



# Toronto Hydro 2009 Summer Challenge Program Impact Evaluation Report

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## **Toronto Hydro – 2009 Summer Challenge – Final Evaluation Report**

This report presents the final results of OPA’s analysis of Toronto Hydro’s 2009 Summer Challenge Program.

**Note:** An Excel workbook detailing all calculations made in conjunction with this evaluation accompanies this final report.

### **1.1 - Program Overview**

The goal of the 2009 Summer Challenge program was to enrol 10% of Toronto Hydro’s eligible residential customer base into the program which encouraged them to reduce their electricity consumption by 10% or more between July 1<sup>st</sup> and August 31<sup>st</sup> of 2009 compared to same period in 2008. Of this 10% (approximately 48,000 customers), it was anticipated 11,500 (approximately 2.4% of the entire eligible population) would achieve the 10% energy reduction target.

To drive participation, Toronto Hydro utilized a robust marketing campaign which included on-bill advertising, telemarketing, public relations and cross-promotion with other conservation programs currently active in the Toronto area. To further encourage participation the program offered an incentive – a 10% bill credit – to participants who achieved the energy reduction goal.

Toronto Hydro’s Summer Challenge initiative can be characterized as the traditional “10-10” program. Over the past several years many jurisdictions across North America, including Ontario, have delivered similar programs. As discussed below, lessons learned by these organizations during their programs’ delivery have informed this evaluation.

### **1.2 - Evaluation Methodology**

Through OPA’s previous evaluations of similar programs and the experience of other jurisdictions (e.g., OPA’s 2007 Summer Savings & 2008 Summer Sweepstakes programs, California’s 20/20 program, etc.), a preferred method for assessing the net program energy savings of “10-10” type programs has been established. This method includes comparing the average change in summer-over-summer<sup>1</sup> consumption for program participants<sup>2</sup> with that of non-participants.

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<sup>1</sup> For purposes of this evaluation, summer-over-summer consumption refers to July 1<sup>st</sup> – August 31<sup>st</sup> 2008 vs. July 1<sup>st</sup> – August 31<sup>st</sup> 2009 changes in customer kWh consumption.

<sup>2</sup> Participants refer to customers who conscientiously registered for the program. The gross and net savings calculations purposefully do not distinguish between customers who were “successful” at reaching or surpassing the 10% year-over-year consumption reduction goal versus those who did not—all consumption change for all of the registered customers is considered in the analysis.

To complete this analysis, the OPA obtained summer-over-summer consumption data for both participants and non-participants from Toronto Hydro in early 2010. The information provided by Toronto Hydro was as follows:

For Registered Participants:

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

For Non-Registered, but Program Eligible Customers (i.e., Non-participants)<sup>3</sup>:

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

In total, Toronto Hydro provided OPA with the requested data for all 5,281 registered participants. Additionally, Toronto Hydro provided the equivalent data for a randomly selected 5,000 non-registered, but program eligible customers, enabling a sound statistical analysis to be performed.

As discussed in later sections of this evaluation report, OPA has leveraged the findings of the 2008 Summer Sweepstakes evaluation to develop 2009 Summer Challenge Net Savings estimates. Per OPA's Evaluation Framework and Protocols documents, for various reasons it is common and appropriate for prior year evaluation findings to be used as inputs into subsequent year estimates of net program impacts. The rationale for using such data includes:

1. The minimal year-over-year change in the input values used to establish Net Savings estimates;
2. The high costs associated with performing similar research year-over-year; and
3. If the limited window of opportunity for follow-up research with participants has expired.

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<sup>3</sup> For purposes of this evaluation, non-registered, but program eligible customers (i.e., non-participants) are defined as those residential consumers who were eligible to participate in the Summer Challenge program – i.e., they were residential customers of Toronto Hydro who did not change address during the 14 month period between July 1, 2008 and August 31, 2009 – however, did not sign-up for and thus did not participate in the initiative.

