 139 kWh vs 35 kWh for 15 W CFL, incandescent lifetime use of 1000 hours, CFL lifetime use 10,000 hrs.					
California Database for Energy Efficient Resources (DEER) Version 2.01 October 26, 2005	34.59	N/A	N/A	9.4	5.39
Comments: Values based on "CFL Metering Study", prepared for Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison by Kema ¹⁴ .					

¹² Efficiency Maine, 2006, Technical Reference User Manual (TRM) No. 2006-1, Measure Saving Algorithms and Cost Assumptions, Augusta, Maine.

Energy Solutions Alberta Website, <http://www.energysolutionsalberta.com>

¹³ Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

¹⁴ Kema Inc. 2005. CFL Metering Study: Final Report. Prepared for Pacific Gas & Electric Company San Francisco, California, San Diego Gas & Electric Company San Diego, and California Southern California Edison Company, Rosemead, California.

ENERGY STAR® CEILING FAN

Efficient Equipment and Technologies Description

Energy Star® qualified ceiling fans use improved motor and blade design and, in combination with Energy Star® qualified lighting kits, are expected to be 50% more efficient than conventional fan/lighting units¹⁵. Since 91% of all ceiling fans sold in Canada include associated lighting fixtures¹⁶, the typical energy efficient equipment analyzed consist of a Energy Star® qualified ceiling fan equipped with three pin based 20 W CFL bulbs.

Base Equipment and Technologies Description

Two baseline conditions are considered in order to reflect two separate scenarios available for the consumer. The first baseline condition is a conventional non-Energy Star® qualified ceiling fan fitted with three medium screw base socket using three 60 W incandescent bulbs. The second baseline condition is a conventional ceiling fixture (no fan) using three 60 W incandescent bulbs.

Codes, Standards, and Regulations

For ceiling fans that are sold in Ontario, the Province has regulated the performance of residential ceiling fans since 2003 referencing the Canadian test standard, CSA/C814-96: Energy Performance of Ceiling Fans, which provides measurements of the power consumed by the motor but does not include any measurements on power consumption of the lights¹⁷. The CSA is in the process of revising the C814-96 test standard, proposing a test procedure and minimum energy performance standards levels to be harmonized with those implemented by the United States (U.S.) Department of Energy (DOE).

In order for a residential ceiling fan to qualify as Energy Star®, it must meet various specification requirements, including airflow efficiency, lighting, controls, and testing procedures set out by the US DOE.

The US DOE classifies ceiling fan light kits into three categories:

1. Ceiling Fan Light Kits With Medium Screw Base Sockets – Lamps must be packaged with the kit (enough to fill all the sockets), and these lamps must meet the performance levels listed in ENERGY STAR® Program for Compact Fluorescent Lamps, version 3.0. If another light source is used, it must meet the same performance levels as stated in the ENERGY STAR®.
2. Ceiling Fan Light Kits With Pin-Base Sockets for Fluorescent Lamps – NRCAN proposes that the kit include the same number of lamps as there are sockets, and meet the performance requirements of Table 1, Combined Lamp and Ballast Requirements of the ENERGY STAR® Program Requirements for Residential Light Fixtures, version 4.0
3. Ceiling Fan Light Kits With Sockets Other Than Medium Screw Base or Pin-Base for Fluorescent Lamps – For these types of socket, which also include candelabra screw base sockets, NRCAN proposes that the light kits not be capable of operating with lamps that total more than 190 W and, they shall include lamps whose total wattage does not exceed 190 W.

¹⁵ USEPA, Energy Star Website, www.energystar.gov, 2007

¹⁶ Natural Resource Canada, Canada's Energy Efficiency Regulations, Proposed Regulations, Bulletin March 2007 Ceiling Fans and Ceiling Fan Light Kits, Office of Energy Efficiency, <http://www.oeenrncan.gc.ca/regulations/bulletin/tceiling-fans-and-light-kits-feb2007.cfm?text=N&printview=N>, September 2007

¹⁷ Natural Resource Canada, Canada's Energy Efficiency Regulations, Proposed Regulations, Bulletin March 2007 Ceiling Fans and Ceiling Fan Light Kits, Office of Energy Efficiency, <http://www.oeenrncan.gc.ca/regulations/bulletin/tceiling-fans-and-light-kits-feb2007.cfm?text=N&printview=N>, September 2007

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Decision Type	Load Type
Retirement	OPA Res Indoor Lighting

Resource Savings Assumptions

Annual Electricity Savings		89.8	kWh
<p><i>Common Assumptions</i></p> <ul style="list-style-type: none">• Average lighting operating hours = 2.7 hours/day¹⁸• Average fan operating hours = 4 hours/day¹⁹• Fan usage = 40% low speed, 40% medium speed, 20% high speed²⁰• Based on EKC survey results, 35% of consumers replacing existing ceiling fan (scenario#1) and 65% consumers replacing conventional ceiling fixture (scenario #2). <p><i>1st Baseline Conditions (ceiling fan replacement):</i></p> <ul style="list-style-type: none">• Lighting wattage per fixture = 180 Watts (three 60W incandescent bulbs)• Fan wattage (LBNL, 2004): Low speed: 15.2 W, Medium speed: 34.8 W, High speed: 72.5 W <p><i>2nd Baseline Conditions (ceiling fixture replacement):</i></p> <ul style="list-style-type: none">• Lighting wattage per fixture = 180 Watts (three 60W incandescent bulbs) <p><i>Efficient Technology Conditions:</i></p> <ul style="list-style-type: none">• Lighting wattage per fixture = 60 Watts (3 - 20W CFL bulbs)• Fan wattage (LBNL, 2004): Low speed: 11.7 W, Medium speed: 31.4 W, High speed: 71.5 W <p><i>Note: Based on review of existing studies²¹, NCI assumes that no energy savings in space heating or cooling through use of a ceiling fan.</i></p>			
Average Demand Savings	Winter On-Peak	0.0130	kW
	Summer On-Peak	0.0030	kW
Coincident Peak Demand	Winter On-Peak	0.0253	kW

¹⁸ Navigant Consulting Inc., Review of Prescriptive Input Assumptions: 2007 Every Kilowatt Counts Program, Toronto, Canada, September 2007.

¹⁹ Efficiency Maine, 2006, Technical Reference User Manual (TRM) No. 2006-1, Measure Saving Algorithms and Cost Assumptions, Augusta, Maine.

Energy Solutions Alberta Website, <http://www.energysolutionsalberta.com>

²⁰ USEPA, Energy Star Website, www.energystar.gov, 2007

²¹ Parker, D., Sonne, J., Sherwin, J., "Comparative Evaluation of the Impact of Roofing Systems on Residential Cooling Energy Demand in Florida," Proceedings of ACEEE 2002 Summer Study, American Council for an Energy Efficient Economy, Washington, DC, August, 2002.

Savings	Summer On-Peak	0.0028	kW
The average demand savings and the coincident peak demand savings were calculated using the OPA end-use load shapes (OPA Res Indoor Lighting) and the OPA's average peak demand savings methodology and coincident factors ²² . The average demand savings were calculated to be 0.0130 kW winter on-peak and 0.0030 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0253 kW winter on-peak and 0.0028 kW summer on-peak.			
Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	7.8	7.3	17.5	1.6	8.7	15.9	13.3	17.8	kWh
Average Demand Savings	0.0130	0.0106	0.0108	0.0030	0.0110	0.0099	0.0103	0.0109	kW
Coincident Peak Demand Savings	0.0253			0.0028					kW
Description / References: The values given in this table were obtained from OPA Res Indoor Lighting load shapes.									

²² Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Other Input Assumptions

Effective Useful Life	10	years
Based on the EPA Energy Star® Savings Calculator ²³		
Incremental Cost (Cust. / Contr. Install)	\$ 47	\$
Incremental cost calculated based on the assumed purchasing mix and based on a review of the average price difference between the conventional ceiling fan or ceiling fixture and Energy Star® ceiling fans. The average price difference between a conventional ceiling fan and an Energy Star® qualified ceiling fans from Canadian Tire website and Home Depot website was determined to be \$25, while the average price incremental price for a conventional ceiling fixture over an Energy Star® qualified ceiling fans was determined to be \$80.		

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
SDG&E Statewide Investor Owned Utility Ceiling Fan Study, RLW Analytics, 2002²⁴	32.5	N/A	N/A	N/A	N/A
Comments: Based on residential metered study with 360 hours/year of lighting usage and 897 hours of fan motor usage. Used a conservative energy lighting reduction of 60% and fan motor savings of 20%.					
Efficiency Maine Residential Technical Manual No. 2006-1²⁵	175.2	N/A	N/A	10	25
Comments: Baseline conditions assume four sockets fitted with 60W incandescent bulb, whereas the high efficiency Energy Star® fans assume 2-D lamps totalling 60W. Many of the main assumptions have been derived from the Energy Star Saving's Calculator ²⁶ , including the operating hours for lights being 4 hours/day (1,460					

²³ EPA Energy Star® Savings Calculator, Ceiling Fans, http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Ceiling_Fan_Savings_Calculator_Consumer.xls

²⁴ RLW Analytics, 2002. Statewide Investor Owner Utility Ceiling Fan Study: Final Report. Prepared for San Diego Gas and Electric Company.

²⁵ Efficiency Maine, 2006, Technical Reference User Manual (TRM) No. 2006-1, Measure Saving Algorithms and Cost Assumptions, Augusta, Maine.

Energy Solutions Alberta Website, <http://www.energysolutionsalberta.com>

²⁶ EPA Energy Star® Savings Calculator, Ceiling Fans, http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Ceiling_Fan_Savings_Calculator_Consumer.xls

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
hours/year). The annual demand savings for the high efficiency fan was calculated to be 0.120 kW.					
Every Kilowatt Counts TRC Assessment, SeeLine Group, December 2006	176	N/A	0.015	20	25
Comments: Based on Energy Star Savings Calculator ²⁷ (Energy Star Website, 2007) and assuming that 80% of the fans purchased through campaign have lights while 20% have no lights.					

²⁷ Ibid.

T-8 FIXTURES

Efficient Equipment and Technologies Description	
<p>Fluorescent T8 fixtures with electronic ballast have achieved significant levels of market penetration in the Commercial Sector, however their replacement of the conventional 4-foot long, T12 diameter, 40-Watt ceiling mounted fluorescent fixtures usually found in kitchens and garage/utility rooms has been much slower in the residential markets. A 2003-2004 assessment of residential lighting in California¹ reported that 87% of all fluorescent lamps counted were T12, while 11% were the smaller diameter T8 style bulb. T8 lamps use 25 to 40% less energy than older T12 lighting systems², mainly due to their 1 inch tube diameter in comparison to the 1 and ¼ inch diameter found in the T12 lamps. Electronic ballasts (in comparison to the older magnetic ballasts used with T12 lamps) operate at higher frequencies enabling the lamps to be more efficient and use less operational power.</p>	
Base Equipment and Technologies Description	
<p>Baseline condition is the traditional T12 fixture with two 4-foot long 40 W fluorescent tubes with magnetic ballasts usually found in kitchens and/or garages/utility rooms.</p>	
Codes, Standards, and Regulations	
<p>As of April 1, 2005, new ballast efficiency regulations in the Canadian Standards Association standard, CAN/CSA-C654-M91 Fluorescent Lamp Ballast Efficacy Measurements were applied to fluorescent magnetic to improve the energy efficiency of fluorescent lamp ballasts. (NB – it is assumed that the magnetic ballasts which are being replaced were purchased prior to this new standard coming into effect).</p>	
Decision Type	Load Type
Retirement	OPA Res Indoor Lighting

¹ Kema Inc. 2005. CFL Metering Study: Final Report. Prepared for Pacific Gas & Electric Company San Francisco, California, San Diego Gas & Electric Company San Diego, and California Southern California Edison Company, Rosemead, California.

²BC Hydro, "Reference Guide for Lighting Calculator", High Performance Building Program Lighting Design Offer, http://www.bchydro.com/rx_files/psbusiness/psbusiness53652.pdf, 2007

Resource Savings Assumptions

Annual Electricity Savings		37.2	kWh
<p><i>Common Assumptions:</i></p> <ul style="list-style-type: none"> Number of bulbs per fixture = 2 bulbs³ Average hours of operation = 3 hours/day (3.5 for kitchen, 2.5 for garage⁴) <p><i>Baseline Conditions</i></p> <ul style="list-style-type: none"> Total wattage of fixture (pre 1990) = 96 Watts (2 x 40 W bulbs and 16W ballast) (Department Navy Energy Program Website, 2007) <p><i>Efficient Technology Conditions:</i></p> <ul style="list-style-type: none"> Total wattage of fixture = 62 Watts (2 x 32 W bulbs) (Department of Navy Energy Program Website, 2007) 			
Average Demand Savings	Winter On-Peak	0.0054	kW
	Summer On-Peak	0.0013	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0105	kW
	Summer On-Peak	0.0012	kW
<p>The average demand savings and the coincident peak demand savings were calculated using the OPA end-use load shapes (OPA Res Indoor Lighting) and the OPA's average peak demand savings methodology and coincident factors⁵. The average demand savings were calculated to be 0.0054 kW winter on-peak and 0.0013 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0105 kW winter on-peak and 0.0012 kW summer on-peak.</p>			
Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

³ Kema Inc. 2005. CFL Metering Study: Final Report. Prepared for Pacific Gas & Electric Company San Francisco, California, San Diego Gas & Electric Company San Diego, and California Southern California Edison Company, Rosemead, California.

⁴ Ibid.

⁵ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	3.25	3.02	7.23	0.66	3.59	6.60	5.51	7.37	kWh
Average Demand Savings	0.0054	0.0044	0.0045	0.0013	0.0045	0.0041	0.0043	0.0045	kW
Coincident Peak Demand Savings	0.0105			0.0012					kW

Description / References:

The values given in this table were obtained from OPA Res Indoor Lighting load shapes.

Other Input Assumptions

Effective Useful Life	16	years
Average lifetime of fixture of 16 years based on California Public Utilities Commission Energy Efficiency Policy Manual ⁶ .		
Incremental Cost (Cust. / Contr. Install)	\$ 20	\$
Average cost of T12 fixture with ballasts = \$25 and average cost of T8 fixture with ballasts = \$45 based on personal communication with Home Depot, August 2007 and online research from Canadian Tire website		

⁶California Public Utility Commission (CPUC), 2001, Energy Efficiency and Conservation Programs. Report to the Legislature. San Francisco, California: California Public Utilities Commission.

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
BC Hydro Conservation Potential Review 2002, Residential Sector Report, June 2003 ⁷	18	N/A	N/A	N/A	N/A
Comments: Based on 1,200 hours on two 48 W lamps (including ballasts) for common areas in 9,600 apartments in British Columbia. Savings relative to conventional T12 lamps are estimated to be 20%. Typical installed cost estimated to be \$25.					

⁷Sampson Research, Residential Lighting Hours-of Use Study, Sampson Research, Vancouver, BC, 2004, prepared for BC Hydro.

OUTDOOR MOTION SENSOR

Efficient Equipment and Technologies Description

Outdoor motion sensors have become a common lighting control measure, with 38% of all Ontario households having at least one installed¹. Outdoor motion sensors are an efficient replacement to conventional outdoor lighting fixtures since they are programmed to only turn on for a specified time (e.g., 5 minutes) when movement is detected, rather than being left on all night. Although most outdoor motion sensors consist of two wall mounted security/spotlights using either incandescent, halogen or CFL bulbs, other single socket porch light fixtures equipped with motion sensors are also available and are subsequently examined.

Base Equipment and Technologies Description

Similarly to the energy efficient technology, two separate baseline conditions representing the intended outdoor lighting fixtures to be replaced are examined. The first baseline condition is a conventional wall-mounted 2 socket security/spotlight using a representative mix of incandescent, halogen and CFL bulbs. The second baseline condition is a typical one socket wall mounted porch light fixture, also using a representative mix of incandescent and CFL bulbs.

Codes, Standards, and Regulations

There are no minimum standards or regulations for general outdoor motion sensors however Energy Star® qualified outdoor lighting fixtures must meet specific requirements set out by the US EPA/DOE with respect to motion control to be compliant with reduced operating time qualifications.

Decision Type	Load Type
New purchase or replacement	NCI Res Outdoor Lighting

¹ Natural Resources Canada. Office of Energy Efficiency. 2003 Survey of Household Energy Use (SHEU) : Summary Report. Ottawa, Ont., Natural Resources Canada, 2006.

Resource Savings Assumptions

Annual Electricity Savings	159.8	kWh
<p><i>Common Assumptions:</i></p> <ul style="list-style-type: none"> Effective lifetime of bulbs²: <ul style="list-style-type: none"> Incandescent: 750 hours Halogen: 3,000 hours 26 W CFL: 6000 hours 15 W CFL: 8000 hours 85% of consumers purchasing security/spotlight motion sensor (scenario#1) and 15% consumers purchasing porch light motion sensor (scenario #2) based on sales mix data from the EKC survey. <p><i>1st Baseline Conditions (security/spotlight)</i></p> <ul style="list-style-type: none"> Average hours of operation per day = 4.75 hours/day (based on EKC survey were almost 100% of households leave lights on during evening hours only [calculated]) Representative type of bulb mix = 85% two 150 W incandescent bulbs, 10% using two 90 W halogen bulbs, and 5% using two 26 W CFL bulbs³⁻⁴ Total Average Wattage (based on bulb mix) = 275.6 Watts (calculated) <p><i>2nd Baseline Conditions (porch light)</i></p> <ul style="list-style-type: none"> Average hours of operation per day = 4.75 hours/day (based on EKC survey were almost 100% of households leave lights on during evening hours only [calculated]) Representative type of bulb mix = 90% using one 60 W incandescent bulb and 10% using one 15 W CFL bulb⁵⁻⁶ Total Average Wattage (based on bulb mix) = 55.5 Watts (calculated) <p><i>1st Scenario Efficient Technology Conditions</i></p> <ul style="list-style-type: none"> Average hours of operation per day = 2.95 hours/day (based on 75% savings⁷ and households leaving lights on all night – 11.78 hours/day [calculated]) Representative type of bulb mix = 85% two 150 W incandescent bulbs, 10% using two 45 W halogen bulbs, and 5% using two 26 W CFL bulbs⁸⁻⁹ Total Average Wattage (based on bulb mix) = 275.6 Watts (calculated) <p><i>2nd Scenario Efficient Technology Conditions</i></p> <ul style="list-style-type: none"> Average hours of operation per day = 2.95 hours/day (based on 75% savings¹⁰ and households leaving lights on all night – 11.78 hours/day [calculated]) Representative type of bulb mix = 90% using one 60 W incandescent bulb and 10% using one 15 W CFL bulb¹¹⁻¹² Total Average Wattage (based on bulb mix) = 55.5 Watts (calculated) 		

² USEPA, Energy Star Website, www.energystar.gov, 2007

³ Opinion Dynamics Corporation, 2000, Residential Lighting Fixture Market Assessment: Ceiling Fans and Outdoor Lighting, prepared for The Consortium for Energy Efficiency (CEE)

⁴ Natural Resources Canada. Office of Energy Efficiency. 2003 Survey of Household Energy Use (SHEU) : Summary Report. Ottawa, Ont., Natural Resources Canada, 2006.

Average Demand Savings	Winter On-Peak	0.0201	kW
	Summer On-Peak	0.0000	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0541	kW
	Summer On-Peak	0.0000	kW
<p>The average demand savings and the coincident peak demand savings were calculated using NCI developed outdoor residential lighting load shapes and using the OPA's methodology for calculating the average peak demand savings and coincident factors¹³. The average demand savings were calculated to be 0.0201 kW winter on-peak and 0.0000 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0541 kW winter on-peak and 0.0000 kW summer on-peak.</p>			
Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

⁵ Opinion Dynamics Corporation, 2000, Residential Lighting Fixture Market Assessment: Ceiling Fans and Outdoor Lighting, prepared for The Consortium for Energy Efficiency (CEE)

⁶ Natural Resources Canada. Office of Energy Efficiency. 2003 Survey of Household Energy Use (SHEU) : Summary Report. Ottawa, Ont., Natural Resources Canada, 2006.

⁷ California Energy Commission (CEC), 1999a, "Lighting Efficiency and Technical Report", Volume 1: California Baseline, Prepared by Hescong Mahone Group.

⁸ Opinion Dynamics Corporation, 2000, Residential Lighting Fixture Market Assessment: Ceiling Fans and Outdoor Lighting, prepared for The Consortium for Energy Efficiency (CEE)

⁹ Natural Resources Canada. Office of Energy Efficiency. 2003 Survey of Household Energy Use (SHEU) : Summary Report. Ottawa, Ont., Natural Resources Canada, 2006.

¹⁰ California Energy Commission (CEC), 1999a, "Lighting Efficiency and Technical Report", Volume 1: California Baseline, Prepared by Hescong Mahone Group.

¹¹ Opinion Dynamics Corporation, 2000, Residential Lighting Fixture Market Assessment: Ceiling Fans and Outdoor Lighting, prepared for The Consortium for Energy Efficiency (CEE)

¹² Natural Resources Canada. Office of Energy Efficiency. 2003 Survey of Household Energy Use (SHEU) : Summary Report. Ottawa, Ont., Natural Resources Canada, 2006.

¹³ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	12.1	11.0	37.1	0.0	9.2	34.7	18.3	37.4	kWh
Average Demand Savings	0.0201	0.0160	0.0230	0.0000	0.0116	0.0216	0.0142	0.0229	kW
Coincident Peak Demand Savings	0.0541			0.00					kW

Description / References:

The values given in this table were obtained from NCI developed Res Outdoor Lighting load shapes.

Other Input Assumptions

Effective Useful Life	10	years
Based on typical light fixture useful lifetime ¹⁴⁻¹⁵		
Incremental Cost (Cust. / Contr. Install)	\$ 16.20	\$
Incremental cost calculated based on the assumed purchasing mix and based on a review of the average price difference between the conventional security light or porch light and one equipped with a motion sensor (Canadian Tire Website, 2007)		

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
Ontario Energy Board, Total Resource Cost Guide, October 2006 ¹⁶	209	0.135	0	10	25.00
Comments: Annual electricity savings for three 100 W incandescent bulbs based on 30% savings from Ontario Hydro Retailer Program (from base annual consumption of 696 kWh/year to 487 kWh/year using motion sensor).					

¹⁴ Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

¹⁵ USEPA, Energy Star Website, www.energystar.gov, 2007

¹⁶ Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

DIMMER SWITCH

Efficient Equipment and Technologies Description
Dimmer switches are lighting control mechanisms which enable the user to adjust the lighting levels of a particular lighting fixture by rapidly switching the light circuit off and on thereby reducing the total amount of electricity flowing through the circuit and increasing the lifetime use of the bulb. Since dimmable CFL bulbs have only recently began to enter the market, only energy savings using a dimmer on a typical ceiling fixture fitted with two 60 W incandescent bulbs is analyzed.
Base Equipment and Technologies Description
The baseline condition is a conventional on/off switch used for a typical ceiling fixture using two 60 W incandescent bulbs.
Codes, Standards, and Regulations
CSA standards for lighting control products.

Decision Type	Load Type
New purchase or replacement	OPA Res Indoor Lighting

Resource Savings Assumptions

Annual Electricity Savings		23.7	kWh
<p><i>Common Assumptions:</i> Average hours of operation per day = 2.7 hours/day¹</p> <p><i>Baseline Conditions:</i></p> <ul style="list-style-type: none"> Average lifetime usage of incandescent bulb = 750 hours² <p><i>Efficient Technology Conditions:</i></p> <ul style="list-style-type: none"> Assume light fixture is dimmed by 25%, resulting in 20% energy savings and increasing the life of the incandescent bulbs by a factor of 4³ 			
Average Demand Savings	Winter On-Peak	0.0034	kW
	Summer On-Peak	0.0008	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0066	kW
	Summer On-Peak	0.0007	kW
<p>The average demand savings and the coincident peak demand savings were calculated using the OPA end-use load shapes (OPA Res Indoor Lighting) and the OPA's average peak demand savings methodology and coincident factors⁴. The average demand savings were calculated to be 0.0034 kW winter on-peak and 0.0008 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0066 kW winter on-peak and 0.0007 kW summer on-peak.</p>			
Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

¹ Navigant Consulting Inc., Review of Prescriptive Input Assumptions: 2007 Every Kilowatt Counts Program, Toronto, Canada, September 2007.