**Note:** the 2008 Summer Sweepstakes and 2009 Summer Challenge programs were very similar in design. This level of similarity increases the appropriateness of applying prior year findings to determine current year results.

## **2.1 - Application of Customer Bill Data to Estimate Program Period Impacts (July – August 2009)**

### Registered Participants

In order to determine the average per participant savings (regardless of whether the participant qualified for the incentive or not), OPA reviewed consumption data for all registered customers submitted by Toronto Hydro and compared, as per the program's rules, participant weather-adjusted summer-over-summer consumption. To ensure data integrity, statistical outliers (top and bottom 2.5% of the distribution sample) were eliminated from the calculation of the average per participant savings.

### Non-Registered, but Program Eligible Customers (Non-Participants)

A similar analysis was conducted for the eligible non-registered customer data submitted by Toronto Hydro in order to determine the average change in summer-over-summer consumption for a typical Toronto Hydro customer that was eligible, but did not register for the program (i.e., non-participants).

OPA reviewed the entire non-registered customer dataset submitted by Toronto Hydro, comparing weather-adjusted summer-over-summer consumption for this control group. As a control group, the non-registered customer data establishes a baseline from which participant savings can be evaluated. This control group sets the baseline by demonstrating what year-over-year changes in consumption naturally occurred in the market.

To be consistent with the registered customer data, the average summer-over-summer savings for non-registered customers was determined after eliminating statistical outliers (top and bottom 2.5% of the distribution).

## **2.2 - Gross Program Period Energy Savings for Registered Customers**

OPA's estimate of the initiatives energy impacts is based on the difference between the average change in summer-over-summer consumption for registered participants and the average change in summer-over-summer consumption for non-registered customers. This calculation has been computed using the following formula:

*(Average Participant kWh Savings as determined through Bill Analysis – Average Non-Participant change in kWh Consumption as determined through Bill Analysis) X 5,281 Registered Participants = Gross 2009 Summer Challenge kWh savings*

The results of this calculation, illustrated in Tables 1 and 2 below, represent the gross energy (MWh) savings achieved by the initiative over the program period.

**Table 1. Per Participant kWh Savings (July – August 2009)**

<b>Average Participant kWh Savings as determined through Bill Analysis (A)</b>	<b>Average Non-Participant kWh Change in Consumption as determined through Bill Analysis (B)</b>	<b>Estimated Per Participant kWh Savings (A) – (B)</b>
<b>114.9</b>	<b>49.6</b>	<b>65.3</b>

**Table 2. Gross Program Period MWh Savings**

<b>Estimated Per Participant kWh Savings (A)</b>	<b>Total 2009 Summer Challenge Participants (B)</b>	<b>Gross Summer Challenge MWh Savings Estimate (A) X (B) / 1000</b>
<b>65.3</b>	<b>5,281</b>	<b>344.8</b>

### **2.3 - Net Program Period Energy Savings for Registered Customers (Net-to-Gross Analysis)**

Following the development of the gross savings estimate for the program period, the next step is to quantify the actual energy savings resulting from the program, i.e., the program’s net impacts. Net savings estimates are produced when the program’s net-to-gross (NTG) ratio is applied to the gross savings estimate, adjusting gross impacts to reflect the percentage of savings that can be attributed to the program.

For the 2009 Summer Challenge program, the NTG ratio established is a refined version of the NTG ratio developed through the 2008 Summer Sweepstakes evaluation effort. This refined NTG ratio produces defensible estimates of actual program induced savings.

The methodology used to develop this refined NTG ratio is discussed below.



### Methodology:

Data collected as part of the 2008 Summer Sweepstakes market research effort was used to inform Toronto Hydro's refined 2009 Summer Challenge NTG ratio. More specifically, survey responses from Toronto Hydro's 51 participants included in the study were used to estimate the revised NTG ratio, as demonstrated in Table 3 below. The number of survey completes from Toronto Hydro participants provides OPA with reasonable confidence in the results of the NTG analysis.

**Table 3. Completed participant surveys for participants in Summer Challenge 2008**

Region	Completed Surveys
Other LDC's	404
Toronto Hydro	51

### About the Survey

Survey questions were designed to gauge various program impacts, including Summer Sweepstakes program awareness, actions taken as a result of enrolment or awareness, etc. Responses to these questions were used to assess the level of influence the initiative had in participants' changes in consumption, which were a key input into the development of the program's corresponding NTG ratio.

Examples of included questions:

- The respondent's awareness of Summer Sweepstakes and other programs;
- When the respondent first become aware of the program;
- The respondent's motivation for participating in the program;
- Whether or not the respondent took specific actions to reduce their electricity consumption to be eligible for the program's incentive and if so:
  - What specific actions were taken to be eligible for the program (both behavioural and equipment-based actions were noted);
  - Whether or not these actions were also taken as part of respondent's participation in other energy conservation programs, specifically other OPA programs (Power Savings Event, Great Refrigerator Roundup, *peaksaver*® and the Cool Savings Program);
  - Likelihood of the respondent taking the action had they not registered for the program; and

- Influence of Summer Sweepstakes on their overall decision to undertake the action.
- Whether or not the respondent participated in (similar) 2006 or 2007 Summer Savings program; and
- The extent to which Summer Sweepstakes has helped the respondent understand the actions they can take to reduce their household energy usage.

Responses to these survey questions were subsequently used to develop a bottom-up estimate of program impacts. To establish the bottom-up estimate, participants were asked to identify all energy savings actions taken during the program period and also to what extent the program motivated them to make that change. Following identification of these energy saving actions, Navigant Consulting (the official evaluator of OPA’s 2007 & 2008 Summer Sweepstakes programs) applied energy savings values to each action to develop estimates of the total gross savings per participant.

Where possible, energy savings values applied to these actions were taken from the OPA’s established Measures and Assumptions List. For identified actions for which prescriptive input assumptions had not been previously established (primarily behavioural actions such as washing clothes in cold water, drying clothes on a rack, etc.), Navigant Consulting developed estimates based on survey results (e.g., average number of loads of laundry done per week by participants), secondary research from other jurisdictions and Navigant Consulting’s professional judgment.

For example, for the “installed CFL” action, registered participants indicated that during the summer of 2008, on average, they installed 14 CFLs. Using the OPA’s Measures and Assumptions List for estimated savings of 43 kWh per CFL bulb, Navigant Consulting determined that the gross annual savings related to this action to be the following:

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

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

The net annual savings attributable to each action was then determined based on the action-specific free-ridership as determined through participant surveys (refer to Table 4 below). Continuing with the previous example, Navigant Consulting determined the net annual savings for “CFLs” to be as follows:

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

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

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

Table 4 below, Summary of Top 20 Actions in 2008, demonstrates the results of the participant survey by:

1. Top 20 reported actions taken by surveyed participants during the program period; and
2. Participants' self-reported level of influence the program had on their decision to take that specific action.

Table 4 also contrasts Toronto Hydro specific results in comparison to those of the entire Ontario population.