² USEPA, Energy Star Website, www.energystar.gov, 2007

³ Ecos Consulting, 2002, Market Research Report - Energy Efficient Lighting in New Construction, prepared for Northwest Energy Efficiency Alliance (NEEA).

⁴ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	2.06	1.92	4.59	0.42	2.28	4.19	3.50	4.68	kWh
Average Demand Savings	0.0034	0.0028	0.0028	0.0008	0.0029	0.0026	0.0027	0.0029	kW
Coincident Peak Demand Savings	0.0066			0.0007					kW

Description / References:

The values given in this table were obtained from OPA Res Indoor Lighting load shapes.

Other Input Assumptions

Effective Useful Life	10	years
Based on typical light fixture useful lifetime ⁵		
Incremental Cost (Cust. / Contr. Install)	\$ 13	\$
Based on difference between average cost of on/off switch = \$1.00 and average cost of dimmer switch = \$14.00 (based on average unit cost data from EKC distributor sales data)		

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
Ontario Energy Board, Total Resource Cost Guide, October 2006 ⁶	139	0.090	0	10	5.00

Comments:

Baseline conditions for two 100 W incandescent bulbs operating for 2,320 hours/year, totalling 464 kWh/year. Annual electricity savings using dimmer is based on an assumed 30% savings, as referenced from an Ontario Hydro Retailer Program.

⁵ Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

⁶ Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

ENERGY STAR® QUALIFIED LIGHT FIXTURES

Efficient Equipment and Technologies Description
Energy Star® qualified residential light fixtures use on average 25% less energy than traditional lighting by distributing the light more efficiently and evenly ¹ . Qualified Energy Star® light fixtures have one of the following components: (a) fluorescent hard-wired (i.e. pin-based) lamps with ballast; (b) 100% screw-in CFL bulbs; or (c) light fixture controlled by a photocell and motion sensor. Although there are many different types of qualified light fixtures, this analysis focuses on only the most common types: ceiling mounted fixtures, torchieres, recessed lighting, desk lamps, and wall mounted outdoor fixtures.
Base Equipment and Technologies Description
The baseline conditions for this analysis are conventional ceiling light fixtures, torchieres, recessed lighting, desk lamps and wall mounted outdoor lights.
Codes, Standards, and Regulations
The EPA has issued a new version (version 4) for specifications for residential light fixtures in October 2005. In order for a light fixture to eligible to qualify as an Energy Star light fixture, it must meet specific criteria established by the US EPA including minimum lamp life, warranty, safety requirements and quality assurance testing.

Decision Type	Load Type
New purchase or replacement	OPA Res Indoor Lighting

Resource Savings Assumptions

Annual Electricity Savings	122.9	kWh
<p><i>Common Assumptions:</i></p> <ul style="list-style-type: none"> • Average indoor hours of operation per day = 2.7 hours/day² • Average outdoor hours of operation per day = 4.75 hours/day (based on households leaving lights on evening only, [calculated]) • Average effective lifetime of lighting fixture = 16 years³ • Assumed 25% of consumers replacing existing ceiling fixture (scenario#1), 25% replacing existing torchiere (scenario#2), 15% replacing existing recessed lights (scenario#3), 15% replacing existing desk lamps (scenario#4) and 20% replacing conventional outdoor wall mounted fixture (scenario #5). 		

¹ USEPA, Energy Star Website, www.energystar.gov, 2007

² Navigant Consulting Inc., Review of Prescriptive Input Assumptions: 2007 Every Kilowatt Counts Program, Toronto, Canada, September 2007.

³California Public Utility Commission (CPUC), 2001, Energy Efficiency and Conservation Programs. Report to the Legislature. San Francisco, California: California Public Utilities Commission.

Baseline Conditions:

- Lighting wattage per fixture:
 - Ceiling Mounted Fixture = 120 Watts (two 60W incandescent bulbs)
 - Torchiere = 300 Watts (one 300W halogen bulb⁴)
 - Recessed Lighting (3 pack) = 180 Watts (three 60W incandescent bulbs)
 - Desk Lamp = 100 Watts (one 100W incandescent bulb)
 - Outdoor Wall Mounted Fixture = 60 Watts (one 60W incandescent bulb)

Efficient Technology Conditions:

- Lighting wattage per fixture:
 - Ceiling Mounted Fixture = 32 Watts (two 15W CFL bulbs + ballast)
 - Torchiere = 72 Watts (two 36W CFL bulbs⁵)
 - Recessed Lighting (3 pack) = 45 Watts (three 15 W CFL bulbs)
 - Desk Lamp = 36 Watts (one 36W CFL bulb)
 - Outdoor Wall Mounted Fixture = 15 Watts (one 15W CFL bulb)

Average Demand Savings	Winter On-Peak	0.0175	kW
	Summer On-Peak	0.0036	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0366	kW
	Summer On-Peak	0.0056	kW

The average demand savings were calculated using the OPA end-use load shapes (OPA Res Indoor Lighting) and NCI developed outdoor residential lighting load shape, based on the assumed indoor/outdoor lighting scenario mix. The average peak demand and coincident peak demand savings were calculated based on the OPA's average peak demand savings methodology and coincident factors⁶.

The average demand savings were calculated to be 0.00175 kW winter on-peak and 0.0036 kW summer on-peak. The coincident peak demand savings were calculated to be 0.00366 kW winter on-peak and 0.0056 kW summer on-peak.

Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units

N/A

⁴ Natural Resource Canada, Canada's Energy Efficiency Regulations, Proposed Regulations, Bulletin February 2007, Office of Energy Efficiency, <http://www.oeenrncan.gc.ca/regulations/bulletin/torchiere-bulletin-feb-2007.cfm?text=N&printview=N>, 2007

⁵ Natural Resource Canada, Canada's Energy Efficiency Regulations, Proposed Regulations, Bulletin February 2007, Office of Energy Efficiency, <http://www.oeenrncan.gc.ca/regulations/bulletin/torchiere-bulletin-feb-2007.cfm?text=N&printview=N>, 2007

⁶ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	10.5	9.8	24.5	1.9	11.3	22.4	17.6	24.9	kWh
Average Demand Savings	0.0175	0.0142	0.0152	0.0036	0.0142	0.0139	0.0137	0.0152	kW
Coincident Peak Demand Savings	0.0340			0.0033					kW

Description / References:

The values given in this table were obtained based on the assumed replacement scenario mix of indoor and outdoor lighting. The OPA Res Indoor Lighting load shape along with the NCI developed Residential Outdoor Lighting were used to develop these values.

Other Input Assumptions

Effective Useful Life	16	years
Based on CPUC ⁷ for all Energy Star fixtures		
Incremental Cost (Cust. / Contr. Install)	24	\$
<p>The incremental cost for the measure is based on the average differences in price between conventional light fixtures and Energy Star light fixtures as stated below.</p> <p><i>Baseline Conditions</i></p> <ul style="list-style-type: none"> Average cost per fixture: <ul style="list-style-type: none"> Ceiling Mounted Fixture = \$30⁸ (Canadian Tire, 2007) Torchiere = \$20⁹ (Canadian Tire, 2007) Recessed Lighting (3 pack) = \$45¹⁰ (Canadian Tire, 2007) Desk Lamp = \$35¹¹ (Canadian Tire, 2007) Outdoor Wall Mounted Fixture = \$20¹² (Canadian Tire, 2007) <p><i>Efficient Technology Conditions</i></p> <ul style="list-style-type: none"> Average cost per fixture: <ul style="list-style-type: none"> Ceiling Mounted Fixture = \$60¹³ (Canadian Tire, 2007) Torchiere = \$40¹⁴ (Canadian Tire, 2007) Recessed Lighting (3 pack) = \$75¹⁵ (Canadian Tire, 2007) Desk Lamp = \$35¹⁶ (Canadian Tire, 2007) 		

⁷California Public Utility Commission (CPUC), 2001, Energy Efficiency and Conservation Programs. Report to the Legislature. San Francisco, California: California Public Utilities Commission.

- Outdoor Wall Mounted Fixture = \$60¹⁷ (Canadian Tire, 2007))

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
Efficiency Maine Residential Technical Manual No. 2006-1 ¹⁸	64.4	N/A	N/A	20	40
Comments: Based on interior light fixtures only: 2.1 hours/day usage (766.5 hours/year) with efficiency wattage = 36W and baseline wattage = 120W. Annual Demand Savings = 0.084 kW. (Free-ridership = 0.08, spillover = 0.04, persistence = 1.0).					
Efficiency Maine Residential Technical Manual No. 2006-1 ¹⁹	98.55	N/A	N/A	10	40
Comments: Based on torchieres only: 2.5 hours/day usage (912.5 hours/year) with efficiency wattage = 42 W and baseline wattage = 150W. Annual Demand Savings = 0.108 kW. (Free-ridership = 0.06, spillover = 0.07, persistence = 1.0).					

⁸ USEPA, Energy Star Website, www.energystar.gov, 2007

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Efficiency Maine, 2006, Technical Reference User Manual (TRM) No. 2006-1, Measure Saving Algorithms and Cost Assumptions, Augusta, Maine.

Energy Solutions Alberta Website, <http://www.energysolutionsalberta.com>

¹⁹ Ibid

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
SDG&E Hard-to-Reach Lighting Turn-In Program, Itron, 2006 ²⁰	323	N/A	N/A	16	N/A
Comments: Based on torchieres only: 2.3 hours/day usage (839.5 hours/year). Savings based on exchange program where residents exchange two conventional halogen torchiere lamps for a fluorescent torchiere lamp.					
Efficiency Vermont: Technical Reference User Manual (TRM), No. 4-19 ²¹	257.9	0.052	0.028	N/A	N/A
Comments: Based on torchieres only: a high efficiency fluorescent torchiere replacing a halogen torchiere operating at 3.4 hours/day or 1241 hours/year.					

²⁰ Itron, Inc, 2006, SDG&E Hard-to-Reach Lighting Turn-In Program, prepared for San Diego Gas and Electric, San Diego, California, 2006

²¹ Efficiency Vermont. 2004. Efficiency Vermont Technical Reference User Manual (TRM 4-19). Efficiency Vermont, Burlington, VT 05401-4717

OUTDOOR SOLAR LIGHTS

Efficient Equipment and Technologies Description

Solar landscape lights are increasing in popularity due to their easy installation (no electrical wires, transformers or external power sources required) and their built-in photo sensors enabling automatic turn off/on during non-daylight hours. Since solar lights come in a variety of forms and are fitted with a variety of bulb types, the most common stake-driven solar landscape lights fitted with a representative mix of bulb types are analyzed.

Base Equipment and Technologies Description

Conventional electric powered garden lights use low voltage requiring transformers, weatherproof outlets, cables and extension cords. Although some of the newer electric powered garden lights are equipped with photo sensors, conventional garden lights need to be either manually shut on/off or used with a timer. As with the solar lights, a representative mix of bulb types is used in the analysis.

Codes, Standards, and Regulations

CSA Standard C22.2 No.250.0

Decision Type	Load Type
New purchase or replacement	OPA Res Outdoor Lighting

Resource Savings Assumptions

Annual Electricity Savings	4.81	kWh
<p><i>Common Assumptions:</i></p> <ul style="list-style-type: none"> Effective lifetime of bulbs¹ (Manufactures Websites) <ul style="list-style-type: none"> 7W Incandescent: 1,000 hours 10 W Halogen: 3,000 hours 1.5W LEDs: 50,000 hours Representative type of bulb mix = 50% using 10 W halogen bulbs, 25% using 7W incandescent bulbs, and 25% using 1.5W LEDs (assumption) Average bulb wattage (based on bulb mix) = 7 Watts/bulb (calculated) <p><i>Baseline Conditions</i></p> <ul style="list-style-type: none"> Average hours of operation per season = 675 hours/season (based on EKC survey results indicated that almost everyone left outdoor lights on during evening hours only between May and October [calculated]) 		

¹ USEPA, Energy Star Website, www.energystar.gov, 2007

Efficient Technology Conditions

- Average hours of operation per season = 1,882 hours/season - non daylight hours between May and October (calculated)
- Total average wattage (based on bulb mix) = 55.5 Watts (calculated)

Average Demand Savings	Winter On-Peak	0.0000	kW
	Summer On-Peak	0.0000	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0000	kW
	Summer On-Peak	0.0000	kW
The average demand savings and the coincident peak demand savings were calculated using the OPA Res Outdoor Lighting load shapes and the OPA's average peak demand savings methodology and coincident factors ² . There were no average demand savings or coincident peak demand savings associated with this measure.			
Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	0.00	0.00	0.00	0.00	0.63	3.14	0.24	0.80	kWh
Average Demand Savings	0.0000	0.0000	0.0000	0.0000	0.0008	0.0020	0.0002	0.0005	kW
Coincident Peak Demand Savings	0.0000			0.0000					kW
Description / References:									
The values given in this table were obtained from OPA Res Outdoor Lighting load shapes.									

² Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Other Input Assumptions

Effective Useful Life	5	years
Due to general wear and tear of the lights and degradation of the plastic material from the sun, 5 years is the assumed effective useful life of the solar lights, even though bulbs can be replaced or, in some cases, will outlast the plastic casing (e.g., LED solar lights).		
Incremental Cost (Cust. / Contr. Install)	\$ 4.75	\$
Based on a review of the average price differences between one conventional outdoor electric powered garden light and solar powered garden light: <ul style="list-style-type: none"> • Average cost of outdoor garden light= \$7.00 (Home Depot Website, 2007, Canadian Tire website, 2007) • Average cost of solar outdoor garden light= \$11.75 (Home Depot Website, 2007, Canadian Tire website, 2007) 		

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
OPA PIA Assumptions, 2007	25.88	0.00	0.00	5	\$3
Comments: Assumptions based on 1,882 hours of annual usage between May and October and average bulb wattage of 13.5 W (based on mix of 50% 20W halogen and 50% 7W incandescent bulbs) and average lifespan of 10,000 hours for the bulbs. <i>Online research indicated that LED lights were becoming increasingly more popular while incandescent bulbs usage was less common. Furthermore, low wattage halogens (10W) are believed to be more common than 20W halogens assumed by the OPA.</i>					

FURNACE/AC FILTER

Efficient Equipment and Technologies Description
Regular replacement of furnace filters in forced-air heating and cooling systems can potentially save consumers as much as 5% on both heating and cooling bills ¹ . However over 40% of Ontario households fail to replace their filters every 1-3 months (OPA-Decima Survey, 2007), forcing many of the forced air heating and cooling systems to work longer and less efficiently due to restricted air flow caused by a dirty filter. Regular replacement of furnace/AC filters can reduce energy bills for consumers and demand loads for the Province since 76% on Ontario households use gas or electric force air furnaces ² and 69% having a central AC unit ³ .
Base Equipment and Technologies Description
The baseline condition is a household who only replaces their furnace/AC filter twice a year (once for the heating season and once for the cooling season).
Codes, Standards, and Regulations
Each filter is labelled with a MERV (Minimum Efficiency Reporting Value) rating number indicating the filter's ability to trap small particles. The number is derived from a test method designed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) as an industry standard rating enabling comparison of various filters manufactured by different companies. Residential filters commonly have MERV ratings of 1 to 11. The higher the MERV rating, the more efficient the filter is, and the more particles it can filter.

Decision Type	Load Type
Replacement	OPA Res Furnace Fan

Resource Savings Assumptions

Annual Electricity Savings	37.7	kWh
<p><i>Common Assumptions:</i></p> <ul style="list-style-type: none"> Typical clean heating fan wattage = 350 Watts (Toronto Hydro Website, 2007) Average wattage for dirty filter, based on 5% savings with clean filter = 367.5 Watts⁴ 		

¹ American Council for an Energy Efficient Economy (ACEEE), 2004, "Top 5 'Musts' for Consumers to Cut Winter Heating Bills", ACEEE News Release, October 2004, <http://www.aceee.org/press/0410wntrheat.htm>

² Natural Resources Canada. Office of Energy Efficiency. 2003 Survey of Household Energy Use (SHEU) : Summary Report. Ottawa, Ont., Natural Resources Canada, 2006.

³ Natural Resources Canada. Office of Energy Efficiency. 2003 Survey of Household Energy Use (SHEU) : Summary Report. Ottawa, Ont., Natural Resources Canada, 2006.

⁴ American Council for an Energy Efficient Economy (ACEEE), 2004, "Top 5 'Musts' for Consumers to Cut Winter Heating Bills", ACEEE News Release, October 2004, <http://www.aceee.org/press/0410wntrheat.htm>

- Average hours per day furnace fan is running during heating season = 8.8 hours (based on 20% using fan continuously [24 hours/day] and 80% using intermittently [5 hours/day])
- Number of hours per 6 month heating season = 1584 hours/year (calculated)
- Average hours per day furnace fan is running during cooling season = 6.9 hours (based on 10% using fan continuously [24 hours/day] and 90% using intermittently [5 hours/day])
- Number of hours per 5 month cooling season = 828 hours/year (calculated)
- Percentage of single/semi-detached homes in Ontario with CAC unit = 69%⁵

Baseline Conditions:

- Increase in energy consumption from dirty filter: 5%⁶
- Average effective lifetime of filter = 5 months (assuming 1 filter per heating season, 1 filter for cooling season)

Efficient Technology Conditions:

- Average effective lifetime of filter = 2 months (assuming 3 filters per heating season, 2 filters for cooling season)

Average Demand Savings	Winter On-Peak	0.0075	kW
	Summer On-Peak	0.0049	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0083	kW
	Summer On-Peak	0.0112	kW

The average demand savings and the coincident peak demand savings were calculated using the OPA Res Heating SF and the OPA Res Space Cooling – Central load shapes and the OPA's average peak demand savings methodology and coincident factors⁷. The average demand savings were calculated to be 0.0075kW winter on-peak and 0.0049 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0083 kW winter on-peak and 0.0112 kW summer on-peak.

Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units

N/A

⁵ Natural Resources Canada. Office of Energy Efficiency. 2003 Survey of Household Energy Use (SHEU) : Summary Report. Ottawa, Ont., Natural Resources Canada, 2006.

⁶ American Council for an Energy Efficient Economy (ACEEE), 2004, "Top 5 'Musts' for Consumers to Cut Winter Heating Bills", ACEEE News Release, October 2004, <http://www.aceee.org/press/0410wntrheat.htm>

⁷ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern (Heating and Cooling Season)

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	4.54	4.73	13.39	2.56	2.28	5.11	1.71	3.39	kWh
Average Demand Savings	0.0075	0.0069	0.0083	0.0049	0.0029	0.0032	0.0013	0.0021	kW
Coincident Peak Demand Savings	0.0083			0.0112					kW

Description / References:

The values given in this table were obtained from OPA Res Space Heating SF and Res Space Cooling - Central load shapes (assuming 69% of customers have CAC unit⁸).

Other Input Assumptions

Effective Useful Life	1	year
Effective useful life of bundle based on replacing furnace filter three times through the heating season and twice during the cooling season.		
Incremental Cost (Cust. / Contr. Install)	\$4	\$
Although the cost of the furnace filters remain the same, this incremental cost represents the cost of an additional furnace filter priced at \$4.00 a filter (Canadian Tire, 2007)		

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
OPA PIA Assumptions, 2007	1,035.4	0.00	0.00	1	65

Comments:

Baseline assumptions include: 18,103 kWh/year on heating, 1,964 kWh/year on cooling, 600 kWh/year on ventilation energy, average space heating gas load is 1,800 m³, \$15 filter changed only once during the entire year. Energy efficient assumptions include 5% space heating and cooling energy saved by changing the filter four times during the heating season and twice during the cooling season.

⁸ Natural Resources Canada. Office of Energy Efficiency. 2003 Survey of Household Energy Use (SHEU) : Summary Report. Ottawa, Ont., Natural Resources Canada, 2006.

SEASONAL LEDs (SLEDs)

Efficient Equipment and Technologies Description

Even though the holiday season last only a few weeks of the year, the conversion of holiday lights from incandescent to more efficient light sources would generate considerable energy savings. One of the latest technology developments for this application is the light emitting diode (LED) technology that has only become available to Canadian consumers in the last few years. This energy efficient product, which uses up to 90% less energy than its incandescent counterpart and has a longer operating life, would have a considerable impact during critical heating season months, reducing demand during peak periods. Although seasonal LED lights are now available in variety of forms, the most common type of lights include the larger C7 LED light string (25 bulbs/string) and the “mini” LED light string (70 bulbs/string), which have been used in the analysis.

Base Equipment and Technologies Description

Conventional seasonal lights used in the analysis consist of the typical C7 incandescent light sting (25 bulbs/string) and the common “mini” incandescent lights (70 bulbs/string).

Codes, Standards, and Regulations

Energy Star® has identified criteria for SLEDs to be qualified as a Canadian Energy Star® product assessing both the energy efficiency and quality of the decorative lights.

There are also two safety standards available for decorative lighting:

- CSA-22.2 No.37-M1989 Christmas Tree and Other Decorative Lighting Outfits
- UL 588-2000 Standard for Seasonal and Holiday Decorative Products

Decision Type	Load Type
New purchase or replacement	OPA Res Holiday Lighting

Resource Savings Assumptions

Annual Electricity Savings	13.7	kWh
<p><i>Common Assumptions:</i></p> <ul style="list-style-type: none"> • Hours of operation = 5 hours/day for 31 days¹ • 70% purchasing a string of larger C7 bulbs and 30% purchasing a string of mini-lights (assumption) <p><i>Baseline Conditions:</i></p> <ul style="list-style-type: none"> • Average effective lifetime usage = 465 hours or 3 seasons² • Total wattage per C7 incandescent string = 125 Watts (5W x 25 bulbs/string)³⁻⁴ 		

¹ Navigant Consulting Inc. and NRCAN, 2006, Proposal for Decorative Light Strings for Inclusion as Part of the ENERGY STAR Program Version 1.1, Prepared for: United States Environmental Protection Agency.

² Ibid.

³ Ibid.

- Total wattage per “mini” incandescent string = 35 Watts (0.5W x 70 bulbs/string)⁵⁻⁶
- Average cost of C7 incandescent string = \$5/string of 25 bulbs⁷
- Average cost of “mini” incandescent string = \$5/string of 70 bulbs (Canadian Tire Website, 2007)

Efficient Technology Conditions:

- Average effective lifetime usage = 775 hours or 5 seasons⁸ (Canadian Tire Website, 2007)
- Total wattage per C7 LED string = 12.5 Watts (0.5W x 25 bulbs/string)⁹ (BC Hydro Website, 2007)
- Total wattage per “mini” LED string = 2.8 Watts (0.04W x 70 bulbs/string)¹⁰ (BC Hydro Website, 2007; Manitoba Hydro Website, 2007)
- Average cost of C7 incandescent string = \$14/string of 25 bulbs¹¹
- Average cost of “mini” incandescent string = \$13/string of 70 bulbs¹²

Average Demand Savings	Winter On-Peak	0.0059	kW
	Summer On-Peak	0.0000	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0061	kW
	Summer On-Peak	0.0000	kW

The average demand savings and the coincident peak demand savings were calculated using the OPA Res Holiday Lighting load shapes and the OPA's average peak demand savings methodology and coincident factors¹³. The average demand savings were calculated to be 0.0059 W winter on-peak and 0.0000 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0061 kW winter on-peak and 0.000 kW summer on-peak.

Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units

N/A

⁴ Sampson Research, 2003, Holiday Lighting Market Assessment Phase III Report: Adjusted Baseline Estimates, Prepared for: Power Smart Quality and Assurance BC Hydro, Burnaby, British Columbia.

⁵ Navigant Consulting Inc. and NRCAN, 2006, Proposal for Decorative Light Strings for Inclusion as Part of the ENERGY STAR Program Version 1.1, Prepared for: United States Environmental Protection Agency.

⁶ Sampson Research, 2003, Holiday Lighting Market Assessment Phase III Report: Adjusted Baseline Estimates, Prepared for: Power Smart Quality and Assurance BC Hydro, Burnaby, British Columbia.

⁷ Navigant Consulting Inc. and NRCAN, 2006, Proposal for Decorative Light Strings for Inclusion as Part of the ENERGY STAR Program Version 1.1, Prepared for: United States Environmental Protection Agency.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

¹³ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	3.52	3.52	6.66	0.00	0.00	0.00	0.00	0.00	kWh
Average Demand Savings	0.0059	0.0051	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000	kW
Coincident Peak Demand Savings	0.0061			0.00					kW
Description / References: The values given in this table were obtained from OPA Res Holiday Lighting load shapes.									

Other Input Assumptions

Effective Useful Life	5	years
Based on 5 seasons of string usage. Although bulbs will last for 20,000 hours, most LED strings have only 5 year warranty (Navigant-NRCan, 2006).		
Incremental Cost (Cust. / Contr. Install)	\$8.70	\$
Based on review of average price for difference between purchasing one C7 or one mini LED string vs incandescent bulbs from Canadian Tire and Home Depot Websites and from previous Navigant reports.		

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
Efficiency Maine Residential Technical Manual No. 2006-1¹⁴	17.8	N/A	0	20	TBD
Comments: Based on 150 hours/season usage of one string of C7 incandescent bulbs (25) and one string of “mini” incandescent bulbs (70). Annual demand savings is 0.1187 kW.					
Ontario Energy Board, Total Resource Cost Guide, October 2006¹⁵	26	0.011	0.0	30	4
Comments: Electricity savings based on baseline scenario of one C7 incandescent bulb string (25 bulbs) and one “mini” incandescent bulb string (did not specify number of bulbs) used for 150 hours per season and consuming 27 kWh/year in comparison with C7 and “mini” LED lights operating at the same length of time, using less than 2 kWh/year. <i>The higher expected useful lifetime of the LED lights may be attributed to the fact that the OEB uses a lifespan of the LED bulbs as 200,000 hours.</i>					

¹⁴ Efficiency Maine, 2006, Technical Reference User Manual (TRM) No. 2006-1, Measure Saving Algorithms and Cost Assumptions, Augusta, Maine.

Energy Solutions Alberta Website, <http://www.energysolutionsalberta.com>

¹⁵ Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

BASEBOARD PROGRAMMABLE THERMOSTATS

Efficient Equipment and Technologies Description
Older mechanical thermostats for electric baseboards produce temperature swings of 2°C above or below the desired temperature due to their lack of accuracy, causing many residents to continuously reset their thermostat. With over 660,000 homes in Ontario still using baseboard heaters, installing programmable thermostats enables the user to set the temperate at a desired comfort set point and energy saving set point for one or more time periods each day, allowing for significant savings in electricity.
Base Equipment and Technologies Description
Baseline scenario is a non-programmable thermostats installed on baseboard heaters with no overnight temperature set back.
Codes, Standards, and Regulations
For a programmable thermostat to receive Energy Star® qualification, it must meet specific criteria such as having at least two different programming periods (for weekday and weekend programming), at least four possible temperature settings and allow for temporary overriding by the user.
In Canada, applicable CSA standards can be found in CSA C828-99- CAN/CSA Performance Requirements for Thermostats used with Individual Room Electric Space Heating Devices.

Decision Type	Load Type
New purchase or replacement	OPA Res Space Heating

Resource Savings Assumptions

Annual Electricity Savings		75.13	kWh
<p><i>Common Assumptions:</i></p> <ul style="list-style-type: none"> Average electricity consumed for electric space heating in Ontario home = 17,000 kWh/year¹ Percentage of heating load for each baseboard heater = 15% (assumed) No temperature set back at night <p><i>Efficient Technology Conditions:</i></p> <ul style="list-style-type: none"> Average electricity per home consumed using programmable thermostat = 16,800 kWh/yr (based on 1% saving per degree set back at night [Manitoba Hydro Website, 2007] with 57% of households lowering temperature 1-3 degrees, 43% of households lowering more than 3 degrees²). 75% implementation rate (based on Stats Canada report³) Percentage of heating load for each baseboard heater = 15% (assumed) 			
Average Demand Savings	Winter On-Peak	0.0205	kW
	Summer On-Peak	0.0000	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0222	kW
	Summer On-Peak	0.0000	kW
<p>The average demand savings and the coincident peak demand savings were calculated using the OPA Res Space Heating - SF load shapes and the OPA's average peak demand savings methodology and coincident factors⁴. The average demand savings were calculated to be 0.0205 W winter on-peak and 0.0000 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0222 kW winter on-peak and 0.000 kW summer on-peak.</p>			
Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

¹ ICF Consulting, 2005, Factor Analysis of Ontario Electricity Use – 1999-2003, prepared for The Ontario Power Authority, Revised November 2005.

² Statistics Canada, Households and the Environment 2006, Environmental Accounts and Statistics Division System of National Accounts, Minister of Industry, Ottawa, 2007

³ Ibid.

⁴ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	12.3	12.8	36.3	0.0	0.28	0.71	4.23	8.45	kWh
Average Demand Savings	0.0205	0.0186	0.0225	0.0001	0.0004	0.0004	0.0033	0.0052	kW
Coincident Peak Demand Savings	0.0222			0.0000					kW

Description / References:

The values given in this table were obtained from OPA Res Space Heating SF load shapes.

Other Input Assumptions

Effective Useful Life	15	years
Average lifetime of thermostat = 15 years ⁵		
Incremental Cost (Cust. / Contr. Install)	\$25	\$
<p>Based on difference for average prices of non-programmable and programmable thermostats from Canadian Tire website:</p> <ul style="list-style-type: none"> Average cost of non-programmable thermostat = \$17 (Canadian Tire Website, 2007) Average cost of programmable thermostat = \$42 (Canadian Tire Website, 2007) 		

⁵ USEPA, Energy Star Website, www.energystar.gov, 2007

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
Ontario Energy Board, Total Resource Cost Guide, October 2006 ⁶	159	0	0.163	20	60
Comments: OEB's savings are based on programmable thermostats that can be used for both heating and cooling systems and not restricted to baseboard heaters. Base annual energy usage is 1,964 kWh/year (unknown source?) and thermostat savings are assumed to be 8.1% based on "Enbridge" source.					

⁶ Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

LIGHTING AND APPLIANCE CONTROL DEVICES

Efficient Equipment and Technologies Description
Automatic controls which can eliminate unnecessary hours of operation are becoming increasingly common in residential households. Although there are currently many products available to consumers, this analysis focuses on the most common lighting and appliance controls: (a) dimmer switches which reduce the wattage of a particular light fixture, (b) indoor motion sensors which reduce the operational hours of lamps/fixtures, (c) simple timers which can be programmed to turn on/off specific indoor/outdoor lamps/fixtures rather than leaving operational for longer periods, and (c) multi-setting timers which can be used for more larger appliances such as block heaters. Calculated savings are based only on the usage of the lighting and appliance control device itself with potential for additional savings using in combination with other energy efficient products (i.e. CFL bulbs).
Base Equipment and Technologies Description
The baseline conditions for this analysis are conventional light fixtures and appliances with no control devices to reduce the operational hours of the device.
Codes, Standards, and Regulations
CSA standards for lighting control products.

Decision Type	Load Type
New purchase or replacement	OPA Res Indoor Lighting, NCI Res Outdoor Lighting and NCI Block Heater

Resource Savings Assumptions

Annual Electricity Savings	72.2	kWh
<p><i>Common Assumptions:</i></p> <ul style="list-style-type: none"> • Average indoor hours of operation per day = 2.7 hours/day¹ • Average outdoor hours of operation per day = 4.75 hours/day (based on households leaving lights on evening only, [calculated]) • Operational hours of for high use lamps = 5 hours/day (1,825 hours/year) • Average length of time block heater is operational = 10 hours/day (assumption based on overnight plug in) • Average number of days per year block heater used = 50 days (calculated based on average overnight temperature) • Assumed 50% of consumers purchasing dimmers (scenario#1), 15% purchasing indoor timers (scenario#2), 15% purchasing indoor motion sensors (scenario #3), 15% purchasing simple outdoor timers (scenario#4), and 5% purchasing multi-setting outdoor timers (scenario#6). <p><i>Baseline Conditions:</i></p> <p>Lighting wattage per fixture:</p> <ul style="list-style-type: none"> • Dimmer switch = 120 Watts (two 60W incandescent bulbs) • Indoor motion sensor = 120 Watts (two 60 W incandescent bulbs) • Simple timer (indoor) = 200 Watts (two 100 W incandescent bulbs) • Simple timer (outdoor)= 150 Watts (two 75W incandescent bulbs) • Multi-setting timer (outdoor block heater)= 1450 W (Energy Solutions Alberta Website, 2007) <p><i>Efficient Technology Conditions:</i></p> <p><u>Dimmer Switch</u></p> <ul style="list-style-type: none"> • Assume light fixture is dimmed by 25%, resulting in 20% energy savings and increasing the life of the incandescent bulbs by a factor of 4² <p><u>Indoor Motion Sensor</u></p> <ul style="list-style-type: none"> • Average savings using indoor motion sensor = 54%³, resulting in operational hours = 1.24 hours/day (calculated) <p><u>Simple Timer (indoor)</u></p> <ul style="list-style-type: none"> • Assumed operational hours of high use lamps using timer = 2 hours/day (730 hours/year) (assumption) <p><u>Simple Timer (outdoor)</u></p> <ul style="list-style-type: none"> • Assumed operational hours of security lights using timer = 4 hours/day (1,460 hours/year) (assumption) <p><u>Multi-Setting Timer</u></p> <ul style="list-style-type: none"> • Average length of time block heater is operational using timer = 2 hours/day (based on minimum requirements for heating vehicle engine block) 		

¹ Navigant Consulting Inc., Review of Prescriptive Input Assumptions: 2007 Every Kilowatt Counts Program, Toronto, Canada, September 2007.

Average Demand Savings	Winter On-Peak	0.0086	kW
	Summer On-Peak	0.0200	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0168	kW
	Summer On-Peak	0.0182	kW
<p>The average demand savings were calculated using the OPA end-use load shapes (OPA Res Indoor Lighting) and NCI developed outdoor residential lighting and block heater load shape, based on the assumed scenario mix. The average peak demand and coincident peak demand savings were calculated based on the OPA's average peak demand savings methodology and coincident factors⁴.</p> <p>The average demand savings were calculated to be 0.00186 kW winter on-peak and 0.0200 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0168 kW winter on-peak and 0.0182 kW summer on-peak.</p>			
Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units
N/A			

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	5.20	5.88	20.25	10.54	5.59	6.57	8.73	9.47	kWh
Average Demand Savings	0.0086	0.0085	0.0125	0.0200	0.0071	0.0041	0.0068	0.0058	kW
Coincident Peak Demand Savings	0.0168			0.0182					kW
Description / References: <p>The values given in this table were obtained based on the assumed replacement scenario mix of the lighting and appliance control devices. The OPA Res Indoor Lighting load shape along with the NCI developed Residential Outdoor Lighting and Block heater load shapes were used to determine these values.</p>									

² Ecos Consulting, 2002, Market Research Report - Energy Efficient Lighting in New Construction, prepared for Northwest Energy Efficiency Alliance (NEEA).

³ California Energy Commission (CEC), 1999c, "Lighting Efficiency and Technical Report", Volume II Appendix: Description of the California Model and It's Inputs, Prepared by Heschong Mahone Group.

⁴ Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Other Input Assumptions

Effective Useful Life	10	years
Based on effective useful life of products: <ul style="list-style-type: none"> • Average useful life of dimmer switch = 10 years⁵ • Average useful life of timer = 10 years (NCI assumption) • Average useful life of indoor motion sensor = 10 years⁶ 		
Incremental Cost (Cust. / Contr. Install)	\$20.80	\$
The average incremental cost for the measure is based on cost of the products and the sales mix scenario. <ul style="list-style-type: none"> • Average cost of dimmer switch = \$14.00 (Canadian Tire Website, 2007) • Average cost of indoor motion sensor = \$20/sensor (Canadian Tire Website, 2007) • Average cost of timer = \$20 (Canadian Tire website, 2007) • Average cost of multi-setting timer = \$25 (Canadian Tire Website, 2007) 		

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
Ontario Energy Board, Total Resource Cost Guide, October 2006 ⁷	292	0.189	0.0	20	20
Comments: For outdoor timer only. Based on two floodlights (each 75W incandescent bulbs) operational 50% of the time (4,380 hours/year). Timer is assumed to be operational for only 8 hours/day.					
"Every KiloWatt Counts" TRC Assessment for Summerhill Group, SeeLine Group, December 2006	146	0.010	0.00	20	5
Comments: For indoor timer only. Based on one indoor lamp (100W incandescent bulbs) operational 50% of the time (4,380 hours/year). Timer is assumed to be operational for only 8 hours/day.					

⁵ Ontario Energy Board (OEB), 2006, Total Resource Cost Guide.

⁶ Ibid.

⁷ Ibid.

POWER BAR WITH INTEGRATED TIMER

Efficient Equipment and Technologies Description
Standby power, which refers to electric power consumed by appliances and electronics in standby mode, has become a growing concern for many consumers and LDCs. Some studies indicate that standby power accounts for as much as 10% of residential electricity consumption (Meier et al., 1999; Huber et al., 1997). Power bars equipped with timers enabling households to reduce the amount of time that electronics and appliances are on standby is one solution in eliminating the wasted energy.
Base Equipment and Technologies Description
The baseline condition would be no appliances or electronics plugged into a power bar and continue to use standby power when not in use.
Codes, Standards, and Regulations
CSA "Canadian Electrical Code" C22.1-2002

Decision Type	Load Type
New purchase	OPA Res Miscellaneous

Resource Savings Assumptions

Annual Electricity Savings	72.4	kWh
<p><i>Common Assumptions:</i></p> <ul style="list-style-type: none"> Total average standby power for entertainment electronics = 38.1Watts¹⁴⁰ <ul style="list-style-type: none"> Television = 9.6W VCR = 7.8W Stereo = 9.5W DVD = 11.2 W Total average standby power for computer = 28 Watts¹⁴¹ <ul style="list-style-type: none"> Tower = 2.0 W Monitor = 9.5 W Printer = 7.7 W 		

¹⁴⁰ EnergyConsult and Energy Efficiency Strategies, 2001, Quantification of Residential Standby Power Consumption in Australia: Results of Recent Survey Work, prepared for National Appliance and Equipment Energy Efficiency Committee, Australian Greenhouse Office, Canberra, Australia.

¹⁴¹ Ibid.

- Speakers = 3.3 W
- Modems = 5.5 W

Baseline Conditions:

- Average electronic and computer standby hours = 18 hours/day (assumed operational for 6 hours/day) or 6,570 hours/year.

Efficient Technology Conditions:

- Average electronic and computer standby hours = 12 hours/day (assumed operational for 6 hours/day and timer eliminates standby power for 6 hours/day) or 4,380 hours/year.
- Assumed 50% will use the power bar for entertainment electronics and 50% will use the power bar for computer (assumption)
- Average cost of power bar = \$25 (assumption)

Average Demand Savings	Winter On-Peak	0.0076	kW
	Summer On-Peak	0.0059	kW
Coincident Peak Demand Savings	Winter On-Peak	0.0090	kW
	Summer On-Peak	0.0062	kW

The average demand savings and the coincident peak demand savings were calculated using the OPA end-use load shapes (OPA Res Indoor Lighting) and the OPA's average peak demand savings methodology and coincident factors¹⁴². The average demand savings were calculated to be 0.0076 kW winter on-peak and 0.0059 kW summer on-peak. The coincident peak demand savings were calculated to be 0.0090 kW winter on-peak and 0.0062 kW summer on-peak.

Other Resource Savings	Resource #1		Units
	Resource #2		Units
	Resource #3		Units

N/A

¹⁴² Ontario Power Authority, OPA Measures and Assumptions List, Appendix A: Average Peak Demand Savings Methodology and Coincident Factors, February 2008.

Seasonal Energy Savings Pattern

	Winter Peak	Winter Mid	Winter Off Peak	Summer Peak	Summer Mid	Summer Off Peak	Shoulder Mid	Shoulder Off	
Measure	602	688	1614	528	792	1608	1290	1638	hrs
	6.9%	7.9%	18.4%	6.0%	9.0%	18.4%	14.7%	18.7%	%
Energy Savings	4.57	5.14	13.33	3.09	6.31	15.00	10.16	14.77	kWh
Average Demand Savings	0.0076	0.0075	0.0083	0.0059	0.0080	0.0093	0.0079	0.0090	kW
Coincident Peak Demand Savings	0.0090			0.0062					kW
Description / References: The values given in this table were obtained from OPA Res Miscellaneous load shapes.									

Other Input Assumptions

Effective Useful Life	10	years
Assumed effective useful life of power bar = 10 years.		
Incremental Cost (Cust. / Contr. Install)	\$ 25	\$
Assumed difference in price between a regular power bar and an integrated timer power bar.		

Measure Assumptions Used by Other Jurisdictions

Source	Annual Electricity Savings (kWh)	On-Peak Demand Reduction		Effective Useful Life (yrs)	Incremental Cost (\$)
		Winter (kW)	Summer (kW)		
N/A	N/A	N/A	N/A	N/A	N/A
Comments: N/A					

APPENDIX B: EKC TELEPHONE SURVEY

Screenener and Introduction

We are doing a survey on behalf of the Ontario Power Authority, to get your opinions on the Authority's electric energy conservation programs. The survey could take up to 15 minutes but probably will be shorter than that. Your responses will be used solely to help the OPA assess its programs. Would you answer some questions for me now?

S1. Are you one of the heads of your household?

Yes	1	Continue
No, someone else	3	Ask to be connected with head of household

S2. In what year were you born? (Please record year of birth) **[If after 1989, ask to speak to head of household; if none, indicate that the survey must be completed with a member of the household who is at least 18 years old and TERMINATE. If respondent refuses to provide age, ask S3.]**

Record Year	19__
Refused	99

S3. **[Ask if S2=Refused (99)]** Which of the following age groups do you fall into?

<18	1	TERMINATE
18-25	2	Continue
26-35	3	Continue
36-50	4	Continue
51-65	5	Continue
>65	6	Continue
Refused	9	Continue

CONTINUE TO SECTION A

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Section A: Survey Branch Selector

- A1. Please tell me how many of each of the following energy-saving products, if any, you purchased some time during 2007. **[Read list in table below and record number of products purchased. Confirm that the response is the number of product items rather than the number of packages of those items. We want the number of items, which often come multiple to a package.]**

Product	A1: # Bought	A2/A3: # with Coupon	A2-a: # Coupons for A2 response
a. Energy Star ceiling fans			
b. Compact fluorescent lamps – These are also known as CFLs, and they are energy-efficient light bulbs that have a twisted or spiral shaped bulb.			
c. Furnace filters			
d. Outdoor solar lights			
e. Outdoor motion sensor lights			
f. Lighting dimmer switches			
g. Winter holiday LED light strings			
h. Indoor or outdoor timers			
i. Indoor motion sensors			
j. Programmable thermostats for baseboard heaters			
k. T-8 lights or fixtures			
l. Plug-in power strips that have timers in them			
m. Energy Star lighting fixtures			

- A2. **[Ask for each product of which more than one was bought in A1]** How many, if any, of the _____ did you buy using a discount coupon?
- A2-a. **[Ask for each product about which respondent said more than one product was purchased with a coupon]** And how many coupons did you use to buy those (number from A2) (product from A2)s? **[Record a “1” for A2-a if A2x = 1 or A3x > 0]**
- A3. **[Ask for each product of which only 1 was bought in A1]** Did you buy the _____ using a discount coupon? **[Record as “0” (No) or “1” (Yes) in “# with Coupon” and “Coupons for A2 response” columns of table.]**
- A4. **[Ask if A2 or A3 = “Don’t know”/“Don’t remember”]** Were you the person in your household who bought the (name(s) of products purchased)?
- _____ Yes **[Assume person did not use coupon(s) for any product they cannot remember using them for, and record responses accordingly]**
- _____ No **[Ask to speak to the person who made the purchase(s) and start over at beginning of survey]**
- A5. Have you ever heard of OPA’s “Every Kilowatt Counts” program?

Yes

1

No

2

[If A5 = 1, add to beginning of this statement: “Just to make sure you understand the program,”] The OPA’s “Every Kilowatt Counts” program provides discount coupons for a variety of products that make your home more energy efficient, including those I asked you about. A booklet of these discount coupons was mailed to each Ontario resident in the spring and also this fall. The Spring version had a picture of a CFL on the front; the fall version had a picture of a house on the front. The coupons have also been available from the OPA website, from some retail stores and possibly from some utility companies.

A6. **[Ask if A5 = 2]** Before I just described it to you, had you heard of the “Every Kilowatt Counts” program by its name or description?

Yes

1 Continue

No

2 Skip to Branching Directions

A7. Do you recall receiving the “Every Kilowatt Counts” coupon booklet in the mail?

Yes

1 Continue

No

2 Skip to Branching Directions

A8. **[Ask if A7 = 1]** Did you read or scan the booklet when you received it?

Yes

1 Continue

No

2 Continue

A9. **[Ask if A6 = 1]** Do you recall seeing any “Every Kilowatt Counts” information or advertising this year?

Yes

1 Continue

No

2 Continue

Branching Directions:

IF A2b or A3b = 1, CONTINUE WITH SECTION PS (For CFL purchasers using a single coupon).

IF A2b or A3b > 1, CONTINUE WITH SECTION PM (For purchasers of multiple CFLs using one or more coupons).

IF A1b > 0 and A2b and A3b = 0 CONTINUE WITH SECTION PSP (for purchasers of CFLs who did not use coupons)

IF A2d or A3d = 1 CONTINUE WITH SECTION SLS. (For outdoor solar light purchasers using a single coupon)

IF A2d or A3d > 1 CONTINUE WITH SECTION SLM. (For purchasers of multiple outdoor solar lights using one or more coupons)

IF A2 or A3 > 0 for any product listed in “a” through “l”, excluding “b” and (if A2b and A3b = 0) “d”, CONTINUE WITH SECTION MF. (For respondents who did not use coupons to purchase CFLs or outdoor solar lights but did use one or more coupons to purchase one or more of the other targeted products)

IF A2a through A2m = 0 CONTINUE WITH SECTION GNP. (For those who purchased no targeted products with coupons)

Section PS: CFL Participant Survey – Single CFL Purchase with Coupon

[Ask PS series questions if A2b or A3b = 1] (For CFL purchasers of one CFL using a coupon)

PS Intro. I'd like to ask you a few questions about your compact fluorescent lamp, or CFL, purchase.

PS1. What was the amount of the price discount on your CFL coupon?

\$1	1
\$2	2
\$3	3
Other (Specify):	8
Don't know	9

PS2. Where did you get the coupon you used to buy your CFL? **[Don't read]**

From booklet that was mailed	1
From OPA website	2
From retail store	3
From a friend/relative/associate	4
From product manufacturer	5
From newspaper/magazine	6
From utility company	7
From other source (Specify):	8
Don't know	9

PS3a. This year, the "Every Kilowatt Counts" program campaign offered \$3 CFL coupons in the Spring, from mid-April to mid-June, and it is offering \$2 CFL coupons this Fall, from mid-September through the end of November. When did you use your coupon to buy a CFL?

January to mid-April,	1 Skip to PSP2
Mid-April to mid-June,	2 Continue
Mid-June to mid-September, or	3 Skip to PSP2
Mid-September to end of November	4 Continue
In December	5 Skip to PSP2
Don't know [Don't read]	9 Skip to PSP2

PS3b. Do you think you used an "Every Kilowatt Counts" coupon to buy your CFL?

Yes	1 [Skip to PS4]
No	2 [If PS2 = 1, 2 or 3; or if PS3a = a or b – ask PS3c; otherwise, skip to PSP2]
Don't know	9 [Skip to PS3d]

[All others, skip to PS4]

PS3c. Why don't you think your coupon was an "Every Kilowatt Counts" coupon? You got your coupon from an "Every Kilowatt Counts" campaign source and you bought your CFL during the period when that coupon was valid.

- | | |
|--|------------------|
| I don't remember that it was | 1 [Skip to PSP2] |
| It was a _____ coupon (Specify): | 2 [Skip to PSP2] |
| Other (Specify): | 3 [Skip to PSP2] |
| Maybe it WAS an "Every Kilowatt Counts" coupon | 4 [Go to PS3d] |
| Don't know | 9 [Skip to PSP2] |

PS3d. **[If PS3b = Don't know (9), and PS2 = 1, 2 or 3, and PS3a = a or b; or if PS3d=4, say:** "Please assume, for this survey, that you purchased your CFL with an "Every Kilowatt Counts" coupon during the program's **[see PS3a]** [Spring/Fall] campaign" **and continue to PS4]**

[If PS3b = Don't know (9) and PS2 ≠ 1, 2 or 3, 1a, or PS3a ≠ a or b, skip to PSP2]

PS4. Have you already installed the CFL you bought with the coupon?