**Table 4. Summary of Top 20 Actions in 2008 Summer Sweepstakes**

Actions	Number of Reported Actions		Estimated Action Free Ridership	
	Toronto Hydro	Ontario	Toronto Hydro	Ontario
Turned off / Reduced lights	14	144	34%	41%
Installed CFLs	16	117	61%	54%
Washed Laundry with Cold Water	6	107	63%	46%
Turned off / reduced power to electronics	12	102	35%	36%
Dried Clothes Outside or Inside on a Rack	8	81	37%	43%
Used Air Conditioning Less	8	60	41%	44%
Weatherproofing and Sealing	7	49	66%	60%
Installed a new Energy Efficient Refrigerator	4	48	76%	71%
Replaced Windows	1	48	100%	57%
Increased Insulation	7	47	78%	63%
Turned up Thermostat in Summer	6	39	38%	36%
Unplugged Devices Usually Plugged into Outlet	3	36	52%	38%
Installed Dimmer Switch / Motion sensor / Timers	2	30	75%	51%
Unplugged Secondary Refrigerator	3	27	62%	49%
Replaced your Secondary Refrigerator	3	23	45%	45%
Did not use any Air Conditioning	2	23	50%	49%
Installed an Energy Efficient Clothes Washing Machine	2	21	25%	70%
Installed an Energy Efficient Dryer	0	14	N/A	56%
Installed an Energy Efficient Freezer	0	13	N/A	77%
Installed a Programmable Thermostat	1	11	90%	69%

Repeating the example CFL calculation for each of the top 20 reported actions, an average per participant savings estimate can be determined. As shown in Table 5, the average summer period savings attributable to the program accruing from the actions taken by surveyed Toronto Hydro participants was 71.2 kWh. As comparison, the average savings for surveyed participants across Ontario was determined to be 90 kWh.

Utilizing Data to Develop the NTG Estimation

The NTG ratio determined by Navigant Consulting for the 2008 Summer Sweepstakes initiative represents a provincial estimate and therefore must be refined in order to be reflective of the Toronto market. The methodology used to determine the Toronto Hydro specific NTG ratio is outlined below.

As indicated, the bottom-up savings estimate reflecting the mix of actions taken by surveyed Toronto Hydro participants and the reported influence of the 2008 Summer Sweepstakes program on these actions was determined to be 71.2 kWh. In comparison, the results of Toronto Hydro participant billing analysis (top-down) suggest savings of 93.7 kWh (102.5 kWh savings for participants - the 8.8 kWh decrease in consumption for non-participant customers).

Although the two savings estimates are comparable, this suggests that not all of the observed differences between participants and non-participants were due to the Summer Sweepstakes program. As well, since the billing analysis does not take into account any adjustments for free-ridership, this value should be considered as a gross savings estimate. Consequently, as prescribed through previous evaluation efforts, the difference in savings between the billing analysis and the survey-based analysis is considered to be the “free-rider impact.”

**Table 5. NTG Ratio Estimation Inputs**

	Toronto Hydro	Ontario
Estimated 2008 Savings for Registered Surveyed Participants (Summer Only) based on Actions reported in Survey (Bottom Up Approach)	71.2 kWh	90 kWh
2008 Summer Savings for all surveyed Participants as determined through Billing Analysis (from LDCs)	102.5 kWh	94 kWh
2008 Summer Savings for all non-registered customers as determined through Billing Analysis (from LDCs)	8.8 kWh	-22 kWh

## Toronto Hydro

$$\begin{aligned} \text{Net-to-Gross} & \quad \frac{(71.2 \text{ kWh estimated savings for registered survey respondents})}{\text{Ratio=}} & \quad \frac{(93.7 \text{ kWh observed difference between registered survey respondents and non-registered customers})}{\text{}} \\ & & = \mathbf{0.76} \end{aligned}$$

*The implied free-ridership rate in 2008 among registered customers in Toronto Hydro was 24% (1-0.76 = 24%).*

## Ontario

$$\begin{aligned} \text{Net-to-Gross} & \quad \frac{(90 \text{ kWh estimated savings for registered survey respondents})}{\text{Ratio=}} & \quad \frac{(116 \text{ kWh observed difference between registered survey respondents and non-registered customers})}{\text{}} \\ & & = \mathbf{0.78} \end{aligned}$$

*The implied free-ridership rate in 2008 among registered customers was 22% (1-0.78 = 22%).*

In essence, the difference between the survey-based per participant net savings (71.2 kWh) and the billing analysis savings of 93.7 kWh is considered to be the “free-rider” impacts. As such, dividing both values as demonstrated above, the NTG ratio can be determined.