- | | |
|-----|----------------|
| Yes | 1 Go to PS5a |
| No | 2 Skip to PS5e |

PS5a. Did the CFL replace a regular incandescent bulb, another CFL or was it for a new light fixture you had installed?

- _____ Replaced an incandescent bulb **[Go to PS5b]**
 _____ Replaced another CFL **[Skip to PS6]**
 _____ Was for a new fixture **[Skip to PS6]**

PS5b. Do you have your CFL turned on the same amount of time as the bulb it replaced, a shorter amount of time or a longer amount of time?

- _____ a. Keep it on longer than bulb it replaced **[Go to PS5c]**
 _____ b. Keep it on shorter amount of time than bulb it replaced **[Skip to PS5d]**
 _____ c. Keep it on the same amount of time as bulb it replaced **[Skip to PS6]**
 _____ d. Other (Specify): _____ **[Skip to PS6]**

PS5c. **[Ask if PS5b=a]** On average, how many more hours per day do you leave your CFL on?

_____ hours/day

PS5d. **[Ask if PS5b=b]** On average, how many fewer hours per day do you leave your CFL on?

_____ hours/day

PS5e. **[Ask if PS4=2]** Why haven't you installed your CFL yet?

- _____ a. Would not fit in fixture
- _____ b. Waiting for existing bulb to burn out
- _____ c. Haven't gotten around to it yet
- _____ d. Other (Specify): _____

PS6. Before you made your CFL purchase using the "Every Kilowatt Counts" coupon, how many CFLs were installed in your home?

_____ CFLs installed

PS7a. **[Ask if PS6=1]** Did you buy that CFL with an "Every Kilowatt Counts" coupon during the program's Spring or Fall campaigns in 2006, last year?

Yes	1
No	2
Don't know	8

PS7b. **[Ask if PS6>1]** How many of those CFLs did you buy with an "Every Kilowatt Counts" coupon during the program's Spring and Fall campaigns in 2006, last year?

_____ CFLs bought using 2006 EKC program coupons
 _____ Don't know

PS8. Now I'd like you to think about when you bought your CFL with a coupon during this year's **[If PS3a=a, use: "Spring"]** **[if PS3a=b, use: "Fall"]** campaign.

Before you heard anything about the "Every Kilowatt Counts" program or its coupons, were you already planning to purchase any CFLs during the **[if PS3a=a: "mid-April to mid-June"]** **[if PS3a=b: "mid-September to end of November"]** period?

Yes	1 Go to PS9
No	2 Skip to PS10
Never heard about the EKC program	3 Skip to PS10
Don't know	9 Skip to PS10

PS9. **[Ask if PS8 =1]** How many were you planning to purchase, prior to hearing about the "Every Kilowatt Counts" program?

_____ CFLs
 _____ Don't know

PS10. When you walked into the store where you bought your CFL, were you already planning to buy a CFL that particular day?

Yes	1
No	2

PS10a. **[Ask if PS10=1]** How many CFLs were you planning to buy that particular day?

_____ CFLs
 _____ Don't know

PS10b. Were you already aware of the "Every Kilowatt Counts" discount coupons or advertising at that time?

Yes	1
No	2

PS10c. Did the store where you bought your CFL have a special event to feature CFLs and other energy-saving products?

Yes	1
No	2

PS10d. Did the store have any special displays featuring such products?

Yes	1
No	2

PS10e. Where did you buy your CFL?

RETAILER	
Canadian Tire Corporation	1
Giant Tiger	2
Rona	3
Home Depot	4
Wal-Mart	5
Ace Hardware	6
Atlas Lighting	7
Bargain Building Materials	8
Castle Building Centres	9
Chatelaine Lighting	10
Copp's Buildall	11
Costco	12
Country Depot	13

Distinctive Lighting x	14
Don's Lighthouse	15
Eldon Lighting	16
Fashion Lighting	17
Guildwood Lighting & Fireside	18
Home Hardware	19
Homewise	20
Howes Lighting & Fan Co	21
IGA Stores	22
Lite mode Limited	23
Living Lighting	24
Loblaws	25
Millwork Home Centre	26
Osso City Lighting x	27
Pro Hardware	28
Sam's Club	29
Sears	30
Sescolite Lighting	31
Simcoe Building Materials	32
Sobey's	33
Soo Mill & Lumber	34
Supreme Lighting	35
The Bargain! Shop	36
The Electrical and Plumbing Store	37
Tim-BR-Mart	38
True Value Hardware	39
TSC Stores	40
Union Lighting and Furnishings	41
V & S Variety	42
Zellers	43

PS11. What was the wattage of the CFL you bought that day, and how much did it cost, including the cost reduction from your coupon?

\$_____ for (wattage unknown)
 \$_____ for a 13-watt (40-watt incandescent replacement)
 \$_____ for a 15-watt (60-watt incandescent replacement)
 \$_____ for an 18-watt (75-watt incandescent replacement)
 \$_____ for a 23-watt (100-watt incandescent replacement)
 \$_____ for other wattage (Specify): _____
 \$_____ for other wattage (Specify): _____
 \$_____ for other wattage (Specify): _____
 \$_____ for other wattage (Specify): _____

_____ Don't know

PS12. Looking back on your purchase, what were the most important factors influencing you to buy your CFL on that day in particular? **[Take all that apply]**

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	99

PS13. **[Ask if PS12 = 3]** Did the person who recommended buying a CFL that day use an "Every Kilowatt Counts" coupon to buy a CFL?

Yes	1
No	2

PS14. **[Ask if multiple response to PS12]** Which of the factors you mentioned was most important in your decision?

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	99

PS15. If there had been no "Every Kilowatt Counts" discount coupon and no "Every Kilowatt Counts" booklet or advertising, how likely do you think you would have been to pay \$2-3 more to buy a CFL at full price that day? Would you have been. . .

Extremely likely,	1
Very likely,	2

Somewhat likely,	3
Not very likely, or	4
Not at all likely to buy it?	5

PS16. Which of the following best describes what you probably would have done that day if there had been no program advertising and no discount coupons? Would you have . . .

Made exactly the same purchase,	1
Bought a regular light bulb that day, instead,	2
Bought a CFL of a different wattage,	3
Bought a CFL, but at a later date, or	4
Bought no light bulb?	5
Other (Specify):	8 Don't read
Don't know	9 Don't read

PS17. **[Ask if PS3a=a (Spring campaign)]** Have you bought any more CFLs, at full price, since the Spring program campaign ended?

Yes	1
No	2

PS17a. How many have you bought at full price?

_____ CFLs

PS18. If there are no discount coupons, how likely are you to buy a CFL at full price to replace your next burned out incandescent light bulb? Will you be. . .

Extremely likely,	1 Skip to PS19
Very likely,	2 Go to PS18a
Somewhat likely,	3 Go to PS18a
Not very likely, or	4 Go to PS18a
Not at all likely to buy a CFL to replace it?	5 Go to PS18a

PS18a. Why wouldn't you buy a CFL?

I WOULD buy a CFL	1
No more fixtures that can take them	2
Only like the CFLs in certain rooms/for certain activities	3
Too expensive	4
Don't like "color" of the CFL light	5
This purchase was an experiment and I don't like CFLs	6
Other (Specify):	8
Don't know	9

PS19. **[Ask if PS4=1]** How would you rate your agreement or disagreement with the following statements, on a scale of 1-5 with “1” meaning you “strongly agree” and “5” meaning you “strongly disagree” and 3 meaning you “neither agree or disagree”?

Statement	1 Strongly Agree	2	3	4	5 Strongly Disagree
My CFL has saved me energy.					
My CFL has saved me money.					
My CFL has helped improve the environment.					

PS20. Would you recommend purchasing a CFL to others, even if there is no discount?

Yes	1
No	2
Don't know/Depends	9

IF A1b>A2b OR A3b, CONTINUE WITH SECTION PSP. IF NOT:

IF A2 or A3 > 0 for any product listed in “a” through “l”, excluding “b”, CONTINUE WITH SECTION MF. (For respondents who used coupons to purchase one or more of the other targeted products). IF NOT:

GO TO SECTION G.

Section PM: CFL Participant Survey – Multiple CFL Purchase with Coupons

[Ask PM series of questions if A2b > 1] (For purchasers of multiple CFLs using coupons)

PM Intro. I'd like to ask you a few questions about your compact fluorescent lamp, or CFL, purchases.

[Unless otherwise directed, if A2a-b = 1, say “coupon” and use related singular terminology whenever reference is made to the “coupons” used in the purchase; if A2a-b > 1, say “coupons”]

PM1. What was the amount of the price discount on your CFL coupons? **[Take all that apply. If respondent bought EKC CFLs during spring AND fall campaigns, coupon values were different for each period]**

\$1	1
\$2	2
\$3	3
Other (Specify):	8
Don't know	9

PM2. This year, the Spring campaign of the “Every Kilowatt Counts” program ran from mid-April to mid-June. How many of the (number from A2b) CFLs you bought with coupons this year did you buy during that period?

_____ CFLs bought with coupons were bought during mid-April to mid-June period **[If “0”, record “0” in EKCSpring and skip to PM3; otherwise, record number in EKCSpring and continue to PM2a]**

_____ Don't know **[Record “0” in EKCSpring and skip to PM3]**

PM2a. Where did you get the coupon(s) you used to buy that/those CFL(s)? **[Take all that apply, recording number from each source. Make sure total adds up to number reported in PM2.]**

- _____ a. From booklet that was mailed
- _____ b. From OPA website
- _____ c. From retail store
- _____ d. From a friend/relative/associate
- _____ e. From product manufacturer
- _____ f. From newspaper/magazine
- _____ g. From utility company
- _____ h. From other source (Specify):
- _____ i. Don't know

PM2a1. **[Ask if PM2=1]** Do you think that coupon was an “Every Kilowatt Counts” coupon?

- Yes **1 [Record “1” in EKCSpring, and skip to PM3]**
- No **2 [If PM2a-a, PM2a-b or PM2a-c > 0, ask PM2a3 to determine whether to record “0” in EKCSpring; otherwise, record “0” in EKCSpring and skip to PM3]**
- Don't know **9 [If PM2a-a, PM2a-b or PM2a-c > 0, record “1” in PM2 in EKCSpring and skip to PM2a4. If PM2a-a, PM2a-b and PM2a-c = 0, record “0” in EKCSpring and skip to PM3]**

PM2a2. **[Ask if PM2>1]** How many of those (number from PM2) CFLs do you think you bought with “Every Kilowatt Counts” coupons?

_____ CFLs bought during Spring campaign with EKC coupons **[If “0” but PM2a-a, PM2a-b or PM2a-c > 0, ask PM2a3 to determine whether to record “0” in EKCSpring; otherwise, record number in EKCSpring, and go to PM3]**

_____ Don't know **[If PM2a-a, PM2a-b or PM2a-c > 0, record number from PM2 in EKCSpring and skip to PM2a4. If PM2a-a, PM2a-b and PM2a-c = 0, record “0” in EKCSpring and skip to PM2a5]**

PM2a3. Why don't you think your coupon(s) was/were [an] “Every Kilowatt Counts” coupon(s)? You got your coupon(s) from **[see PM2a for singular or plural: “[an] ‘Every Kilowatt Counts’ campaign source(s)”]** and you bought your CFL(s) during the period when those coupons were valid.

- I don't remember that it was/they were **1 Record “0” in EKCSpring and continue to PM3**
- It was a/they were _____ coupon(s) (Specify): **2 Record “0” in EKCSpring and continue to PM3**
- Other (Specify): **3 Record “0” in EKCSpring and continue to PM3**
- Maybe it WAS/they WERE EKC coupons **4 Record number from PM2 in**

Don't know

EKCSpring and skip to PM2a4

9 Record "0" in EKCSpring and continue to PM2a5

PM2a4. **[If PM2a = a, b or c, say:** "Please assume for this survey that the coupon(s) you used to buy [a] CFL(s) during the mid-April to Mid-June period WAS/WERE [an] "Every Kilowatt Counts" coupon(s)" **and continue to PM3]**

PM2a5. **[If PM2a1 or PM2a2 = "Don't know," and PM2a-a, PM2a-b and PM2a-c = 0; OR if PM2a3=5, say:** "Please assume, for this survey, that you did NOT use [an] 'Every Kilowatt Counts' coupon(s) to purchase that/those CFL(s)" **and continue to PM3]**

PM3. **[Ask if A2b minus PM2 > 0]** The program's Fall campaign runs from mid-September through the end of November. How many CFLs have you bought with coupons this year since mid-September?

_____ CFLs bought with coupons were bought during mid-September to end of November period **[If "0", record as "0" in EKCFall: (1) if EKCSpring also = 0 switch to PSP3, (2) if EKCSpring > 0 skip to EKC Count. Otherwise, record number in EKCFall and continue to PM3a]**

_____ Don't know **[Record "0" in EKCFall; if both PM2 and PM3 = Don't know, switch to PSP3; otherwise, skip to EKC Count.]**

PM3a. Where did you get the coupon(s) you used to buy the CFL(s) you bought in the Fall? **[Take all that apply, recording number from each source. Make sure total adds up to number reported in PM3.]**

- _____ a. From booklet that was mailed
- _____ b. From OPA website
- _____ c. From retail store
- _____ d. From a friend/relative/associate
- _____ e. From product manufacturer
- _____ f. From newspaper/magazine
- _____ g. From utility company
- _____ h. From other source (Specify):
- _____ i. Don't know

PM3a1. **[Ask if PM3=1]** Do you think you bought that CFL with an "Every Kilowatt Counts" coupon?

- | | |
|------------|---|
| Yes | 1 [Record "1" in EKCFall, and skip to EKC Count] |
| No | 2 [If PM3a-a, PM3a-b and PM3a-c > 0, ask PM3a3 to determine whether to record "0" in EKCFall; otherwise, record "0" in EKCFall, and skip to EKC Count] |
| Don't know | 9 [If PM3a-a, PM3a-b or PM3a-c > 0, record number in PM3 in EKCFall and skip to PM3a4. If PM3a-a, PM3a-b and PM3a-c = 0, record "0" in EKCFall and skip to PM2a5] |

PM3a2. **[Ask if PM3>1]** How many of those (number from PM3) CFLs do you think you've bought with "Every Kilowatt Counts" coupons?

_____ CFLs bought during Fall campaign with EKC coupons [If “0” but PM3a-a, PM3a-b or PM3a-c > 0, ask PM3a3 to determine whether to record “0” in EKCFall. Otherwise, record number in EKCFall, and go to EKC Count]

_____ Don't know [If PM3a-a, PM3a-b or PM3a-c > 0, record number from PM3 in EKCFall and skip to PM3a4. If PM3a-a, PM3a-b and PM3a-c = 0, record “0” in EKCFall and skip to PM3a5]

PM3a3. Why don't you think your coupon(s) was/were [an] “Every Kilowatt Counts” coupon(s)? You got your coupon(s) from [see PM3a for singular or plural: “[an] ‘Every Kilowatt Counts’ campaign source(s)”] and you bought your CFL(s) during the period when those coupons were valid.

I don't remember that it was/they were

1 Record “0” in EKCFall and continue to EKC Count

It was a/they were _____ coupon(s) (Specify):

2 Record “0” in EKCFall and continue to EKC Count

Other (Specify):

3 Record “0” in EKCFall and continue to EKC Count

Maybe it WAS/they WERE EKC coupons

4 Record number from PM3 in EKCFall and skip to PM3a4

Don't know

9 Record “0” in EKCFall and continue to PM3a5

PM3a4. [If PM3a = a, b or c, say: “Please assume for this survey that the coupon(s) you have used to buy [a] CFL(s) during the mid-September through end of November period WAS/WERE [a] “Every Kilowatt Counts” coupon(s)” and continue to EKC Count]

PM3a5. [If PM3a1 or PM3a2 = “Don't know,” and PM3a-a, PM3a-b and PM3a-c = 0; OR if PM3a3=5, say: “Please assume, for this survey, that you did NOT use [an] ‘Every Kilowatt Counts’ coupon(s) to purchase that/those CFL(s)” and continue to EKC Count]

EKC Count

[Ask if PM2 + PM3 > A2b] You said you had bought (number from PM2) CFL(s) with [a] coupon(s) during the Spring campaign and (number from PM3) during the fall campaign. That's a total of (calculate and read total of PM2 + PM3) CFLs you bought with coupons, but you said earlier that you only bought (read number from A2b) CFLs with discount coupons. Which number do I need to change? [Obtain corrected number from respondent and correct survey responses, accordingly]

O.K. To summarize: [Record appropriate number from earlier questions so that survey can refer back to this question for appropriate number]

EKCSpring: You purchased (number from PM2, PM2a1, PM2a2, PM2a3 or PM2a4) CFLs with “Every Kilowatt Counts” coupons during the program's Spring campaign and

EKCFall: (number from PM3, PM3a1, PM3a2, PM3a3 or PM3a4) CFLs with “Every Kilowatt Counts” coupons during the program's Fall campaign.

[If EKCSpring + EKCFall = 0, switch to PSP3]

[If EKCSpring + EKCFall = 1, switch to PS4]

[If EKCSpring=1 and EKCFall>0]

The next few questions are about the CFL you bought with an “Every Kilowatt Counts” coupon in the Spring. **[Go to PM4]**

[If EKCSpring>1]

The next few questions are about the (number from EKCSpring) CFLs you bought with “Every Kilowatt Counts” coupons in the Spring. **[Skip to PM14]**

[If EKCSpring=0 and EKCFall=1]

The next few questions are about the CFL you bought with an “Every Kilowatt Counts” coupon in the Fall. **[Skip to PM21]**

[If EKCSpring =0 and EKCFall>1]

The next few questions are about the (number from EKCFall) CFLs you bought with “Every Kilowatt Counts” coupons in the Fall. **[Skip to PM29]**

One CFL bought with EKC coupon in the Spring (EKCSpring=1).

PM4. Before you heard anything about the “Every Kilowatt Counts” program, were you planning to purchase any CFLs between mid-April and mid-June?

Yes	1 Go to PM5
No	2 Skip to PM6a
Don't know	9 Skip to PM6a

PM5. **[Ask if PM4 =1]** How many were you planning to purchase?

_____ CFLs
 _____ Don't know

PM6. When you walked into the store where you bought your CFL, were you already planning to buy a CFL that particular day?

Yes	1
No	2

PM6a. **[Ask if PS10=1]** How many CFLs were you planning to buy that particular day?

_____ CFLs
 _____ Don't know

PM7a. When you walked into the store where you bought your CFL in the Spring, were you already aware of the “Every Kilowatt Counts” discount coupons or advertising at that time?

Yes	1
No	2

PM7b. Did the store where you bought the CFLs have a special event to feature the CFLs and other energy-saving products?

Yes	1
No	2

PM7c. Did the store have any special displays featuring such products?

Yes	1
No	2

PM8. Which retailer did you buy your CFL from?

RETAILER	
Canadian Tire Corporation	1
Giant Tiger	2
Rona	3
Home Depot	4
Wal-Mart	5
Ace Hardware	6
Atlas Lighting	7
Bargain Building Materials	8
Castle Building Centres	9
Chatelaine Lighting	10
Copp's Buildall	11
Costco	12
Country Depot	13
Distinctive Lighting x	14
Don's Lighthouse	15
Eldon Lighting	16
Fashion Lighting	17
Guildwood Lighting & Fireside	18
Home Hardware	19
Homewise	20
Howes Lighting & Fan Co	21
IGA Stores	22
Lite mode Limited	23
Living Lighting	24
Loblaws	25
Millwork Home Centre	26
Osso City Lighting x	27
Pro Hardware	28

Sam's Club	29
Sears	30
Sescolite Lighting	31
Simcoe Building Materials	32
Sobey's	33
Soo Mill & Lumber	34
Supreme Lighting	35
The Bargain! Shop	36
The Electrical and Plumbing Store	37
Tim-BR-Mart	38
True Value Hardware	39
TSC Stores	40
Union Lighting and Furnishings	41
V & S Variety	42
Zellers	43

PM9. What was the wattage of the CFL you bought that day, and how much did it cost, including the cost reduction from your coupon? **[Code "99" for unknown values]**

<u>Cost</u>	<u>Number</u>	<u>Wattage</u>
\$_____ for a package of one		_____ -watt CFL

PM10. Looking back on your purchase, what were the most important factors influencing you to buy your CFL on that day in particular? **[Take all that apply]**

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	11

PM10a. **[Ask if PM10 = 3]** Did the person who recommended buying a CFL that day use an "Every Kilowatt Counts" coupon to buy a CFL?

Yes	1
No	2

PM11. **[Ask if multiple response to PM10]** Which of the factors you mentioned was most important in your decision?

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	11

PM12. If there had been no "Every Kilowatt Counts" discount coupon and no "Every Kilowatt Counts" booklet or advertising, how likely do you think you would have been to pay \$2-3 more and buy a CFL at full price that day? Would you have been . . .

- ☐ a. Extremely likely,
☐ b. Very likely,
☐ c. Somewhat likely,
☐ d. Not very likely, or
☐ e. Not at all likely to buy it

PM12a. Which of the following best describes what you probably would have done that day if there had been no program advertising and no discount coupons? Would you have . . .

Made exactly the same purchase,	1
Bought a regular light bulb that day, instead,	2
Bought a CFL of a different wattage,	3
Bought a CFL, but at a later date, or	4
Bought no light bulbs?	6
Other (Specify):	8 Don't read
Don't know	9 Don't read

PM13. Have you bought any more CFLs, at full price, since the program campaign ended?

- Yes **1 Go to PM13a**
 No **2 Skip PM14**

PM13a. How many have you bought?

_____ CFLs at full price

If EKCFall > 0, skip to PM21 Direction. If EKCFall = 0, skip to PM35.

More than one CFL bought with EKC coupon in the Spring (EKCSpring > 1).

PM14. Before you heard anything about the “Every Kilowatt Counts” program, were you planning to purchase any CFLs between mid-April and mid-June?

Yes	1 Go to PM14a
No	2 Skip to PM15
Don't know	9 Skip to PM15

PM14a. **[Ask if PM14 =1]** How many were you planning to purchase?

_____ CFLs
_____ Don't know

PM15. Thinking specifically of the (number from EKCSpring) CFLs you bought with coupons during the Spring campaign, did you buy them all at the same time or during more than one visit to retail stores?

All at the same time	1 Go to PM16
On more than one visit	2 Skip to PM15a
Don't know	9 Skip to PM16

PM15a. How many different times did you buy CFLs with coupons during the Spring campaign?

_____ times

PM15b. Thinking of the first time you bought the CFLs during the Spring campaign, how many did you buy?

_____ CFL(s)

PM16. When you walked into the store where you bought your CFL(s) were you already planning to buy a CFL that particular day?

Yes	1
No	2

PM16a. **[Ask if PS16=1]** How many CFLs were you planning to buy that particular day?

_____ CFLs
_____ Don't know

PM17a. When you walked into the store where you bought that/those CFL(s), were you already aware of the “Every Kilowatt Counts” discount coupons or advertising at that time?

Yes	1
No	2

PM17b. Did the store have a special event to feature the CFLs and other energy-saving products?

Yes	1
No	2

PM17c. Did the store have any special displays featuring such products?

Yes	1
No	2

PM17e. Which retailer did you buy that/those CFL(s) from?

Retailer	
Canadian Tire Corporation	1
Giant Tiger	2
Rona	3
Home Depot	4
Wal-Mart	5
Ace Hardware	6
Atlas Lighting	7
Bargain Building Materials	8
Castle Building Centres	9
Chatelaine Lighting	10
Copp's Buildall	11
Costco	12
Country Depot	13
Distinctive Lighting x	14
Don's Lighthouse	15
Eldon Lighting	16
Fashion Lighting	17
Guildwood Lighting & Fireside	18
Home Hardware	19
Homewise	20
Howes Lighting & Fan Co	21
IGA Stores	22
Lite mode Limited	23
Living Lighting	24

Loblaws	25
Millwork Home Centre	26
Osso City Lighting x	27
Pro Hardware	28
Sam's Club	29
Sears	30
Sescolite Lighting	31
Simcoe Building Materials	32
Sobey's	33
Soo Mill & Lumber	34
Supreme Lighting	35
The Bargain! Shop	36
The Electrical and Plumbing Store	37
Tim-BR-Mart	38
True Value Hardware	39
TSC Stores	40
Union Lighting and Furnishings	41
V & S Variety	42
Zellers	43

PM18a. **[Ask if PM15b=1]** What was the wattage of the CFL you bought that day, and how much did it cost, including the cost reduction from your coupon? **[Code "99" for unknown values]**

<u>Cost</u>	<u>Number</u>	<u>Wattage</u>
\$_____ for a package of one		_____ -watt CFL

PM18b. **[Ask if PM15b>1]** How much did you pay for each CFL you bought that day, counting the discounts from your coupons? **[Code "99" for unknown values]**

<u>Cost</u>	<u>Number</u>	<u>Wattage</u>
\$_____ for a package of _____		_____ -watt CFLs
\$_____ for a package of _____		_____ -watt CFLs
\$_____ for a package of _____		_____ -watt CFLs
\$_____ for a package of _____		_____ -watt CFLs
\$_____ for a package of _____		_____ -watt CFLs
\$_____ for a package of _____		_____ -watt CFLs
_____ Don't know		

PM19. Looking back on your purchase, what were the most important factors influencing you to buy your CFL(s) on that day in particular? **[Take all that apply]**

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3

Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	99

PM19a. **[Ask if PM19 = 3]** Did the person who recommended buying a CFL that day use an "Every Kilowatt Counts" coupon to buy a CFL?

Yes	1
No	2

PM19b. **[Ask if multiple response to PM19]** Which of the factors you mentioned was most important in your decision?

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	99

PM19c. **[Ask if PM15b=1]** If there had been no "Every Kilowatt Counts" discount coupon and no "Every Kilowatt Counts" booklet or advertising, how likely do you think you would have been to pay \$2-3 more and buy your CFL at full price that day? Would you have been . . .

- _____ a. Extremely likely,
- _____ b. Very likely,
- _____ c. Somewhat likely,
- _____ d. Not very likely, or
- _____ e. Not at all likely to buy it

PM19d. **[Ask if PM15b>1]** If there had been no “Every Kilowatt Counts” discount coupon and no “Every Kilowatt Counts” booklet or advertising, how likely do you think you would have been to pay \$2-3 more per CFL and buy CFLs at full price that day? Would you have been . . .

- _____ a. Extremely likely,
- _____ b. Very likely,
- _____ c. Somewhat likely,
- _____ d. Not very likely, or
- _____ e. Not at all likely to buy it

PM19e. Which of the following best describes what you probably would have done that day if there had been no program advertising and no discount coupons? Would you have . . .

- | | |
|--|---------------------|
| Made exactly the same purchase, | 1 |
| Bought [a] regular light bulb(s) that day, instead, | 2 |
| Bought [a] CFL(s) of a different wattage, | 3 |
| Bought [a] CFL(s), but at a later date, [or] | 4 |
| [Include if PM15b>1 of EKCSpring>1] Bought fewer CFLs, or | 5 |
| Bought no light bulbs? | 6 |
| Other (Specify): | 8 Don't read |
| Don't know | 9 Don't read |

PM19e1. **[Ask if PM19e = 5]** How many CFLs would you have bought instead of the (number from PM15b) you bought that day?

_____ CFLs

PM20. Have you bought any more CFLs, at full price, since the program campaign ended?

- | | |
|-----|-------------------------------|
| Yes | 1 Go to PM20a |
| No | 2 Go to PM21 Direction |

PM20a. How many have you bought?

_____ CFLs at full price

PM21 Direction (for respondents getting PM4 or PM14):

[If EKCFall > 0, say: “The next few questions are about the (number from EKCFall) CFL(s) you bought with [an] “Every Kilowatt Counts” coupon(s) in the Fall.” **[If EKCFall =1, go to PM21. If EKCFALL>1, go to PM29.]**

[If EKCFall=0, skip to PM35]

One CFL bought with EKC coupon in the Fall.

PM21. Before you heard anything about the “Every Kilowatt Counts” program, were you planning to purchase any CFLs between mid-September and the end of November?

Yes	1 Go to PM22
No	2 Skip to PM23
Don't know	9 Skip to PM23

PM22. **[Ask if PM21 =1]** How many were you planning to purchase?

_____ CFLs
 _____ Don't know

PM23. When you walked into the store where you bought your CFL in the fall, were you already planning to buy a CFL that particular day?

Yes	1
No	2

PM23a. **[Ask if PS23=1]** How many CFLs were you planning to buy that particular day?

_____ CFLs
 _____ Don't know

PM24a. When you walked into the store, were you already aware of the “Every Kilowatt Counts” discount coupons or advertising at that time?

Yes	1
No	2

PM24b. Did the store where you bought the CFLs have a special event to feature the CFLs and other energy-saving products?

Yes	1
No	2

PM24c. Did the store have any special displays featuring such products?

Yes	1
No	2

PM24d. Which retailer did you buy your CFL from?

RETAILER	
Canadian Tire Corporation	1
Giant Tiger	2
Rona	3
Home Depot	4
Wal-Mart	5
Ace Hardware	6
Atlas Lighting	7
Bargain Building Materials	8
Castle Building Centres	9
Chatelaine Lighting	10
Copp's Buildall	11
Costco	12
Country Depot	13
Distinctive Lighting x	14
Don's Lighthouse	15
Eldon Lighting	16
Fashion Lighting	17
Guildwood Lighting & Fireside	18
Home Hardware	19
Homewise	20
Howes Lighting & Fan Co	21
IGA Stores	22
Lite mode Limited	23
Living Lighting	24
Loblaws	25
Millwork Home Centre	26
Osso City Lighting x	27
Pro Hardware	28
Sam's Club	29
Sears	30
Sescolite Lighting	31
Simcoe Building Materials	32
Sobey's	33
Soo Mill & Lumber	34
Supreme Lighting	35
The Bargain! Shop	36
The Electrical and Plumbing Store	37
Tim-BR-Mart	38
True Value Hardware	39
TSC Stores	40
Union Lighting and Furnishings	41
V & S Variety	42

PM25. What was the wattage of the CFL you bought that day, and how much did it cost, including the cost reduction from your coupon? **[Code "99" for unknown values]**

<u>Cost</u>	<u>Number</u>	<u>Wattage</u>
\$ _____	for a package of one	_____ -watt CFL

PM26. Looking back on your purchase, what were the most important factors influencing you to buy your CFL on that day in particular? **[Take all that apply]**

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	11

PM26a. **[Ask if PM26 = 3]** Did the person who recommended buying a CFL that day use an "Every Kilowatt Counts" coupon to buy a CFL?

Yes	1
No	2

PM27. **[Ask if multiple response to PM26]** Which of the factors you mentioned was most important in your decision?

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10

Don't know

11

PM28. If there had been no "Every Kilowatt Counts" discount coupon and no "Every Kilowatt Counts" booklet or advertising, how likely do you think you would have been to pay \$2-3 more and buy the CFL at full price that day? Would you have been . . .

- _____ a. Extremely likely,
- _____ b. Very likely,
- _____ c. Somewhat likely,
- _____ d. Not very likely, or
- _____ e. Not at all likely to buy it

PM28a. Which of the following best describes what you probably would have done that day if there had been no program advertising and no discount coupons? Would you have . . .

- | | |
|--|---------------------|
| Made exactly the same purchase, | 1 |
| Bought a regular light bulb that day, instead, | 2 |
| Bought a CFL of a different wattage, | 3 |
| Bought a CFL, but at a later date, or | 4 |
| Bought no light bulbs? | 6 |
| Other (Specify): | 8 Don't read |
| Don't know | 9 Don't read |

[All respondents receiving PM21 skip to PM35.]

More than one CFL bought with EKC coupon in the Fall.

PM29. Before you heard anything about the "Every Kilowatt Counts" program, were you planning to purchase any CFLs between mid-September and the end of November?

- | | |
|------------|-----------------------|
| Yes | 1 Go to PM29a |
| No | 2 Skip to PM30 |
| Don't know | 9 Skip to PM30 |

PM29a. **[Ask if PM29 =1]** How many were you planning to purchase?

- _____ CFLs
- _____ Don't know

PM30. Thinking specifically of the (number from EKCFall) CFLs you bought with coupons during the Fall campaign, did you buy them all at the same time or during more than one visit to retail stores?

- | | |
|----------------------|---------------------|
| All at the same time | 1 Go to PM31 |
|----------------------|---------------------|

On more than one visit
Don't know

2 Skip to PM30a
9 Skip to PM31

PM30a. How many different times did you buy CFLs with coupons during the Fall campaign?

_____ times

PM30b. Thinking of the first time you bought the CFLs during the Fall campaign, how many did you buy?

_____ CFL(s)

PM31. When you walked into the store where you bought your CFL(s) were you already planning to buy a CFL that particular day?

Yes	1
No	2

PM31a. **[Ask if PS31=1]** How many CFLs were you planning to buy that particular day?

_____ CFLs
_____ Don't know

PM32a. When you walked into the store where you bought that/those CFL(s), were you already aware of the "Every Kilowatt Counts" discount coupons or advertising at that time?

Yes	1
No	2

PM32b. Did the store have a special event to feature the CFLs and other energy-saving products?

Yes	1
No	2

PM32c. Did the store have any special displays featuring such products?

Yes	1
No	2

PM32d. Which retailer did you buy that/those CFL(s) from?

Retailer	
Canadian Tire Corporation	1
Giant Tiger	2

Rona	3
Home Depot	4
Wal-Mart	5
Ace Hardware	6
Atlas Lighting	7
Bargain Building Materials	8
Castle Building Centres	9
Chatelaine Lighting	10
Copp's Buildall	11
Costco	12
Country Depot	13
Distinctive Lighting x	14
Don's Lighthouse	15
Eldon Lighting	16
Fashion Lighting	17
Guildwood Lighting & Fireside	18
Home Hardware	19
Homewise	20
Howes Lighting & Fan Co	21
IGA Stores	22
Itemode Limited	23
Living Lighting	24
Loblaws	25
Millwork Home Centre	26
Osso City Lighting x	27
Pro Hardware	28
Sam's Club	29
Sears	30
Sescolite Lighting	31
Simcoe Building Materials	32
Sobey's	33
Soo Mill & Lumber	34
Supreme Lighting	35
The Bargain! Shop	36
The Electrical and Plumbing Store	37
Tim-BR-Mart	38
True Value Hardware	39
TSC Stores	40
Union Lighting and Furnishings	41
V & S Variety	42
Zellers	43

PM33a. **[Ask if PM30b=1]** What was the wattage of the CFL you bought that day, and how much did it cost, including the cost reduction from your coupon? **[Code “99” for unknown values]**

<u>Cost</u>	<u>Number</u>	<u>Wattage</u>
\$ _____	for a package of one	_____ -watt CFL

PM33b. **[Ask if PM30b>1]** How much did you pay for each CFL you bought that day, counting the discounts from your coupons? **[Code “99” for unknown values]**

<u>Cost</u>	<u>Number</u>	<u>Wattage</u>
\$ _____	for a package of _____	_____ -watt CFLs
\$ _____	for a package of _____	_____ -watt CFLs
\$ _____	for a package of _____	_____ -watt CFLs
\$ _____	for a package of _____	_____ -watt CFLs
\$ _____	for a package of _____	_____ -watt CFLs
\$ _____	for a package of _____	_____ -watt CFLs
_____	Don't know	

PM34. Looking back on your purchase, what were the most important factors influencing you to buy your CFL(s) on that day in particular? **[Take all that apply]**

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
“Every Kilowatt Counts” advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	11

PM34a. **[Ask if PM34 = 3]** Did the person who recommended buying a CFL that day use an “Every Kilowatt Counts” coupon to buy a CFL?

Yes	1
No	2

PM34b. **[Ask if multiple response to PM34]** Which of the factors you mentioned was most important in your decision?

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	11

PM34c. **[Ask if PM30b=1]** If there had been no "Every Kilowatt Counts" discount coupon and no "Every Kilowatt Counts" booklet or advertising, how likely do you think you would have been to pay \$2-3 more and buy your CFL at full price that day? Would you have been . . .

- ☐ a. Extremely likely,
- ☐ b. Very likely,
- ☐ c. Somewhat likely,
- ☐ d. Not very likely, or
- ☐ e. Not at all likely to buy it

PM34d. **[Ask if PM30b>1]** If there had been no "Every Kilowatt Counts" discount coupon and no "Every Kilowatt Counts" booklet or advertising, how likely do you think you would have been to pay \$2-3 more per CFL and buy CFLs at full price that day? Would you have been . . .

- ☐ a. Extremely likely,
- ☐ b. Very likely,
- ☐ c. Somewhat likely,
- ☐ d. Not very likely, or
- ☐ e. Not at all likely to buy it

PM34e. Which of the following best describes what you probably would have done that day if there had been no program advertising and no discount coupons? Would you have . . .

Made exactly the same purchase,	1
Bought [a] regular light bulb(s) that day, instead,	2
Bought [a] CFL(s) of a different wattage,	3
Bought [a] CFL(s), but at a later date, or	4
[Include if PM30b>1] Bought fewer CFLs, or	5
Bought no light bulbs?	6
Other (Specify):	8 Don't read
Don't know	9 Don't read

PM34e1. **[Ask if PM34e = 5]** How many CFLs would you have bought instead of the (number from PM30b) you bought that day?

_____ CFLs

All Respondents:

PM35. If there are no discount coupons, how likely are you to buy a CFL at full price to replace your next burned out incandescent light bulb? Will you be. . .

- | | |
|---|-----------------------|
| Extremely likely, | 1 Skip to PM36 |
| Very likely, | 2 Go to PM35c |
| Somewhat likely, | 3 Go to PM35c |
| Not very likely, or | 4 Go to PM35c |
| Not at all likely to buy a CFL at full price to replace it? | 5 Go to PM35c |

PM35a. **[Ask if PM35 = 2, 3, 4 or 5]** Why wouldn't you buy a CFL?

- | | |
|--|---|
| I WOULD buy a CFL | 1 |
| No more fixtures that can take them | 2 |
| Only like the CFLs in certain rooms/for certain activities | 3 |
| Too expensive | 4 |
| Don't like "color" of the CFL light | 5 |
| This purchase was an experiment and I don't like CFLs | 6 |
| Other (Specify): | 8 |
| Don't know | 9 |

PM36. Of all (number of CFLs from EKCSpring + EKCFall) CFLs you bought with "Every Kilowatt Counts" coupons some time this year, how many of the CFLs have you already installed?

_____ CFLs

PM36a. **[Ask if PM36=1]:** Did the CFL replace a regular incandescent bulb, another CFL, or is it for a totally new lamp?

- _____ 1. Replaced regular incandescent bulb **[Go to PM36a1]**
- _____ 2. Replaced another CFL **[Skip to PM37]**
- _____ 3. Installed in new lamp **[Skip to PM37]**

PM36a1. Do you let your CFL stay on the same amount of time as the bulb it replaced, a shorter amount of time or a longer amount of time?

- _____ a. Keep it on longer than bulb it replaced **[Go to PM36a2]**
 _____ b. Keep it on shorter amount of time than bulb it replaced **[Skip to PM36a3]**
 _____ c. Keep it on the same amount of time as bulb it replaced **[Skip to PM37]**
 _____ d. Other (Specify): _____ **[Skip to PM37]**

PM36a2. **[Ask if PM36a1=a]** On average, how many hours longer per day do you leave your CFL on?

_____ hours/day

PM36a3. **[Ask if PM36a2=b]** On average, how many hours shorter per day do you leave your CFL on?

_____ hours/day

PM36b1. **[Ask if PM36>1]** How many of these installed CFLs, if any, replaced regular incandescent light bulbs?

_____ CFLs

PM36b2. **[Ask if PM36 minus total in PM36b1>0]** How many of these CFLs, if any, were installed in new lamps?

_____ CFLs

PM36b3. **[Ask if PM36 minus totals in PM36b1 and PM36b2>0]** How many of these CFLs, if any, replaced other CFLs?

_____ CFLs

PM36c. **[Ask if PM36b1=1]**

PM36c1. For the CFL that replaced a regular incandescent bulb, do you let that CFL stay on the same amount of time as the bulb it replaced, a shorter amount of time or a longer amount of time?

- _____ a. Keep it on longer than bulb it replaced **[Go to PM36c2]**
 _____ b. Keep it on shorter amount of time than bulb it replaced **[Skip to PM36c3]**
 _____ c. Keep it on the same amount of time as bulb it replaced **[Skip to PM37]**
 _____ d. Other (Specify): _____ **[Skip to PM37]**

PM36c2. **[Ask if PM36c1=a]** On average, how many hours longer per day do you leave your CFL on?

_____ hours/day

PM36c3. **[Ask if PM36c1=b]** On average, how many hours shorter per day do you leave your CFL on?

_____ hours/day

PM36d. **[Ask if PM36b1>1]**

PM36d1. Of all of the CFLs that replaced incandescent bulbs, how many do you keep on for the same amount of time as you did the incandescent bulbs, how many do you keep on longer and how many do you keep on for a shorter time?

- _____ a. Number kept on same amount of time
- _____ b. Number kept on longer amount of time
- _____ c. Number kept on shorter amount of time
- _____ d. Don't know **[Skip to PM37]**

[Ensure that total matches total in PM36b1]

PM36d2. **[Ask if PM36d1 = b]** For the (number from PM36d1-b) CFL(s) you keep on longer, about how many more hours longer per day, on average, do you keep this/these CFL(s) on than the bulb(s) it/they replaced? **[Accept up to three different amounts of additional hours. Make sure total matches number from PM36d1-b]**

_____ hours more per day for _____ CFL(s)
 _____ hours more per day for _____ CFL(s)
 _____ hours more per day for _____ CFL(s)

PM36d3. **[Ask if PM36d1 = c]** For the (number from PM36d1-c) CFL(s) you keep on for a shorter number of hours, about how many hours shorter per day, on average, do you keep this/these CFL(s) on than the bulb(s) it/they replaced? **[Accept up to three different amounts of fewer hours. Make sure total matches number from PM36d1-c]**

_____ hours fewer per day for _____ CFL(s)
 _____ hours fewer per day for _____ CFL(s)
 _____ hours fewer per day for _____ CFL(s)

PM36e. **[Ask if PM36=0]** Why haven't you installed your CFLs yet?

- _____ a. Would not fit in fixtures
- _____ b. Waiting for existing bulbs to burn out
- _____ c. Haven't gotten around to it yet
- _____ d. Other (Specify): _____

PM37. Before you made your (calculate number: $EKCS_{\text{Spring}} + EKCF_{\text{Fall}}$) CFL purchases this year using the “Every Kilowatt Counts” coupons, how many CFLs, if any, were installed in your home?

_____ CFLs installed

PM38. If there are no discount coupons, how likely are you to buy a CFL at full price to replace your next burned out incandescent light bulb? Will you be. . .

Extremely likely,	1 Skip to PS39a
Very likely,	2 Go to PS38a
Somewhat likely,	3 Go to PS38a
Not very likely, or	4 Go to PS38a
Not at all likely to buy a CFL to replace it?	5 Go to PS38a

PM38a. Why wouldn't you buy a CFL?

I WOULD buy a CFL	1
No more fixtures that can take them	2
Only like the CFLs in certain rooms/for certain activities	3
Too expensive	4
Don't like “color” of the CFL light	5
This purchase was an experiment and I don't like CFLs	6
Other (Specify):	8
Don't know	9

PM39a. **[Ask if PM36 = 1]** How would you rate your agreement or disagreement with the following statements, on a scale of 1-5 with 5 meaning you “strongly agree” and 1 meaning you “strongly disagree” and 3 meaning you “neither agree or disagree”?

Statement	1 Strongly Disagree	2	3	4	5 Strongly Agree
My CFL has saved me energy.					
My CFL has saved me money.					
My CFL has helped improve the environment.					

PM39b. **[Ask if PM36 > 1]** How would you rate your agreement or disagreement with the following statements, on a scale of 1-5 with 5 meaning you “strongly agree” and 1 meaning you “strongly disagree” and 3 meaning you “neither agree or disagree”?

Statement	1 Strongly Disagree	2	3	4	5 Strongly Agree
My CFLs have saved me energy.					

My CFLs have saved me money.

My CFLs have helped improve the environment.

PM40. Would you recommend purchasing a CFL to others, if there is no discount?

Yes	1
No	2

IF A1b>A2b OR A3b, CONTINUE WITH SECTION PSP. IF NOT:

IF A2 or A3 > 0 for any product listed in "a" through "l", excluding "b", CONTINUE WITH SECTION MF. (For respondents who used coupons to purchase one or more of the other targeted products). IF NOT:

GO TO SECTION G.

Section PSP: CFL Participant Survey – Spillover CFLs

[Ask PSP series of questions if respondent purchased one or more CFLs without using “Every Kilowatt Counts” coupons if $A1b > A2b$ or $A3b$]

PSP Intro1a. **[Use if $A1b = 1$, and $A2b$ and $A3b = 0$ (respondent did not buy any CFLs with coupons but did buy one CFL without a coupon)]** I’d like to ask you a few questions about your compact fluorescent lamp, or CFL, purchase. **[Skip to PSP1]**

PSP Intro1b. **[Use if $A1b > 1$, and $A2b$ and $A3b = 0$ (respondent did not buy any CFLs with coupons but did buy CFLs without coupons)]** I’d like to ask you a few questions about your compact fluorescent lamp, or CFL, purchases. **[Skip to PSP3]**

PSP Intro2a. **[Use if respondent received PS20, i.e., if respondent purchased one CFL with an EKC coupon]** We’ve talked about the CFL you bought using an “Every Kilowatt Counts” coupon. For the (calculate number: $A1b - A3b$) CFL(s) you bought without using “Every Kilowatt Counts” coupons, . . . **[Skip to PSP1 or PSP3, depending on whether one or more than one CFL was purchased without using an “Every Kilowatt Counts” coupon]**

PSP Intro2b. **[Use if respondent received PM40, i.e., if respondent purchased more than one CFL with an EKC coupon]** We’ve talked about the (calculate number: $EKC_{Spring} + EKC_{Fall}$) CFLs you bought with “Every Kilowatt Counts” coupons. For the (calculate number: $A1b - (EKC_{Spring} + EKC_{Fall})$) CFL(s) you bought without using “Every Kilowatt Counts” coupons, . . . **[Skip to PSP1 or PSP3, depending on whether one or more than one CFL was purchased without using an “Every Kilowatt Counts” coupon]**

[Ask PSP1 and PSP2 only if respondent purchased one CFL without using an EKC coupon]

PSP1. ~~You said that you had purchased a CFL without using a coupon in the past year.~~ During which of the following periods did you buy that CFL? Between January and mid-April, between mid-April and mid-June, between mid-June and mid-September, between mid-September and the end of November, or in December?

January to mid-April,	1
Mid-April to mid-June,	2
Mid-June to mid-September, or	3
Mid-September to end of November	4
In December	5
Don’t know [Don’t read]	9

PSP2. ~~**[Ask PSP1-PSP3 if $A1b$ minus $A2b = 1$, or if $PSPa = 1$]**~~ If there had been no “Every Kilowatt Counts” booklet, discount coupons or advertising, how likely would you have been to buy that CFL this year? Would you have been . . .

- _____ a. Extremely likely,
- _____ b. Very likely,
- _____ c. Somewhat likely,
- _____ d. Not very likely, or
- _____ e. Not at all likely to buy it

[Skip to PSPend Directions]

[Ask PSP3 to PSP5 only if respondent purchased more than one CFL without using EKC coupons]

PSP3. You said that you had purchased ~~[Calculate number of non-coupon CFLs purchased by subtracting A2b from A1b] CFLs without using coupons in the past year.~~ How many of these CFLs did you buy in each of the following time periods this year? Between January and mid-April, between mid-April and mid-June, between mid-June and mid-September, between mid-September and the end of November, and in December. **[Record number for each month or season]**

- _____ CFLs bought Jan to mid-April
- _____ CFLs bought mid-April to mid-June
- _____ CFLs bought mid-June to mid-September
- _____ CFLs bought mid-September to end of November
- _____ CFLs bought in December
- _____ Don't know/CFLs bought during unknown time period

PSP4. ~~[Ask if A2b > 0, or if PSPa = 1]~~ If there had been no "Every Kilowatt Counts" booklet, discount coupons or advertising, how likely would you have been to buy CFLs this year? Would you have been . . .