As demonstrated below, the free-ridership rate determined through the analysis of 2008 Toronto Hydro participant data has been used to adjust 2009 Summer Challenge gross savings estimates.

It is fully anticipated that despite participants having to conscientiously register to join the program, that nevertheless not all savings occurring during the program period would be attributable to the program.

### 2.4 - Net Summer Challenge Program Period Impacts

The net kWh savings estimate for Toronto Hydro’s 2009 Summer Challenge initiative has been developed as follows:

*((Average Participant Savings as determined through Bill Analysis – Average Non-Participant change in kWh Consumption as determined through Bill Analysis) X 5,281 Registered Participants)) X 0.76 NTG Ratio*

The results of this calculation, as demonstrated in Table 6, represent the actual energy impacts delivered by the initiative over the program period.

**Table 6. 2009 Summer Challenge Net Program Period MWh Savings**

Gross MWh Savings Estimate* (A)	Net-to-Gross Ratio (B)	Net MWh Savings (A) X (B)
344.8	0.76	262.1

\* Taken from Table 2 above.

## 2.5 - Estimating Net Lifetime MWh Savings

The MWh savings estimates demonstrated in Table 6 above represent the verified energy impacts of the initiative over the program period. However, given what actions were taken by participants to achieve those savings (e.g., installing CFLs, retiring inefficient appliances, etc); it is understood that program influenced savings will persist beyond the two-month program window.

Given this certainty, OPA believes that it is appropriate that the Summer Challenge’s net program period kWh impacts estimates be grossed-up in order to more-accurately reflect the total energy savings driven through the initiative.

The methodology used to develop this lifetime MWh savings estimate is outlined below.

### Methodology:

As previously discussed in section 2.3 of this report, for the 2008 Summer Sweepstakes evaluation, Navigant Consulting used the actions identified through surveys conducted with participants to develop energy savings estimate.

**Example:** If the participant identified programming their thermostat to reduce air conditioner load as a program induced action, the prescriptive input assumption found in the OPA’s Measures & Assumptions List was used to develop the energy savings estimate associated with this behaviour (after adjusting for the action specific NTG ratio to produce a net energy savings estimate).

As described, this process was completed for the top 20 actions identified by 2008 participants as having been taken during the program period (see Table 4 above).

Following, Navigant Consulting summed all of the energy savings estimates of the 20 actions to estimate a net kWh energy reduction number attributable to the 2008 Summer Sweepstakes program. As demonstrated below, a similar approach was used to determine 2009 Summer Challenge lifetime energy savings estimates.

Methodology:

1. Through the analysis of 2008 participant survey response data, the energy savings associated with the specific actions taken by Toronto Hydro participants in 2008 were determined. Following, the action specific NTG ratio was applied to each of these actions to develop a net energy savings estimate. The results of this analysis provided the lifetime energy savings achieved by Toronto Hydro customers through the 2008 Summer Sweepstakes initiative.
2. The second step was to determine the ratio between 2008 program period kWh and lifetime kWh savings achieved by Toronto Hydro participants.
3. The last step was to apply this ratio to the net 2009 program period kWh savings previously developed based on 2009 Toronto Hydro participant bill analysis (as discussed above).

The results of this calculation, as demonstrated in Tables 7 and 8, represent the lifetime kWh savings achieved by Toronto Hydro’s 2009 Summer Challenge initiative.