- _____ a. Extremely likely, **[Go to PSP5]**
- _____ b. Very likely, **[Go to PSP5]**
- _____ c. Somewhat likely, **[Go to PSP5]**
- _____ d. Not very likely, or **[Go to PSP5]**
- _____ e. Not at all likely to buy the CFLs **[Skip to PSPend Directions]**

PSP5. **[Ask if PSP4 = a, b, c or d]** And how many of the (number from A1b – A2b) CFLs you bought without coupons this year do you think you would have been likely to buy even if you hadn't heard of the "Every Kilowatt Counts" program?

- _____ CFLs without discount coupons
- _____ Don't know

PSPend Directions:

If A2 and A3 = 0 for all products listed in "a" through "m", GO TO SECTION GNP.

IF A2 or A3 > 0 for any product listed in "a" through "m", excluding "b", CONTINUE WITH SECTION MF. (For respondents who used coupons to purchase one or more of the other targeted products). IF NOT:

GO TO SECTION G.

Section SLS: Outdoor Solar Lights Participant Survey – Single Product Purchase with Coupon

[Ask if A2d or A3d = 1 (respondent purchased one OUTDOOR SOLAR LIGHT with a coupon)]

SLS1a. What was the amount of the price discount on your outdoor solar light coupon?

\$5	1
Other (Specify):	8
Don't know	9

SLS1b. Where did you get the coupon you used to buy your outdoor solar light? **[Don't read]**

From booklet that was mailed	1
From OPA website	2
From retail store	3
From a friend/relative/associate	4
From product manufacturer	5
From newspaper/magazine	6
From utility company	7
From other source (Specify):	8
Don't know	9

SLS2. This year, the "Every Kilowatt Counts" program campaign offered \$5 outdoor solar light coupons in the Spring, from mid-April to mid-June. Was your coupon an "Every Kilowatt Counts" coupon?

Yes	1 Skip SLS3
No	2 Skip to next section
Don't know	9 Go to SLS2a

SLS2a. **[Ask if SLS2 = "Don't know"]** Did you buy your outdoor solar lights between mid-April and mid-June of this year?

Yes	1 If SLS1b = 1, 2 or 3, continue to SLS2b; otherwise, skip to next section
No	2 Skip to next section
Don't know	9 Skip to next section

SLS2b. **[Say: "For the purposes of this survey, please assume that you used an "Every Kilowatt Counts" coupon" and continue to SLS3]**

SLS3. Before you bought this outdoor solar light, how many, if any, outdoor patio or garden lights of any kind did you already have installed outside of your home?

_____ outdoor solar-lights

SLS3a. **[Ask if SLS3 = 1]** Was this light a light requiring power from your house or was it a solar-powered light?

_____ light requiring power from house **[Go to SLS3a1]**

_____ solar-powered outdoor light **[Skip to SLS4]**

_____ Don't know **[Skip to SLS4]**

SLS3a1. Did the fixture use a halogen bulb, a regular incandescent bulb, a compact fluorescent bulb or an LED?

Halogen	1
Regular incandescent	2
CFL	3
LEDs	4
Other (Specify):	8
Don't know	9

SLS3a2. Did you generally leave it on all night or just in the evening?

On all night	1
On just in evening	2
Don't know	9

SLS3b. **[Ask if SLS3 > 1]** How many of these lights were lights requiring power from your house and how many were solar-powered lights?

_____ a. lights requiring power from house **[Go to SLS3b1]**

_____ b. solar-powered outdoor lights **[Skip to SLS4]**

_____ c. Don't know **[Skip to SLS4]**

SLS3b1. Did the lights requiring power from your home use halogen bulbs, regular incandescent bulbs, compact fluorescent bulbs or LEDs? **Take all that apply.**

Halogen	1
Regular incandescent	2
CFL	3
LEDs	4
Other (Specify):	8
Don't know	9

SLS3b2. Did you generally leave them on all night or just in the evening?

On all night	1
On just in evening	2

Don't know

9

SLS4. When you walked into the store where you bought your outdoor solar lights, were you already planning to buy outdoor solar lights on that particular day?

Yes	1 Skip SLS6b
No	2 Go to SLS6a
Don't know	9 Go to SLS6a

SLS5. Were you already planning to buy any non-solar outdoor lights that day?

Yes	1
No	2
Don't know	9

SLS6. Were you already aware of the "Every Kilowatt Counts" discount coupon for outdoor solar lights?

Yes	1
No	2
Don't know	9

SLS7a. Did the store where you bought your outdoor solar light have a special event to feature the these lights and other energy-saving products?

Yes	1
No	2

SLS7b. Did the store have any special displays featuring such products?

Yes	1
No	2

SLS7c. Where did you buy your outdoor solar light?

Retailer	
Canadian Tire Corporation	1
Giant Tiger	2
Rona	3
Home Depot	4
Wal-Mart	5
Ace Hardware	6
Atlas Lighting	7
Bargain Building Materials	8

Castle Building Centres	9
Chatelaine Lighting	10
Copp's Buildall	11
Costco	12
Country Depot	13
Distinctive Lighting x	14
Don's Lighthouse	15
Eldon Lighting	16
Fashion Lighting	17
Guildwood Lighting & Fireside	18
Home Hardware	19
Homewise	20
Howes Lighting & Fan Co	21
IGA Stores	22
Lite mode Limited	23
Living Lighting	24
Loblaws	25
Millwork Home Centre	26
Osso City Lighting x	27
Pro Hardware	28
Sam's Club	29
Sears	30
Sescolite Lighting	31
Simcoe Building Materials	32
Sobey's	33
Soo Mill & Lumber	34
Supreme Lighting	35
The Bargain! Shop	36
The Electrical and Plumbing Store	37
Tim-BR-Mart	38
True Value Hardware	39
TSC Stores	40
Union Lighting and Furnishings	41
V & S Variety	42
Zellers	43

SLS8. How much did you pay for your outdoor solar light, including the discount from the coupon? **[Record price. Accept a range if the respondent provides it, but try to get price point!]**

\$_____ per outdoor solar light

\$_____ to \$_____ per outdoor solar light

\$_____ for a package of _____ outdoor solar lights

_____ Don't know

SLS9. Looking back on your purchase, what were the most important factors influencing you to buy your outdoor solar light on that day in particular? **[Take all that apply]**

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	99

SLS10. **[Ask if SLS9 = 3]** Did the person who recommended buying an outdoor solar light use an "Every Kilowatt Counts" coupon to buy one?

Yes	1
No	2
Don't know	9

SLS11. **[Ask if multiple response to SLS9]** Which of the factors you mentioned was most important in your decision?

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	99

SLS12. If there had been no "Every Kilowatt Counts" discount coupon and no "Every Kilowatt Counts" booklet or advertising, how likely would you have been to pay \$5 more to buy your outdoor solar light? Would you have been . . .

- _____ a. Extremely likely,
_____ b. Very likely,

- _____ c. Somewhat likely,
 _____ d. Not very likely, or
 _____ e. Not at all likely to buy them?

SLS13. Which of the following best describes what you probably would have done that day if there had been no program advertising and no discount coupons? Would you have . . .

- | | |
|---|---------------------|
| Made exactly the same purchase, | 1 |
| Bought an outdoor light requiring power from the house, | 2 |
| Bought an outdoor solar light but at a later date, or | 3 |
| Bought no outdoor light? | 4 |
| Other (Specify): | 8 Don't read |
| Don't know | 9 Don't read |

SLS14. Have you already installed your outdoor solar light?

- | | |
|-----|-------------------------|
| Yes | 1 Go to SLS11 |
| No | 2 Skip to SLS13b |

SLS15.[Ask if SLS14=1] Did your outdoor solar light replace an existing outdoor solar light, an outdoor light requiring power from your house, or was it a new light that you added?

- _____ a. Replaced existing outdoor solar light
 _____ b. Replaced outdoor light requiring power from house
 _____ c. Was new light added **[Skip to SLS12c]**

SLS15a. **[Ask if SLS15 = b]** Did you tend to keep the old light on all night long or just in the evening?

- | | |
|---------------------|---|
| All night long | 1 |
| Just in the evening | 2 |

SLS16. **[Ask if A1d>A2d]** You said that you had bought (calculate A1d-A2d) outdoor solar lights without using a discount coupon. How likely would you have been to buy that/those lights if there had been no "Every Kilowatt Counts" program information or discount coupons? Would you say . . .

- _____ a. Extremely likely,
 _____ b. Very likely,
 _____ c. Somewhat likely,
 _____ d. Not very likely, or
 _____ e. Not at all likely to buy them?

SLS17. **[Ask if SLS14=1]** Based on your experience with the outdoor solar light you installed, how likely are you to purchase more outdoor solar lights in the future, even if there are no discount coupons available? Would you say . . .

- _____ a. Extremely likely,
 _____ b. Very likely,
 _____ c. Somewhat likely,
 _____ d. Not very likely, or
 _____ e. Not at all likely to buy them?

SLS18. Would you recommend purchasing an outdoor solar light to other people, even if there is no price discount?

Yes	1
No	2
Don't know	9

IF A2 or A3 > 0 for any product listed in “a” through “m”, excluding “b” or “d”, CONTINUE WITH SECTION MF, starting with logic for Question MCF1 (i.e., skip mini-battery for outdoor solar lights since respondent has already been asked detailed battery). (For respondents who used coupons to purchase one or more of the other targeted products).

IF NOT: GO TO SECTION G.

Section SLM: Outdoor Solar Lights Participant Survey – Multiple Product Purchase with Coupon

[Ask if A2d > 1 (respondent purchased more than one OUTDOOR SOLAR LIGHT with a coupon)]

SLM1a. What was the value of the price discounts on the outdoor solar light coupons you used?

\$5	1
Other (Specify):	8
Don't know	9

SLM1b. Where did you get the coupons you used to buy your outdoor solar lights? **[Take all that apply, recording number from each source. Make sure total adds up to number reported in A2d.]**

_____	a. From booklet that was mailed
_____	b. From OPA website
_____	c. From retail store
_____	d. From a friend/relative/associate
_____	e. From product manufacturer
_____	f. From newspaper/magazine
_____	g. From utility company
_____	h. From other source (Specify):
_____	i. Don't know

SLM2. This year, the "Every Kilowatt Counts" program offered \$5 discount coupons for outdoor solar lights from mid-April to mid-June. How many of the (number from A2d) outdoor solar lights you bought with discount coupons this year did you buy with "Every Kilowatt Counts" coupons? **[Record number]**

_____ outdoor solar lights bought with EKC discount coupons **[If "0", switch to next section. If "1", switch to SLS3]**

_____ Don't know **[Go to SLM2a]**

SLM2a. **[Ask if SLM2="Don't know"]** Did you buy your outdoor solar lights during the mid-April to mid-June period?

Yes	1 If SLM1b = a, b or c, continue to SLM2b; otherwise, skip to next section
No	2 Skip to next section
Don't know	9 Skip to next section

SLM2b. **[Say: "For the purposes of this survey, please assume that you used [an] 'Every Kilowatt Counts' coupon(s)" and continue to SLM3]**

SLM3. Before you bought these outdoor solar lights, how many, if any, outdoor patio or garden lights of any kind did you already have installed at your home?

_____ outdoor lights

SLM3a. **[Ask if SLM3 = 1]** Was this light a light requiring power from your house or was it a solar-powered light?

_____ light requiring power from house **[Go to SLM3a1]**

_____ solar-powered outdoor light **[Skip to SLM4]**

_____ Don't know **[Skip to SLM4]**

SLM3a1. Did the fixture use a halogen bulb, a regular incandescent bulb, a compact fluorescent bulb or an LED?

Halogen	1
Regular incandescent	2
CFL	3
LED	4
Other (Specify):	8
Don't know	9

SLM3a2. Did you generally leave it on all night or just in the evening?

On all night	1
On just in evening	2
Don't know	9

SLM3b. **[Ask if SLM3>1]** How many of these lights were lights requiring power from your house and how many were solar-powered lights?

_____ lights requiring power from house **[Go to SLM3b1]**

_____ solar-powered outdoor lights **[Skip to SLM4]**

_____ Don't know **[Skip to SLM4]**

SLM3b1. Did these fixtures use halogen bulbs, regular incandescent bulbs compact fluorescent bulbs or LEDs?

Halogens	1
Regular incandescents	2
CFLs	3
LEDs	4
Other (Specify):	8
Don't know	9

SLS3b2. Did you generally leave them on all night or just in the evening?

On all night	1
On just in evening	2

Don't know

9

SLM4. Thinking specifically of the solar lights you bought with "Every Kilowatt Counts" coupons during the Spring campaign, did you buy them all at the same time or during more than one visit to retail stores?

All at the same time

1 Go to SLM5

On more than one visit

2 Skip to SLM4a

Don't know

9 Skip to SLM5

SLM4a. How many different times did you buy solar lights with coupons during the Spring campaign?

_____ times

SLM4b. Thinking of the first time you bought the lights during the Spring campaign, how many did you buy?

_____ outdoor solar light(s)

SLM5. When you walked into the store where you bought that/those solar lights, were you already planning to buy one that particular day?

Yes

1

No

2

SLM5a. How many were you already planning to buy that day?

_____ outdoor solar lights

_____ Don't know

Yes

1

No

2

SLM6a. Did the store have a special event to feature outdoor solar lights and other energy-saving products?

Yes

1

No

2

SLM6b. Did the store have any special displays featuring such products?

Yes

1

No

2

SLM7. Which retailer did you buy that/those outdoor solar lights(s) from?

Retailer	
Canadian Tire Corporation	1
Giant Tiger	2
Rona	3
Home Depot	4
Wal-Mart	5
Ace Hardware	6
Atlas Lighting	7
Bargain Building Materials	8
Castle Building Centres	9
Chatelaine Lighting	10
Copp's Buildall	11
Costco	12
Country Depot	13
Distinctive Lighting x	14
Don's Lighthouse	15
Eldon Lighting	16
Fashion Lighting	17
Guildwood Lighting & Fireside	18
Home Hardware	19
Homewise	20
Howes Lighting & Fan Co	21
IGA Stores	22
Lite mode Limited	23
Living Lighting	24
Loblaws	25
Millwork Home Centre	26
Osso City Lighting x	27
Pro Hardware	28
Sam's Club	29
Sears	30
Sescolite Lighting	31
Simcoe Building Materials	32
Sobey's	33
Soo Mill & Lumber	34
Supreme Lighting	35
The Bargain! Shop	36
The Electrical and Plumbing Store	37
Tim-BR-Mart	38
True Value Hardware	39
TSC Stores	40
Union Lighting and Furnishings	41

V & S Variety	42
Zellers	43

SLM8. And how much did you pay for each solar light, including the discount from the coupon? **[Record prices. Accept a range if the respondent provides it, but try to get price point]]**

\$_____ for each outdoor solar light
 \$_____ for a package of _____ outdoor solar lights
 _____ Other (Specify): _____
 _____ Don't know

SLM9. What were the most important factors influencing you to buy your outdoor solar lights on that day in particular? **[Take all that apply]**

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6
Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	99

SLM9a. **[Ask if SLM9 = 3]** Did the person who recommended buying outdoor solar lights also use an "Every Kilowatt Counts" coupon to buy them?

Yes	1
No	2
Don't know	9

SLM9b. **[Ask if multiple response to SLM9]** Which of the factors you mentioned was most important in your decision?

Discount coupon	1
Store display	2
Recommendation from friend/associate/family member	3
Utility promotion	4
"Every Kilowatt Counts" advertising/promotions	5
Wanted to help the environment	6

Wanted to save money on my energy bill	7
Wanted to save energy	8
Other (Specify):	9
Other (Specify):	10
Don't know	99

SLM10. If there had been no "Every Kilowatt Counts" discount coupon and no "Every Kilowatt Counts" booklet or advertising, how likely would you have been to pay \$5 more to buy outdoor solar lights at full price? Would you have been . . .

- _____ a. Extremely likely,
 _____ b. Very likely,
 _____ c. Somewhat likely,
 _____ d. Not very likely, or
 _____ e. Not at all likely to buy them?

SLM11. Which of the following best describes what you probably would have done that day if there had been no program advertising and no discount coupons? Would you have . . .

Made exactly the same purchases,	1
Bought regular outdoor lights that use power from your house that day,	2
Bought solar lights but at a later date,	3
Bought regular outdoor lights but at a later date,	4
Bought fewer outdoor solar lights, or	
Bought fewer regular lights?	
Other (Specify):	8 Don't read
Don't know	9 Don't read

SLM11a. **[Ask if SLM10a = 2]** How many regular outdoor lights would you have been likely to buy?

_____ outdoor solar lights
 _____ Don't know

SLM11b. **[Ask if SLM10a = 3 or 4]** How many months later would you have been likely to buy the lights?

_____ months
 _____ Don't know

SLM11c. **[Ask if SLM11 = 5 or 6]** Instead of the (number from SLM4b or SLM2) solar lights you bought that day, how many lights would you have been likely to buy?

_____ lights
 _____ Don't know

SLM12. How many of your outdoor solar lights have you already installed?

_____ outdoor solar lights already installed **[If “0” skip to SLM15]**

SLM13.**[Ask if SLM12=1]** Did your outdoor solar light replace an existing outdoor solar lights, an outdoor light requiring power from our house, or was it a new lights that you added?

- _____ a. Replaced existing outdoor solar light
- _____ b. Replaced outdoor light requiring power from house
- _____ c. Were new light added **[Skip to SLM15]**

SLM13a. **[Ask if SLM13 = b]** Did you tend to keep the old light on all night or just in the evening?

- | | |
|---------------------|---|
| All night long | 1 |
| Just in the evening | 2 |

SLM13b. **[Ask if SLM13 = b]** Did that fixture use a halogen bulb, a regular incandescent bulb, a compact fluorescent bulb, or an LED light?

- | | |
|----------------------|---|
| Halogen | 1 |
| Regular incandescent | 2 |
| CFL | 3 |
| LEDs | 4 |
| Other (Specify): | 8 |
| Don't know | 9 |

SLM14.**[Ask if SLM12>1]** How many of the outdoor solar lights replaced existing solar lights,, how many replaced regular outdoor lights requiring power from the house, and how many were new fixtures you added? **[Record number for each type of installation]**

- _____ a. Replaced existing solar lights
- _____ b. Replaced regular outdoor lights requiring power from the house
- _____ c. Were new fixtures added **[Skip to SLM15]**

SLM14a.**[Ask if SLM14 = b]** Did you tend to keep the old lights on all night or just in the evening?

- | | |
|---------------------|---|
| All night long | 1 |
| Just in the evening | 2 |

SLM14b.**[Ask if SLM14 = b]** Did that fixture use a halogen bulb, a regular incandescent bulb, a compact fluorescent bulb, or an LED light?

- | | |
|----------------------|---|
| Halogen | 1 |
| Regular incandescent | 2 |

CFL	3
LEDs	4
Other (Specify):	8
Don't know	9

SLM15. **[Ask if A1a>A2a]** You said that you had bought (calculate A1d-A2d) outdoor solar light(s) without using a discount coupon. How likely would you have been to buy that/those outdoor solar light(s) if there had been no "Every Kilowatt Counts" program information or discount coupons? Would you say . . .

- ☐ a. Extremely likely,
- ☐ b. Very likely,
- ☐ c. Somewhat likely,
- ☐ d. Not very likely, or
- ☐ e. Not at all likely to buy them?

SLM16. **[Ask if SLM12>0]** Based on your experience with the outdoor solar light(s) you installed, how likely are you to purchase more outdoor solar lights in the future, even if there are no discount coupons available? Would you say . . .

- ☐ a. Extremely likely,
- ☐ b. Very likely,
- ☐ c. Somewhat likely,
- ☐ d. Not very likely, or
- ☐ e. Not at all likely to buy them?

SLM17. Would you recommend purchasing outdoor solar lights to other people, even if there is no price discount?

Yes	1
No	2
Don't know	9

IF A2 or A3 > 0 for any product listed in "a" through "m", excluding "b" or "d", CONTINUE WITH SECTION MF, starting with logic for Question MCF1 (i.e., skip mini-battery for outdoor solar lights since respondents have already been asked detailed battery). (For respondents who used coupons to purchase one or more of the other targeted products).

IF NOT: GO TO SECTION G.

Section MF: Mini-Free Rider Survey – Non-CFL Products Purchased with Coupons

[Ask if A2a-A2m > 0 for any product other than CFLs. For respondents who purchased at least one targeted product other than CFLs or outdoor solar lights.

[Ask about product if respondent indicated purchasing product with coupon in A2 or A3, but do not ask about CFLs, and do not ask about outdoor solar lights if respondent has already gone through SLS or SLM question series.]

SINGLE OUTDOOR SOLAR LIGHT

[Ask MSL1-MSL4 if only one outdoor solar light was purchased with coupon (A2d or A3d = 1)]

MSL1. You mentioned that you bought an outdoor solar light with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

- | | |
|-----|------------------------|
| Yes | 1 Continue |
| No | 2 Skip to next product |

MSL2. Did it replace an existing outdoor solar light, an existing outdoor light requiring power from your home, was it a new outdoor solar light you added, or is it not installed yet?

- ☐ Replaced an existing outdoor solar light
- ☐ Replaced an existing outdoor light requiring power from the home
- ☐ Was a new outdoor light that was added
- ☐ Not installed yet

MSL3. On the day when you bought your outdoor light with the coupon this year, were you already planning to buy an outdoor solar light that particular day?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

MSL4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|---|------------------------|
| Made exactly the same purchase, | 1 Skip to next product |
| Bought an outdoor light requiring power from the house, | 2 Skip to next product |
| Bought an outdoor solar light but at a later date, or | 3 Skip to next product |
| Bought no outdoor light? | 4 Skip to next product |
| Other (Specify): | 8 Don't read |
| Don't know | 9 Don't read |

MULTIPLE OUTDOOR SOLAR LIGHTS

[Ask MSL5-MSL8a if more than one product was purchased with coupon (A2d or A3d > 1)]

MSL5. You mentioned that you bought (number of the outdoor solar lights purchased with coupons) outdoor solar lights with coupons this year. How many of these lights did you buy with "Every Kilowatt Counts" coupons?

_____ outdoor solar lights [**If "0", skip to next product**]

MSL6. How many of the lights replaced existing outdoor solar lights, how many replaced outdoor lights requiring power from the home, how many were new fixtures you added, and how many are not installed yet? [**Record number of each**]

_____ Replaced existing outdoor solar lights

_____ Replaced existing outdoor lights requiring power from the home

_____ Were new fixtures added

_____ Not installed yet

MSL7. On the day when you bought your outdoor lights with the coupon this year, were you already planning to buy an outdoor solar light that particular day?

Yes	1
No	2

MSL8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchase,	1 Skip to next product
Bought regular outdoor lights that use power from your home that day,	2 Skip to next product
Bought solar lights but at a later date,	3 Skip to next product
Bought regular outdoor lights but at a later date,	4 Skip to next product
Bought fewer outdoor solar lights,	5 Go to MSL8a
Bought fewer regular lights, or	6 Go to MSL8b
Bought no outdoor lights?	7 Skip to next product
Other (Specify):	8 Don't read
Don't know	9 Don't read

MSL8a.[**Ask if MSL8 = 5**] How many outdoor solar lights would you have been likely to buy?

_____ outdoor solar lights

_____ Don't know

MSL8b.[**Ask if MSL8 = 6**] How many regular outdoor lights would you have been likely to buy?

_____ regular outdoor lights

_____ Don't know

SINGLE ENERGY STAR CEILING FAN

[Ask MCF1-MCF4 if only one Energy Star ceiling fan was purchased with coupon (A2a or A3a = 1)]

MCF1. You mentioned that you bought an Energy Star ceiling fan with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

- | | |
|-----|------------------------|
| Yes | 1 Continue |
| No | 2 Skip to next product |

MCF2. Did it replace an existing Energy Star ceiling fan, an existing non-Energy Star ceiling fan, a light fixture without a ceiling fan, was it a new fixture you added, or is it not installed yet?

- _____ Replaced an existing Energy Star ceiling fan
- _____ Replaced an existing ceiling fan
- _____ Replaced a light fixture without a ceiling fan
- _____ Was a new fixture added
- _____ Not installed yet

MCF3. On the day when you bought your ceiling fan with the coupon this year, were you already planning to buy an Energy Star ceiling fan that particular day?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

MCF4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|--|--------------|
| Made exactly the same purchase, | 1 |
| Bought a regular ceiling fan that day, instead, | 2 |
| Bought an Energy Star ceiling fan but at a later date, | 3 |
| Bought a regular ceiling fan, but at a later date, or | 4 |
| Bought no ceiling fan? | 5 |
| Other (Specify): | 8 Don't read |
| Don't know | 9 Don't read |

SINGLE ENERGY STAR CEILING FAN

[Ask MCF5-MCF8a if more than one product was purchased with coupon (A2a or A3a > 1)]

MCF5. You mentioned that you bought (number of the Energy Star ceiling fans purchased with coupons) Energy Star ceiling fans with coupons this year. How many of these fans did you buy with "Every Kilowatt Counts" coupons?

_____ Energy Star ceiling fans [If "0", skip to next product]

MCF6. How many of the fans replaced an existing Energy Star ceiling fan, how many replaced an existing non-Energy Star ceiling fan, how many replaced a light fixture without a ceiling fan, how many were new fixtures you added, and how many are not installed yet? **[Record number of each]**

_____ Replaced an existing Energy Star ceiling fan

- _____ Replaced an existing ceiling fan
 _____ Replaced a light fixture without a ceiling fan
 _____ Are new fixtures added
 _____ Not installed yet

MCF7. On the day when you bought your ceiling fans with the coupon this year, were you already planning to buy an Energy Star ceiling fans that particular day?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

MCF8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|--|-------------------------------|
| Made exactly the same purchase, | 1 Skip to next product |
| Bought regular ceiling fans that day, instead, | 2 Skip to next product |
| Bought Energy Star ceiling fans but at a later date, | 3 Skip to next product |
| Bought regular ceiling fans, but at a later date, or | 4 Skip to next product |
| Bought fewer Energy Star ceiling fans | 5 Go to MCF8 |
| Bought fewer regular ceiling fans | 6 Go to MCF8 |
| Bought no ceiling fan? | 7 Skip to next product |
| Other (Specify): [Don't read] | 8 Skip to next product |
| Don't know [Don't read] | 9 Skip to next product |

MCF8a. How many ceiling fans would you have bought?

_____ ceiling fans

SINGLE FURNACE FILTER

[Ask MFF1-MFF4 if only one coupon was used to buy furnace filters (A2-a-c = 1)]

MFF1. You mentioned that you bought furnace filters with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

- | | |
|-----|-------------------------------|
| Yes | 1 Continue |
| No | 2 Skip to next product |

MFF2. Since you bought these filters, are you replacing your furnace filters the same number of times as before you made your purchase, more frequently, or less frequently?

- _____ Replacing them just as frequently as before
 _____ Replacing them more frequently
 _____ Replacing them less frequently
 _____ Don't know

MFF3. On the day when you bought your furnace filters with the coupon this year, were you already planning to buy furnace filters that particular day?

Yes	1
No	2

MFF4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Bought different type of filters,	1 Skip to next product
Bought fewer filters, (how many):	2 Go to MFF4a
Not bought filters at all, or	3 Skip to next product
Bought filters at a later date?	4 Skip to next product
Other (Specify):	5 Skip to next product
Don't know	9 Skip to next product

MFF4a. How many furnace filters would you have bought?

_____ furnace filters

MULTIPLE FURNACE FILTERS

[Ask MFF5-MFF8a if more than one coupon was used to buy furnace filters (A2-a-c > 1)]

MFF5. You mentioned that you bought (number of the furnace filters purchased with coupons) furnace filters with coupons this year. How many of those furnace filters did you buy with "Every Kilowatt Counts" coupons?

_____ furnace filters **[If "0", skip to next product]**

MFF5a. And how many "Every Kilowatt Counts" coupons did you use?

_____ EKC coupons

MFF6. Since you bought these filters, are you replacing your furnace filters the same number of times as before you made your purchase, more frequently, or less frequently?

_____ Replacing them just as frequently as before
_____ Replacing them more frequently
_____ Replacing them less frequently
_____ Don't know

MFF7. On the day when you bought your furnace filters with the coupons this year, were you already planning to buy furnace filters that particular day?

Yes	1
-----	---

No 2

MFF8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Bought different type of filters,	1 Skip to next product
Bought fewer filters, (how many):	2 Go to MFF8a
Not bought filters at all, or	3 Skip to next product
Bought filters at a later date?	4 Skip to next product
Other (Specify):	5 Skip to next product
Don't know	9 Skip to next product

MFF8a. How many furnace filters would you have bought?

_____ furnace filters

MFF9. Do you have central air conditioning?

Yes	1
No	2

SINGLE OUTDOOR MOTION SENSOR LIGHT

[Ask MMS1-MMS4 if only one outdoor motion sensor light was purchased with coupon (A2e or A3e = 1)]

MMS1. You mentioned that you bought an outdoor motion sensor light with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

Yes	1 Continue
No	2 Skip to next product

MMS2. Did your outdoor motion sensor light replace an existing outdoor motion sensor light, a regular outdoor light fixture, was it a new light that you added, or is it not installed yet?

_____ a. Replaced existing outdoor motion sensor light
 _____ b. Replaced a regular outdoor light fixture
 _____ c. Was new light added
 _____ d. Not installed yet

MMS3. On the day when you bought your outdoor motion sensor with the coupon this year, were you already planning to buy an outdoor motion sensor light that particular day?

Yes	1
No	2

MMS4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|---|-------------------------------|
| Made exactly the same purchase, | 1 Skip to next product |
| Bought an outdoor light without a motion sensor, | 2 Skip to next product |
| Bought an outdoor motion sensor light but at a later date, or | 3 Skip to next product |
| Bought no outdoor light? | 4 Skip to next product |
| Other (Specify): | 8 Don't read |
| Don't know | 9 Don't read |

MULTIPLE OUTDOOR MOTION SENSOR LIGHTS

[Ask MMS5-MMS8a if more than one outdoor motion sensor was purchased with coupon (A2e or A3e > 1)]

MMS5. You mentioned that you bought (number of the outdoor motion sensors purchased with coupons) outdoor motion sensors with coupons this year. How many of these motion sensors did you buy with "Every Kilowatt Counts" coupons?

_____ outdoor motion sensors **[If "0", skip to next product]**

MMS6. How many of the motion sensor lights replaced existing outdoor motion sensor lights, how many replaced regular outdoor light fixtures, how many were new fixtures that you added, and how many are not installed yet?

- _____ a. Replaced existing outdoor motion sensor light
- _____ b. Replaced a regular outdoor light fixture
- _____ c. Was new light added
- _____ d. Not installed yet

MMS7. On the day when you bought your outdoor lights with the coupon this year, were you already planning to buy an outdoor motion sensor lights that particular day?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

MMS8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|--|-------------------------------|
| Made exactly the same purchase, | 1 Skip to next product |
| Bought regular outdoor lights without motion sensors that day, | 2 Skip to next product |
| Bought motion sensor lights but at a later date, | 3 Skip to next product |
| Bought regular outdoor lights but at a later date, | 4 Skip to next product |
| Bought fewer outdoor motion sensors, | 5 Go to MMS8a |
| Bought fewer regular outdoor lights, or | 6 Go to MMS8b |
| Bought no outdoor lights? | 7 Skip to next product |
| Other (Specify): | 8 Don't read |

Don't know

9 **Don't read**

MSL8a. **[Ask if MMS8 = 5]** How many outdoor motion sensor lights would you have been likely to buy?

_____ outdoor solar lights

_____ Don't know

MMS8b. **[Ask if MMS8 = 6]** How many regular outdoor lights without motion sensors would you have been likely to buy?

_____ regular outdoor lights

_____ Don't know

SINGLE DIMMER SWITCH

[Ask MDS1-MDS4 if only one dimmer switch was purchased with coupon (A2f or A3f = 1)]

MDS1. You mentioned that you bought a dimmer switch with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

Yes

1 **Continue**

No

2 **Skip to next product**

MDS2. Did your dimmer switch replace an existing dimmer switch, replace a regular light switch, is it a new light switch that you added, or is it not installed yet?

_____ a. Replaced existing dimmer switch

_____ b. Replaced a regular light switch

_____ c. Is new light switch added

_____ d. Not installed yet

MDS3. On the day when you bought your dimmer switch with the coupon this year, were you already planning to buy a dimmer switch that particular day?

Yes

1

No

2

MDS4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchase,

1 **Skip to next product**

Bought a regular light switch,

2 **Skip to next product**

Bought a dimmer switch but at a later date, or

3 **Skip to next product**

Bought no dimmer switch?

4 **Skip to next product**

Other (Specify): **[Don't read]**

8 **Skip to next product**

Don't know **[Don't read]**

9 **Skip to next product**

MULTIPLE DIMMER SWITCHES

[Ask MDS5-MDS8a if more than one dimmer switch was purchased with coupon (A2f or A3f > 1)]

MDS5. You mentioned that you bought (number of the dimmer switches purchased with coupons) dimmer switches with coupons this year. How many of these switches did you buy with "Every Kilowatt Counts" coupons?

_____ dimmer switches **[If "0", skip to next product]**

MDS6. How many of the dimmer switches replaced existing dimmer switches, how many replaced regular light switches, how many were new light switches that you added, and how many are not installed yet?

- _____ a. Replaced existing dimmer switch
- _____ b. Replaced a regular light switch
- _____ c. Was new light switch added
- _____ d. Not installed yet

MDS7. On the day when you bought your dimmer switches with the coupon this year, were you already planning to buy a dimmer switch that particular day?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

MDS8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|--|-------------------------------|
| Made exactly the same purchase, | 1 Skip to next product |
| Bought regular light switches, | 2 Skip to next product |
| Bought dimmer switches but at a later date, | 3 Skip to next product |
| Bought regular light switches but at a later date, | 4 Skip to next product |
| Bought fewer dimmer switches, | 5 Go to MDS8a |
| Bought fewer regular light switches, or | 6 Go to MDS8b |
| Bought no dimmer switches? | 7 Skip to next product |
| Other (Specify): [Don't read] | 8 Skip to next product |
| Don't know [Don't read] | 9 Skip to next product |

MSL8a. **[Ask if MDS8 = 5]** How many dimmer switches would you have been likely to buy?

_____ dimmer switches
 _____ Don't know

MMS8b. **[Ask if MDS8 = 6]** How many regular light switches would you have been likely to buy?

_____ regular outdoor light switches
_____ Don't know

SINGLE SEASONAL LED STRING

[Ask MHL1-MHL4 if only one LED holiday light string was purchased with coupon (A2g or A3g = 1)]

MHL1. You mentioned that you bought an LED holiday light string with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

Yes	1 Continue
No	2 Skip to next product

MHL2. Will your LED holiday light string replace an existing LED light string, a regular holiday light string, or will it be an additional holiday light string that you add this year?

_____ a. Replaced existing LED string
_____ b. Replaced a regular light string
_____ c. Will be an additional light string added

MHL3. On the day when you bought your light string with the coupon this year, were you already planning to buy an LED holiday light string that particular day?

Yes	1
No	2

MHL4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchase,	1 Skip to next product
Bought a regular holiday light string,	2 Skip to next product
Bought an LED holiday light string but at a later date,	3 Skip to next product
Bought a regular holiday light string but at a later date, or	4 Skip to next product
Bought no holiday light string?	5 Skip to next product
Other (Specify): [Don't read]	8 Skip to next product
Don't know [Don't read]	9 Skip to next product

MULTIPLE SEASONAL LED STRINGS

[Ask MHL5-MHL8a if more than one LED holiday light string was purchased with coupon (A2g or A3g > 1)]

MHL5. You mentioned that you bought (number of the LED light strings purchased with coupons) LED holiday light strings with coupons this year. How many of these light strings did you buy with "Every Kilowatt Counts" coupons?

_____ LED holiday light strings **[If "0", skip to next product]**

MHL6. How many of the LED light strings will be replacing existing LED light strings, how many will be replacing regular light strings, and how many are new light strings you will be adding this year?

- _____ a. Replacing existing LED light strings
 _____ b. Replacing regular light strings
 _____ c. Will be additional light strings added

MHL7. On the day when you bought your light string with the coupon this year, were you already planning to buy an LED holiday light string that particular day?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

MHL8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|--|-------------------------------|
| Made exactly the same purchases, | 1 Skip to next product |
| Bought regular holiday light strings that day, | 2 Skip to next product |
| Bought LED lights but at a later date, | 3 Skip to next product |
| Bought regular lights but at a later date, | 4 Skip to next product |
| Bought fewer LED holiday light strings, | 5 Go to MHL8a |
| Bought fewer regular light strings, or | 6 Go to MHL8b |
| Bought no holiday light strings? | 7 Skip to next product |
| Other (Specify): [Don't read] | 8 Skip to next product |
| Don't know [Don't read] | 9 Skip to next product |

MHL8a. **[Ask if MHL8 = 5]** How many LED holiday light strings would you have been likely to buy?

- _____ LED holiday light strings
 _____ Don't know

MHL8b. **[Ask if MHL8 = 6]** How many regular outdoor light strings would you have been likely to buy?

- _____ outdoor solar lights
 _____ Don't know

SINGLE INDOOR TIMER

[Ask MAT1-MAT4 if only one lighting & appliance timer was purchased with coupon (A2h or A3h = 1)]

MAT1. You mentioned that you bought an indoor or outdoor timer with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

- | | |
|-----|-------------------------------|
| Yes | 1 Continue |
| No | 2 Skip to next product |

MAT2. Did your timer replace an existing timer, do you have something on a timer now that was previously not on a timer, or is the timer not installed yet?

- _____ a. Replaced existing timer
 _____ b. Have something on timer now that wasn't on before
 _____ c. Not installed yet

MAT3. On the day when you bought your timer with the coupon this year, were you already planning to buy a timer that particular day?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

MAT4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|--|-------------------------------|
| Made exactly the same purchase, | 1 Skip to next product |
| Bought a timer but at a later date, or | 2 Skip to next product |
| Bought no timer? | 3 Skip to next product |
| Other (Specify): [Don't read] | 8 Skip to next product |
| Don't know [Don't read] | 9 Skip to next product |

MULTIPLE INDOOR TIMERS

[Ask MAT5-MAT8a if more than one lighting & appliance timer was purchased with coupon (A2h or A3h > 1)]

MAT5. You mentioned that you bought (number of the timers purchased with coupons) lighting or appliance timers with coupons this year. How many of these timers did you buy with "Every Kilowatt Counts" coupons?

_____ lighting & appliance timers **[If "0", skip to next product]**

MAT6. How many of the timers replaced existing timers, how many are controlling devices that had no timers on them before, and how many are not installed yet?

- _____ a. Replacing existing timer
 _____ c. Will be controlling devices previously having no timers
 _____ c. Not installed yet

MAT7. On the day when you bought your timers with the coupon this year, were you already planning to buy a timer that particular day?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

MAT8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|--------------------------------------|-------------------------------|
| Made exactly the same purchases, | 1 Skip to next product |
| Bought timers but at a later date, | 2 Skip to next product |
| Bought fewer timers, | 3 Go to MAT8a |
| Bought no timers? | 4 Skip to next product |
| Other (Specify): [Don't read] | 8 Skip to next product |
| Don't know [Don't read] | 9 Skip to next product |

MAT8a. **[Ask if MAT8 = 3]** How many timers would you have been likely to buy?

_____ timers
_____ Don't know

SINGLE INDOOR MOTION SENSOR

[Ask MIM1-MIM4 if only one indoor motion sensor was purchased with coupon (A2i or A3i = 1)]

MIM1. You mentioned that you bought an indoor motion sensor with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

- | | |
|-----|-------------------------------|
| Yes | 1 Continue |
| No | 2 Skip to next product |

MIM2. Did your motion sensor replace an existing motion sensor, is it controlling lights that were not controlled before, or is it not installed yet?

- _____ a. Replaced existing motion sensor
_____ b. Controlling lights that were not controlled before
_____ c. Not installed yet

MIM3. On the day when you bought your motion sensor with the coupon this year, were you already planning to buy a motion sensor that particular day?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

MIM4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|--|-------------------------------|
| Made exactly the same purchase, | 1 Skip to next product |
| Bought a motion sensor but at a later date, or | 2 Skip to next product |
| Bought no motion sensor? | 3 Skip to next product |
| Other (Specify): [Don't read] | 8 Skip to next product |
| Don't know [Don't read] | 9 Skip to next product |

MULTIPLE INDOOR MOTION SENSORS

[Ask MIM5-MIM8a if more than one indoor motion sensor was purchased with coupon (A2i or A3i > 1)]

MIM5. You mentioned that you bought (number of the indoor motion sensors purchased with coupons) indoor motion sensors with coupons this year. How many of these motion sensors did you buy with "Every Kilowatt Counts" coupons?

_____ indoor motion sensors [**If "0", skip to next product**]

MIM6. How many of the motion sensors replaced existing motion sensors, how many are controlling lights that were not controlled before, and how many are not installed yet?

_____ a. Replacing existing timer

_____ c. Controlling lights that were not controlled before

_____ c. Not installed yet

MIM7. On the day when you bought your indoor motion sensors with the coupon this year, were you already planning to buy a motion sensor that particular day?

Yes 1

No 2

MIM8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchases, 1 **Skip to next product**

Bought motion sensors but at a later date, 2 **Skip to next product**

Bought fewer motion sensors, 3 **Go to MIM8a**

Bought no motion sensors? 4 **Skip to next product**

Other (Specify): **[Don't read]** 8 **Skip to next product**

Don't know **[Don't read]** 9 **Skip to next product**

MIM8a.**[Ask if MIM8 = 3]** How many motion sensors would you have been likely to buy?

_____ motion sensors

_____ Don't know

SINGLE BASEBOARD HEATER PROGRAMMABLE THERMOSTAT

[Ask MPT1-MPT4 if only one baseboard heater programmable thermostat was purchased with coupon (A2j or A3j = 1)]

MPT1. You mentioned that you bought a baseboard heater programmable thermostat with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

Yes 1 **Continue**

No 2 **Skip to next product**

MPT2. Did your programmable thermostat replace an existing baseboard heater programmable thermostat, a regular (non-programmable) baseboard heater thermostat, is it thermostat controlling a new baseboard heater that didn't previously have a thermostat, or is it not installed yet?

- _____ a. Replaced existing baseboard heater programmable thermostat
 _____ b. Replaced a regular baseboard heater thermostat
 _____ c. Controlling a baseboard heater that was not controlled before
 _____ d. Not installed yet

MPT3. On the day when you bought your thermostat with the coupon this year, were you already planning to buy a baseboard heater programmable thermostat that particular day?

Yes	1
No	2

MPT4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchase,	1 Skip to next product
Bought a regular baseboard heater thermostat	2 Skip to next product
Bought a programmable thermostat but at a later date,	3 Skip to next product
Bought a regular thermostat but at a later date, or	4 Skip to next product
Bought no thermostat?	5 Skip to next product
Other (Specify): [Don't read]	8 Skip to next product
Don't know [Don't read]	9 Skip to next product

MULTIPLE BASEBOARD HEATER PROGRAMMABLE THERMOSTATS

[Ask MPT5-MPT8a if more than one baseboard heater programmable thermostat was purchased with coupon (A2j or A3j > 1)]

MPT5. You mentioned that you bought (number of the baseboard heater programmable thermostats purchased with coupons) baseboard heater programmable thermostats with coupons this year. How many of these thermostats did you buy with "Every Kilowatt Counts" coupons?

_____ baseboard heater programmable thermostats **[If "0" skip to next product] [If**

MPT6. How many of the thermostats replaced existing baseboard heater programmable thermostats, how many replaced existing regular (non-programmable) thermostats, how many are controlling new baseboard heaters that didn't previously have a thermostat, and how many are not installed yet?

- _____ a. Replaced existing baseboard heater programmable thermostat
 _____ b. Replaced a regular baseboard heater thermostat
 _____ c. Controlling a baseboard heater that was not controlled before
 _____ d. Not installed yet

MPT7. On the day when you bought your thermostats with the coupons this year, were you already planning to buy a baseboard heater programmable thermostat that particular day?

Yes	1
-----	---

No

2

MPT8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|--|------------------------|
| Made exactly the same purchase, | 1 Skip to next product |
| Bought regular baseboard heater thermostats | 2 Skip to next product |
| Bought programmable thermostats but at a later date, | 3 Skip to next product |
| Bought regular thermostats but at a later date, | 4 Skip to next product |
| Bought fewer programmable thermostats, | 5 Go to MPT8a |
| Bought fewer regular thermostats, or | 6 Go to MPT8b |
| Bought no thermostats at all? | 7 Skip to next product |
| Other (Specify): [Don't read] | 8 Skip to next product |
| Don't know [Don't read] | 9 Skip to next product |

MPT8a.**[Ask if MPT8 = 3]** How many programmable thermostats would you have been likely to buy?

- _____ programmable thermostats
_____ Don't know

MPT8b.**[Ask if MPT8 = 3]** How many regular thermostats would you have been likely to buy?

- _____ regular thermostats
_____ Don't know

SINGLE T-8 LIGHT OR T-8 FIXTURE

[Ask MTL1-MTL4 if only one T-8 light of fixture was purchased with coupon (A2k or A3k = 1)]

MTL1. You mentioned that you bought a T-8 light or fixture with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

- | | |
|-----|------------------------|
| Yes | 1 Continue |
| No | 2 Skip to next product |

MTL2. Did your T-8 light replace an existing T-8 light, a regular T-12 fluorescent fixture, a regular incandescent fixture, is it a new fixture, or is it not installed yet?

- _____ a. Replaced existing T-8
_____ b. Replaced a regular T-12 fluorescent fixture
_____ c. Replaced a regular incandescent fixture
_____ d. Is a new fixture
_____ e. Not installed yet

MTL3. On the day when you bought your T-8 fixture with the coupon this year, were you already planning to buy a T-8 fixture that particular day?

Yes	1
No	2

MTL4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchase,	1 Skip to next product
Bought a regular T-12 fluorescent fixture	2 Skip to next product
Bought a regular incandescent fixture	
Bought a T-8 light but at a later date,	3 Skip to next product
Bought a regular T-12 fluorescent light but at a later date, or	4 Skip to next product
Bought a regular incandescent light but at a later date, or	5 Skip to next product
Bought no light fixture at all?	6 Skip to next product
Other (Specify): [Don't read]	8 Skip to next product
Don't know [Don't read]	9 Skip to next product

MULTIPLE T-8 LIGHTS OR T-8 FIXTURES

[Ask MTL5-MTL8a if more than one T-8 light or fixture was purchased with coupon (A2k or A3k > 1)]

MTL5. You mentioned that you bought (number of the T-8 lights purchased with coupons) T-8 lights with coupons this year. How many of these T-8 lights did you buy with "Every Kilowatt Counts" coupons?

_____ T-8 lights or fixtures **[If "0", skip to next product]**

MTL6. How many of the T-8 lights replaced existing T-8 lights, how many replaced regular T-12 fluorescent lights, how many replaced existing regular incandescent lights, how many are new fixtures you added, and how many are not installed yet?

_____ a. Replaced existing T-8 light
 _____ b. Replaced an existing T-12 fluorescent light
 _____ c. Replaced a regular incandescent light
 _____ d. Is a new light fixture
 _____ e. Not installed yet

MTL7. On the day when you bought your T-8 lights with the coupons this year, were you already planning to buy a T-8 light that particular day?

Yes	1
No	2

MTL8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchase,	1 Skip to next product
---------------------------------	------------------------

Bought regular T-12 fluorescent fixtures	2 Skip to next product
Bought regular incandescent fixtures	
Bought T-8 lights but at a later date,	3 Skip to next product
Bought regular T-12 fluorescent lights but at a later date, or	4 Skip to next product
Bought regular incandescent lights but at a later date, or	5 Skip to next product
Bought fewer T-8 lights	6 Go to MTL8a
Bought fewer T-12 fluorescent lights	7 Go to MTL 8b
Bought fewer incandescent lights	8 Go to MTL8c
Bought no light fixture at all?	9 Skip to next product
Other (Specify): [Don't read]	10 Skip to next product
Don't know [Don't read]	99 Skip to next product

MTL8a.**[Ask if MPT8 = 3]** How many T-8 lights would you have been likely to buy?

_____ T-8 lights
_____ Don't know

MTL8b.**[Ask if MPT8 = 3]** How many regular T-12 fluorescent lights would you have been likely to buy?