**Table 7. 2008 Toronto Hydro kW : kWh Ratio**

Toronto Hydro 2008 Per Participant Program Period kWh Savings* (A)	Toronto Hydro 2008 Per Participant Lifetime kWh Savings† (B)	Toronto Hydro 2008 Program Period : Lifetime kWh ratio (B) / (A)
71.2	343.6	4.8

\* Taken from Table 5 above

† Sum of Top 20 reported actions

**Table 8. 2009 Toronto Hydro Net MWh Impact**

Toronto Hydro 2008 Program Period : Lifetime kWh ratio (A)	Net 2009 Toronto Hydro Program Period MWh Savings* (B)	Toronto Hydro 2009 Lifetime MWh Savings (A) X (B)
4.8	262.1	1,264

\* Taken from Table 6 above

**Note:** The persistence of the energy savings actions motivated by the program will vary. E.g., retrofit activities such as window replacements will persist over the equipment’s



full measure life whereas behavioural based actions, such as using air-conditioning less, will have a much shorter measure life, and may persist for no longer than the 2 month program period.

Given the diversity of program influenced actions and their corresponding persistence, best-practice suggests that a one year measure life be applied to all program induced savings. This concept is consistent with previous OPA evaluations, in addition to evaluations undertaken in other jurisdictions.

### **3.1 - Estimating Net Demand Impacts for Registered Customers**

As was the process for calculating 2008 Summer Sweepstakes energy savings estimates (section 2.5 above), Navigant Consulting used the actions identified through surveys conducted with participants to develop estimations of program influenced demand reduction.

#### Methodology:

Continuing with the previous example, if the participant acknowledged programming their thermostat to reduce air conditioner load, the prescriptive input assumption found in the OPA's Measures & Assumptions List was used to develop the demand savings estimate associated with this action (after adjusting for the action specific NTG ratio to produce a net value).

This process was completed for the top 20 actions identified by 2008 participants as having been taken during the program period (see Table 4 above).

Following, Navigant Consulting summed all of the demand savings estimates of the 20 actions together to estimate a net kW demand reduction number for the 2008 Summer Sweepstakes program. As demonstrated below, the same approach was used to determine the Toronto Hydro specific 2009 demand savings estimate.

#### Methodology:

1. Through the analysis of 2008 participant survey response data, the demand reduction associated with the specific actions taken by Toronto Hydro participants in 2008 were determined. Following, the action specific NTG ratio was applied to each of these actions to develop a net demand savings estimate<sup>4</sup>. The results of this analysis have provided estimates of the level of demand reduction achieved by Toronto Hydro customers through the 2008 Summer Sweepstakes initiative.

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<sup>4</sup> The type of action, including the incidence levels for Toronto Hydro customers were determined based on the 2008 survey results, as demonstrated in Table 4 above.

2. The second step was to determine the ratio between 2008 kWh and kW savings achieved by Toronto Hydro participants.
3. The last step was to apply this ratio to the net 2009 summer kWh savings previously developed based on 2009 Toronto Hydro participant bill analysis (as discussed above).

The results of this calculation, as demonstrated in Tables 9 and 10, represent the kW savings achieved by Toronto Hydro's 2009 Summer Challenge initiative.

**Table 9. 2008 Toronto Hydro kW : kWh Ratio**

Toronto Hydro 2008 Per Participant kWh Savings* (A)	Toronto Hydro 2008 Per Participant kW Savings <sup>†</sup> (B)	Toronto Hydro 2008 kW : kWh ratio (B) / (A)
<b>71.2</b>	<b>0.09</b>	<b>0.00127</b>

\* Taken from Table 5 Above

† Developed using methodology outlined in Step #1 above

**Table 10. 2009 Toronto Hydro Net MW Impact**

Toronto Hydro 2008 kW : kWh ratio (A)	Net 2009 Toronto Hydro MWh Savings* (B)	Toronto Hydro 2009 MW Savings (A) X (B)
<b>0.00127</b>	<b>262.1</b>	<b>0.33</b>

\* Taken from Table 6 above

#### 4.1 - Final Results

Table 11 below demonstrates the Final Gross and Net energy and demand savings achieved by Toronto Hydro's 2009 Summer Challenge program.