_____ regular T-12 fluorescent lights
_____ Don't know

MTL8c.**[Ask if MPT8 = 3]** How many regular incandescent lights would you have been likely to buy?

_____ regular incandescent lights
_____ Don't know

SINGLE PLUG-IN POWER STRIP / POWER BAR WITH INTEGRATED TIMER

[Ask MPS1-MPS4 if only one plug-in power strip with integrated timer was purchased with coupon (A2I or A3I = 1)]

MPS1. You mentioned that you bought a plug-in power strip that had a timer in it with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

Yes	1 Continue
No	2 Skip to next product

MPS2. Did your power strip replace an existing plug-in power strip with a timer, a power strip with no timer, is it controlling devices that were not controlled before, or is it not installed yet?

_____ a. Replaced existing plug-in power strip with integrated timer
_____ b. Replaced existing power strip with no timer
_____ c. Controlling devices that were not controlled before

_____ d. Not installed yet

MPS3. On the day when you bought your power strip with the coupon this year, were you already planning to buy a power strip that had an integrated timer that particular day?

Yes	1
No	2

MPS4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchase,	1 Skip to next product
Bought a regular power strip without a timer	2 Skip to next product
Bought a power strip with a timer but at a later date, or	3 Skip to next product
Bought a regular power strip but at a later date, or	4 Skip to next product
Bought no power strip?	5 Skip to next product
Other (Specify): [Don't read]	8 Skip to next product
Don't know [Don't read]	9 Skip to next product

MULTIPLE PLUG-IN POWER STRIPS / POWER BARS WITH INTEGRATED TIMERS

[Ask MPS5-MPS8a if more than one plug-in power strip with an integrated timer was purchased with coupon (A2I or A3I > 1)]

MPS5. You mentioned that you bought (number of the plug-in power strips with integrated timer purchased with coupons) plug-in power strips with timers in them with coupons this year. How many of these power strips did you buy with "Every Kilowatt Counts" coupons?

_____ power strips with integrated timers **[If "0", skip to next product]**

MPS6. How many of the power strips replaced existing power strips with timers, how many replaced power strips that didn't have timers, how many are controlling devices that were not controlled before, and how many are not installed yet?

_____ a. Replacing power strip with integrated timer
_____ b. Replaced power strip with no timer
_____ c. Controlling devices that were not controlled before
_____ d. Not installed yet

MPS7. On the day when you bought your power strips with the coupon this year, were you already planning to buy power strips with timers in them that particular day?

Yes	1
No	2

MPS8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

- | | |
|---|-------------------------------|
| Made exactly the same purchase, | 1 Skip to next product |
| Bought regular power strips without timers | 2 Skip to next product |
| Bought power strips with timers but at a later date, or | 3 Skip to next product |
| Bought regular power strips but at a later date, or | 4 Skip to next product |
| Bought fewer power strips with timers | 5 Go to MPS8a |
| Bought fewer power strips without timers, or | 6 Go to MPS8b |
| Bought no power strip? | 7 Skip to next product |
| Other (Specify): [Don't read] | 8 Skip to next product |
| Don't know [Don't read] | 9 Skip to next product |

MPS8a. **[Ask if MPS8 = 3]** How many power strips with timers would you have been likely to buy?

_____ power strips with integrated timers
_____ Don't know

MPS8b. **[Ask if MPS8 = 3]** How many power strips without timers would you have been likely to buy?

_____ power strips without timers
_____ Don't know

SINGLE ENERGY STAR LIGHT FIXTURE

[Ask MLF1-MLF4 if only one Energy Star light fixture was purchased with coupon (A2m or A3m = 1)]

MLF1. You mentioned that you bought an Energy Star light fixture with a coupon this year. Was that coupon an "Every Kilowatt Counts" coupon?

- | | |
|-----|-------------------------------|
| Yes | 1 Continue |
| No | 2 Skip to next product |

MLF5a1. Was the fixture you bought . . . [Read list and record response]

- 1 An outdoor fixture,
- 2 A ceiling fixture,
- 3 A wall fixture,
- 4 A floor lamp, or
- 5 A table lamp?
- 6 Other (Specify): _____

MLF2. Did it replace an existing Energy Star light fixture, an existing regular light fixture, was it a new light fixture you added, or is it not installed yet?

_____ Replaced an existing Energy Star light fixture
_____ Replaced a regular light fixture
_____ Was a new light fixture that was added

_____ Not installed yet

MLF3. On the day when you bought your light fixture with the coupon this year, were you already planning to buy an Energy Star light fixture that particular day?

Yes	1
No	2

MLF4. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchase,	1 Skip to next product
Bought a regular light fixture,	2 Skip to next product
Bought an Energy Star light fixture but at a later date,	3 Skip to next product
Bought a regular light fixture at a later date, or	4 Skip to next product
Bought no light fixture?	5 Skip to next product
Other (Specify): [Don't read]	8 Skip to next product
Don't know [Don't read]	9 Skip to next product

MULTIPLE ENERGY STAR LIGHT FIXTURES

[Ask MSL5-MSL8a if more than one Energy Star light fixture was purchased with coupon (A2m or A3m > 1)]

MLF5. You mentioned that you bought (number of Energy Star light fixtures purchased with coupons) Energy Star light fixtures with coupons this year. How many of these fixtures did you buy with "Every Kilowatt Counts" coupons?

_____ Energy Star fixtures **[If "0", skip to next product]**

MLF5a. How many of the fixtures you bought with "Every Kilowatt Counts" coupons were . . . [Read each item, record response, and then continue to next item]

_____ Outdoor fixtures?
_____ Ceiling fixtures?
_____ Wall fixtures?
_____ Floor lamps?
_____ Table lamps?
_____ Some other type of fixtures (Specify): [Ask only if respondent indicates none of the above]

MLF6. How many of the fixtures replaced existing Energy Star light fixtures, how many replaced regular light fixtures, how many were new fixtures you added, and how many are not installed yet? **[Record number of each]**

_____ Replaced existing Energy Star light fixtures
_____ Replaced existing regular light fixtures
_____ Were new fixtures added
_____ Not installed yet

MLF7. On the day when you bought your light fixtures with the coupon this year, were you already planning to buy an Energy Star light fixtures that particular day?

Yes	1
No	2

MLF8. If there had been no price discounts and no "Every Kilowatt Counts" program information or advertising, how do you think your purchase that day would have been different? Would you have . . .

Made exactly the same purchase,	1 Skip to next product
Bought regular light fixtures that day,	2 Skip to next product
Bought Energy Star lights but at a later date,	3 Skip to next product
Bought regular lights but at a later date,	4 Skip to next product
Bought fewer Energy Star lights,	5 Go to MLF8a
Bought fewer regular lights, or	6 Go to MLF8b
Bought no light fixtures at all?	7 Skip to next product
Other (Specify):	8 Don't read
Don't know	9 Don't read

MLF8a.**[Ask if MLF8 = 5]** How many Energy Star light fixtures would you have been likely to buy?

_____ Energy Star light fixtures
 _____ Don't know

MLF8b.**[Ask if MLF8 = 6]** How many regular light fixtures would you have been likely to buy?

_____ regular Light fixtures
 _____ Don't know

GO TO SECTION G

Section GNP: General Non-Participant Survey – No Purchases with Coupons

[Ask GNP series of questions if A2a through A2m = 0, and A3a through A3m = 0]

[Ask GNP1 through GNP4 series of questions **for each item for which A1>0, other than A1b**. Also start here if transferring from an “other products” survey when it is found that the respondent did not use an “Every Kilowatt Counts” coupon for ANY “other” product.]

GNP1. [Ask if only one (name of product) was bought, i.e., value for A1=1] You said you purchased a (name of product) in 2007 without using a discount coupon. During which of the following periods did you buy that (name of product)? Between January and mid-April, between mid-April and mid-June, between mid-June and mid-September, or after mid-September?

January to mid-April,	1
Mid-April to mid-June,	2
Mid-June to mid-September, or	3
After mid-September	4
Don't know [Don't read]	9

GNP2. [Ask if only one (name of product) was bought, i.e., value for A1=1] Have you installed your (name of product) yet?

Yes	1 Continue
No	2 Continue

GNP3. [Ask if more than one (name of product) was bought, i.e., value for A1>1] You said you had purchased (number of units from A1) (name of product)s in 2007 without using a discount coupon. During which of the following periods did you buy each of those (name of product)(s)? Between January and mid-April, between mid-April and mid-June, between mid-June and mid-September, or after mid-September?

January to mid-April,	1
Mid-April to mid-June,	2
Mid-June to mid-September, or	3
After mid-September	4
Don't know [Don't read]	9

GNP4. [Ask if more than one (name of product) was bought, i.e., value for A1>1] How many of these have you already installed?

_____ (name of product)s

[Ask of all respondents]

GNP5. How many compact fluorescent light bulbs are installed in your home? [If respondent did not purchase any CFLs, i.e., A1b = 0, add: “As I mentioned before, these are the ones with twisted tops, and they are usually referred to as CFLs.”]

_____ CFLs installed

GNP5a. **[Ask if GNP5 = 1]** Did you buy that CFL in 2006?

Yes	1 Continue
No	2 Skip to GNP7

GNP5b. **[Ask if GNP5a = 1]** Did you buy that CFL with an “Every Kilowatt Counts” coupon during the program’s Spring and Fall campaigns in 2006?

Yes	1 Continue
No	2 Continue
Don’t know	9 Continue

GNP5c. **[Ask if GNP5a = 1]** Do you think the 2006 “Every Kilowatt Counts” program campaigns influenced you in any way to buy that CFL?

Yes	1 Skip to GNP7
No	2 Skip to GNP7
Don’t know	9 Skip to GNP7

GNP6. **[Ask if GNP5>1]** How many of those CFLs did you buy during 2006?

_____ CFLs bought during 2006 **[If “0” skip to GNP7]**

GNP6a. **[Ask if GNP5>1 and GNP6=1]** Did you buy that CFL with an “Every Kilowatt Counts” coupon during the program’s Spring and Fall campaigns in 2006?

Yes	1 Continue
No	2 Continue
Don’t know	9 Continue

GNP6b. **[Ask if GNP5>1 and GNP6=1]** Do you think the 2006 “Every Kilowatt Counts” program campaigns influenced you in any way to buy that CFL?

Yes	1 Skip to GNP7
No	2 Skip to GNP7
Don’t know	9 Skip to GNP7

GNP6c. **[Ask if GNP5 and GNP6 > 1]** How many of those CFLs did you buy with an “Every Kilowatt Counts” coupon during the program’s Spring and Fall campaigns in 2006?

_____ CFLs bought using 2006 EKC program coupons **[Continue]**

_____ Don’t know **[Continue]**

GNP6d. **[Ask if GNP5 and GNP6 > 1]** How many of those CFLs, if any, do you think the 2006 “Every Kilowatt Counts” program campaigns influenced you in any way to buy?

_____ CFLs **[Continue]**

_____ Don't know **[Continue]**

GNP7. If there are no discounts on CFLs, how likely are you to buy one in the next 6 months? Would you say . . .

_____ Extremely likely,

_____ Very likely,

_____ Somewhat likely,

_____ Not very likely, or

_____ Not at all likely to buy it?

GNP8. Do you know what it means for a light fixture to be an Energy Star light fixture?

Yes **1 Skip to GNP8a**

No **2 Skip to GNP9**

Don't know **9 Skip to GNP9**

GNP8a. **[Ask if GNP8 = 1]** What does it mean?

Energy efficient/saves energy **1**

Bulbs have pins/light fixture doesn't accept screw-in lights **2**

Other (Specify): **3**

Don't know **9**

GNP8b. **[Ask if GNP8 = 1]** How many Energy Star light fixtures, if any, do you have installed in your home?

_____ Energy Star light fixtures

GNP8c. **[Ask if GNP8 = 1]** Did you consider buying one this year?

Yes **1**

No **2**

Don't know **9**

GNP8d. **[Ask if GNP8 = 1]** What prevented you from buying one?

Don't need a fixture	1
Too expensive	2
Too experimental	3
Concerned about being able to get bulbs to fit	4
I DID buy one	5
Other (Specify):	8
Don't know	9

GNP9. Do you know what a T-8 lighting fixture is?

Yes	1 Continue
No	2 Skip to GNP10

GNP9a. How many T-8 light fixtures do you have installed in our home?

_____ T-8 light fixtures

GNP8b.[Ask if GNP9 = 1] Did you consider buying one this year?

Yes	1
No	2

GNP9c. [Ask if GNP9 = 1] What prevented you from buying one?

Don't need a fixture	1
Too expensive	2
Too experimental	3
Concerned about being able to get bulbs to fit	4
I DID buy one	5
Other (Specify):	8
Don't know	9

GO TO SECTION G.

Section G: General Evaluation Questions

[Ask of all survey respondents]

G1. **[If A1>0 for any item, add: "Other than buying the products you mentioned earlier"]** Have you taken any actions to save energy in your home during 2007?

Yes

1 **Continue**

No

2 **Skip to G5**

G2. What actions have you taken?

Purchased an Energy Star washing machine	1
Purchased an Energy Star dishwasher	2
Purchased an Energy Star refrigerator	3
Purchased an Energy Star freezer	4
Purchased an Energy Star room air conditioner	5
Purchased an Energy Star heating system	6
Purchased an Energy Star central air conditioner	7
Purchased a programmable thermostat	8
Turned down thermostat in winter by 2 degrees or more	9
Used an existing programmable thermostat to automatically shift temperature	10
Turned up thermostat in summer by 2 degrees or more	11
Reduced use of air conditioning	12
Added ceiling/attic insulation	13
Closed drapes during the day to block the sun	14
Replaced windows	15
Got energy evaluation of home	16
Weatherproofed home/sealed around windows/doors	17
Insulated hot water heating pipes	18
Insulated water heater	19
Insulated pipes for domestic hot water supply	20
Washed laundry with cold water	21
Dried clothes outside or inside on a rack	22
Used fans instead of air conditioning	23
Ran the dishwasher only when it's full	24
Turned off lights when not in use	25
Turned off power to electronics (TV/computers) when not in use	26
Got rid of old appliance(s)/second refrigerator(s)	27
Other (Specify:	28
Other (Specify:	29

G2a. **[Ask if any of 10, 11, 14 or 22 is not selected in G2, only regarding each action if NOT mentioned]** Did you . . .

Use an existing <u>programmable</u> thermostat to automatically shift temperature in your home?	1 - Yes	2 - No	3 – Don't have one
Turn up your thermostat by 2 degrees or more during the summer to reduce central air conditioning use?	1 - Yes	2 - No	3 – Don't have central air conditioning
Close drapes during the day to block out the sun?	1 - Yes	2 - No	3 – Other
Dry clothes naturally outdoors on a clothesline or inside on a rack?	1 - Yes	2 - No	3 – Other

G3. Were you planning to take this action/these actions before you heard about the “Every Kilowatt Counts” discount coupons or saw the program’s advertising?

Yes	1
No	2

G4. How likely do you think you would have been to take this action/each of these actions if there had been no “Every Kilowatt Counts” program? Would you have been extremely likely, very likely, somewhat likely, not very likely or not at all likely?

Action	Likelihood				
	1-Extremely likely	2-Very	3-Some-what	4-Not very	5-Not at all likely
Purchased an Energy Star washing machine					
Purchased an Energy Star dishwasher					
Purchased an Energy Star refrigerator					
Purchased an Energy Star freezer					
Purchased an Energy Star room air conditioner					
Purchased an Energy Star heating system					
Purchased an Energy Star central air conditioner					
Purchased a programmable thermostat					
Turned down thermostat in winter by 2 degrees or more					
Used an existing programmable thermostat to automatically shift temperature					

Action	Likelihood				
	1-Extremely likely	2-Very	3-Some-what	4-Not very	5-Not at all likely
Turned up thermostat in summer by 2 degrees or more					
Reduced use of air conditioning					
Added ceiling/attic insulation					
Closed drapes during the day to block the sun					
Replaced windows					
Got energy evaluation of home					
Weatherproofed home/sealed around windows/doors					
Insulated hot water heating pipes					
Insulated water heater					
Insulated pipes for domestic hot water supply					
Washed laundry with cold water					
Dried clothes outside or inside on a rack					
Used fans instead of air conditioning					
Ran the dishwasher only when it's full					
Turned off lights when not in use					
Turned off power to electronics (TV/computers) when not in use					
Got rid of old appliance(s)/second refrigerator(s)					
Other (Specify:					
Other (Specify:					

G5. The "Every Kilowatt Counts" program advertising and booklet made suggestions about low-cost ways to save energy. Did these promotions make you become aware of . . . **[Don't ask about specific action if respondent indicated they took that action in G2 or G2a]**

Using an existing <u>programmable</u> thermostat to automatically shift temperature in your home?	1 - Yes	2 - No	3 - Don't have one
Turning up your thermostat by 2 degrees or more during the summer to reduce central air conditioning use?	1 - Yes	2 - No	3 - Don't have central air conditioning
Closing drapes during the day to block out the sun?	1 - Yes	2 - No	3 - Other
Drying clothes naturally outdoors on a clothesline or inside on a rack?	1 - Yes	2 - No	3 - Other

G6. Do you think you are more aware this year of inexpensive and free ways to save energy in your home than you were last year in 2006?

Yes

1 Continue

No

2 Skip to next section

G7. Do you think the “Every Kilowatt Counts” program contributed to your increased awareness?

Yes

1 Continue

No

2 Continue

GO TO SECTION D.

Section D: Demographics

[Ask of all survey respondents]

O.K. Finally, I have just a few categorization questions to ask.

D1. What is your 6-character postal code?

Code _ _ _ _ _ _
Don't know 2

D2. What is the name of your local electric utility company?

1	Atikokan Hydro Inc.	45	Lakeland Power Distribution Ltd.
2	Barrie Hydro Distribution Inc.	46	London Hydro Inc.
3	Bluewater Power Distribution Corporation	47	Middlesex Power Distribution Corp
4	Brant County Power Inc.	48	Midland Power Utility Corporation
5	Brantford Power Inc.	49	Milton Hydro Distribution Inc.
6	Burlington Hydro Inc.	50	Newbury Power Inc.
7	Cambridge and North Dumfries Hydro Inc.	51	Newmarket - Tay Power Distribution
8	Canadian Niagara Power Inc.	52	Niagara Falls Hydro Inc.
9	Centre Wellington Hydro Ltd.	53	Niagara-on-the-Lake Hydro Inc.
10	Chapleau Public Utilities Corporation	54	Norfolk Power Distribution Inc.
11	Chatham-Kent Hydro Inc.	55	North Bay Hydro Distribution Limited
12	Clinton Power Corporation	56	Northern Ontario Wires Inc.
13	COLLUS Power Corp.	57	Oakville Hydro Electricity Distribution
14	Cooperative Hydro	58	Ontario Hydro
15	Cornwall Street Railway Light and Power Co.	59	Orangeville Hydro Limited
16	Dubreuil Forest Products Ltd.	60	Orillia Power Distribution Corp
17	Dutton Hydro Limited	61	Oshawa PUC Networks Inc.
18	E.L.K. Energy Inc.	62	Ottawa River Power Corporation
19	Embrun Inc.	63	Parry Sound Power Corporation
20	Enersource Hydro Mississauga Inc.	64	Peninsula West Utilities Limited
21	ENWIN Powerlines Ltd.	65	Peterborough Distribution Inc
22	Erie Thames Powerlines Corporation	66	Port Colborne Hydro Inc.
23	Espanola Regional Hydro Distribution	67	PowerStream Inc.
24	Essex Powerlines	68	PUC Distribution Inc.
25	Festival Hydro Inc.	69	Renfrew Hydro Inc.
26	Grand Valley Energy Inc.	70	Rideau St. Lawrence Distribution Inc.
27	Great Lakes Power Limited	71	Sioux Lookout Hydro Inc.
28	Greater Sudbury Hydro Inc.	72	St. Thomas Energy Inc.
29	Grimsby Power Inc.	73	Terrace Bay Superior Wires Inc.

30	Guelph Hydro Electric Systems Inc.	74	Thunder Bay Hydro Electricity Distribution
31	Haldimand County Hydro Inc.	75	Tillsonburg Hydro Inc.
32	Halton Hills Hydro Inc.	76	Toronto Hydro-Electric System Limited
33	Hearst Power Distribution Company Limited	77	Veridian Connections Inc.
34	Horizon Utilities Corporation	78	Wasaga Distribution Inc.
35	Hydro 2000 Inc.	79	Waterloo North Hydro Inc.
36	Hydro Hawkesbury Inc.	80	Welland Hydro-Electric System Corp.
37	Hydro One Brampton Networks Inc.	81	Wellington North Power Inc.
38	Hydro One Networks Inc.	82	West Coast Huron Energy Inc.
39	Hydro Ottawa Limited	83	West Nipissing Energy Services Ltd.
40	Innisfil Hydro	84	West Perth Power Inc.Inc.
41	Kenora Hydro	85	Westario Power Inc.
42	Kingston Electricity Distribution / Utilities Kingston	86	Whitby Hydro Electric Corporation
43	Kitchener-Wilmot Hydro Inc.	87	Woodstock Hydro Services Inc.
44	Lakefront Utilities Inc.	98	Other (Specify): _____
		99	Don't know

D3. Do you own or rent your current place of residence?

Own	1
Rent	2

D4. Which of the following types of homes do you live in? **[Read list. Take one.]**

Single family detached house,	1
Single family semi-detached house,	2
Townhouse or rowhouse,	3
Duplex, triplex, fourplex, or	4
Condominium/apartment	5
Other [Don't read]	6
Refused [Don't read]	9
Grade school or less,	1
Some high school,	2
High school grad,	3
Vocational/Technical school,	4
Some college,	5
Completed college,	6
Some university,	7
Completed university, or	8
Postgraduate degree	9

D5. What is the last level of education that you have completed?
[Read list]

Prefer not to say **[Don't read]**

99

D6. Which of the following best describes your current job status? **[Read list]**

Self-employed,	1
Working full-time,	2
Working part-time,	3
Homemaker,	4
Student,	5
Retired,	6
Not currently employed, looking for work,	7
Not currently employed, unable to work, or	8
Not currently employed, not looking for work	9
Prefer not to say [Don't read]	99

D7. How many people, including yourself, live in the household?

One	1
Two	2
Three	3
Four	4
Five or more	5
Prefer not to say [Don't read]	9

[ASK D8 IF D7>1. Auto code D7=1 as D8=0]

[Those who say "Two" in D7 can not say "Two" or "Three or more" in D8]

[Those who say "Three" in D7 can not say "Three or more" in D8]

D8. How many children under the age of 18 live the household?

None	0
One	1
Two	2
Three or more	3
Prefer not to say [Don't read]	9

D9. Do you own and use a cell phone?

Yes	1
No	2

D10. Do you have a computer with access to the internet?

Yes	1
No	2

D11. On a scale of 1-5, where “1” means “very uncomfortable”, “5” means “very comfortable” and “3” means “neither comfortable nor uncomfortable”, how comfortable would you say you are with computers”?

Very uncomfortable	1
Somewhat uncomfortable	2
Neither comfortable nor uncomfortable	3
Somewhat comfortable	4
Very comfortable	5
Don’t know	9

D12. Using the same 5-point scale, how comfortable would you say you are with “working online”?

Very uncomfortable	1
Somewhat uncomfortable	2
Neither comfortable nor uncomfortable	3
Somewhat comfortable	4
Very comfortable	5
Don’t know what that means	6
Don’t know	9

D13. For statistical purposes only, please tell me which of the following categories applies to your total household income for the year 2006?? **[Read list and select one]**

Under \$20,000	1
\$20,000 to under \$40,000	2
\$40,000 to under \$60,000	3
\$60,000 to under \$80,000	4
\$80,000 to under \$100,000	5
\$100,000 and over	6
Prefer not to say [Don’t read]	9

D14. In an average two-month period, how much is your electricity bill? **[Read list]**

Under \$100	1
\$100 to under \$150	2
\$150 to under \$200	3
\$200 to under \$250	4
\$250 to under \$300	5
\$300 to under \$350	6
\$350 to under \$400	7
\$400 to under \$450	8
\$450 to under \$500	9
\$500 or more	10
Don't know/prefer not to say [Don't read]	99

Thank you very much for taking the time to participate in this survey. The results will assist the OPA in refining its programs to help Ontarians save on their electric bills.