**Table 11. Final 2009 Summer Challenge Program Impacts**

	MW Reductions	Program Period MWh Savings	Lifetime MWh Savings
<b>Gross Impacts</b>	<b>0.44</b>	<b>344.8</b>	<b>1,663</b>
<b>Net Impacts</b>	<b>0.33</b>	<b>262.1</b>	<b>1,264</b>

#### 5.1 - Participation Targets

The goal of the 2009 Summer Challenge program was to enrol approximately 48,000 participants, or 10% of Toronto Hydro's eligible residential customer base into the

program. Of this 48,000, it was anticipated 11,500 (approximately 2.4% of the entire eligible population) would achieve the 10% energy reduction target.

In total, the program enrolled 5,281 participants, or just over 1% of the eligible customer base, as shown in Table 12. Of this group of participants, 2,223 (or 42%) were successful in achieving a 10% reduction in year-over-year kWh consumption.

**Table 12 – 2009 Participation Targets vs. Actual**

	Goal	Actual
<b>Enrolled Participants</b>	<b>48,000</b>	<b>5,281</b>
<b>Achieved 10% Reduction</b>	<b>11,500</b>	<b>2,223</b>

Toronto Hydro’s participation targets were optimistic, however, they can be considered successful when compared to previous year results. The 2008 Summer Sweepstakes program, delivered to market by OPA in conjunction with participating LDCs (including Toronto Hydro), achieved comparable participation with 1.2% of the eligible customer base within the GTA enrolling in the program.

It should be noted that “10-10” type programs have been delivered within Toronto Hydro’s jurisdiction over the past four year period. With programs such as this, it is expected that participation and savings will stagnate the more consecutive years in a row they are delivered. The following is an example of why this situation will occur.

**Example:** If a 2009 participant partook in each of the previous three campaigns, and was successful at reducing their consumption 10% in each of those three prior years, they would in effect have reduced their consumption 40% from 2005 levels in order to qualify for the incentive in 2009. Such reductions are unlikely to occur, unless major action is taken by the participant that would likely not be the result of Summer Challenge program influence.

To maximize the impacts of “10-10” type programs they must be made meaningful to all consumers. This is accomplished when targeted participants feel they have a reasonable probability of achieving targets, and thus qualify for the incentive. To maintain consumer interest and overall program impacts, it is recommended that this type of incentive program be delivered no more than two consecutive years in a row.

### **6.1 - Cost-Effectiveness Screening**

The cost-effectiveness of Toronto Hydro’s 2009 Summer Challenge program has been calculated using the OPA’s standard Resource Planning methodology.

Table 13 below demonstrates the inputs used to populate this model.

**Table 13. Program Cost-test Inputs**

Input	Value	Source
NTG	0.76	OPA (as documented above)
Gross MWh Savings	1,663	OPA (as documented above)
Gross MW Savings	0.44	OPA (as documented above)
Fixed Program Costs	\$78,818	Toronto Hydro
Incentive Costs	\$38,484	Toronto Hydro
Measure Life (Persistence)	1 year	OPA (as documented above)

Table 14 below demonstrates the results of the relevant Program cost tests:

**Table 14. 2009 Summer Challenge Cost-Effectiveness Results**

Test	2009 Verified*	
Program Administrator Cost	Benefit	\$114,883
	Cost	\$117,301
	Net Benefit	(\$2,419)
	Net Benefit Ratio	1.0
Total Resource Cost	Benefit	\$114,883
	Cost	\$78,818
	Net Benefit	\$36,065
	Net Benefit Ratio	1.5
Levelized Delivery Cost	\$/MWh	\$87
	\$/MW-y	\$329,519

\* The detailed calculations supporting these findings are included in the accompanying Excel workbook

Based on the analysis completed, Toronto Hydro's 2009 Summer Challenge program is cost-effective from the Total Resource Cost perspective.

**Note:** The initiative is not cost-effectiveness when program period impacts (i.e., 2 month impacts) are used to assess the program's societal benefit.