



December 17, 2013

Kirsten Walli, Board Secretary  
Ontario Energy Board  
P.O. Box 2319, 27<sup>th</sup> Floor  
2300 Yonge Street  
Toronto, ON  
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Attention: Ms. Walli

**Re: Espanola Regional Hydro Distribution Corporation's ("ERHDC") 2014  
IRM Rate Application  
Interrogatory Responses  
Board File No. EB-2013-0127**

In accordance with Procedural Order No. 1 dated November 22, 2013, please find attached ERHDC's responses to Board Staff and VECC Interrogatories in the above proceeding.

ERHDC has filed these responses pursuant to the Board's e-Filing Services and two hard copies of the responses will be delivered to the Ontario Energy Board.

In the event of any additional information, questions or concerns, please contact Jennifer Uchmanowicz, Rate and Regulatory Affairs Officer, phone number: (705) 759-3009 or email: [Jennifer.Uchmanowicz@ssmpuc.com](mailto:Jennifer.Uchmanowicz@ssmpuc.com).

Sincerely,

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Jennifer Uchmanowicz  
on behalf of Espanola Regional Hydro Distribution Corporation  
Rates and Regulatory Affairs Officer  
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## Espanola Regional Hydro Distribution Corporation ("ERHDC") EB-2013-0127 Interrogatory Responses

### GENERAL

#### Board Staff - Interrogatory #1

Ref: RTSR Model, Tab 4 – "RRR Data"

Rate Class	Unit	Non-Loss Adjusted Metered kWh	Non-Loss Adjusted Metered kW	Applicable Loss Factor	Load Factor	Loss Adjusted Billed kWh	Billed kW
Residential	kWh	30,758,632		1.0687		32,871,750	-
General Service Less Than 50 kW	kWh	11,730,167		1.0687		12,536,029	-
General Service 50 to 4,999 kW	kW	12,951,567	32,507		54.61%	12,951,567	32,507
General Service 50 to 4,999 kW – Interval Metered	kW	4,089,968	10,265		54.61%	4,089,968	10,265
Unmetered Scattered Load	kWh	131,160		1.0687		140,171	-
Sentinel Lighting	kW	25,725	72		48.97%	25,725	72
Street Lighting	kW	618,217	1,728		49.04%	618,217	1,728

- a) Please confirm that the data entered in columns "Non-Loss Adjusted Metered kWh" and "Non Loss Adjusted Metered kW" are not adjusted by Espanola Hydro's Board approved loss factor.

#### ERHDC Response

- a) ERHDC confirms the data entered in columns "Non-Loss Adjusted Metered kWh" and "Non Loss Adjusted Metered kW" are not adjusted by Espanola Hydro's Board approved loss factor.

### INCEMENTAL CAPITAL MODULE

#### Board Staff - Interrogatory #2 - ICM

Ref: Manager's Summary, p. 11

On page 11, ERHDC requested April 30, 2017 as a sunset date for the Incremental Capital Rate Rider. ERHDC notes that it is scheduled to file a Cost of Service rate application for the 2017 rate year.

Board staff notes that ERHDC last rebased in the 2012 rate year under the previous 3<sup>rd</sup> Generation IRM plan. In the Report of the Board *Renewed Regulatory Framework for Electricity Distributors: A Performance-Based Approach* ("RRFE"), issued October 18, 2012, the Board determined that "those distributors who are within the term of their current 3<sup>rd</sup> Generation IR...will continue to have their rates adjusted annually for the remaining years of their 3<sup>rd</sup> Generation IR term".

- a) Please confirm ERHDC's term under its current IRM plan term is 4 years and explain why ERHDC has proposed a rate rider based on a 5 year term rather than a 4 year term.
- b) Please state if Espanola would agree to forgo a defined sunset date and establish the rate rider which would be in effect until the effective date of the next cost of service-based rate order.

ERHDC Response

a) & b) ERHDC confirms its current IRM plan term is 4 years and is scheduled to re-base in 2016. ERHDC would agree to forgo a defined sunset date and establish a rate rider that would be effective until the next cost of service-based rate order.

**Board Staff - Interrogatory #3 – Asset Categories**

**Ref: Incremental Capital Project Summary, sheet 2**

On sheet 2, under asset categories, ERHDC listed land in the amount of \$54,000 with a 0% depreciation rate and the municipal substation in the amount of \$1,733,500 as well as a 44 kV line extensions in the amount of \$275,000 with a 3% depreciation rate and a 8% CCA rate, as shown below.

Asset Component	Capital Cost	Dep. Rate	CCA Class	CCA Rate
1 Land	54,000	0%		
2 Municipal Substation	1,733,500	3%	47	8%
3 44 kV line Build	275,000	3%	47	8%

- a) Please confirm that all asset components grouped under the municipal substation and the 44 kV extension fall under similar asset categories with comparable useful lives as established by the Kinetrics Report, issued July 8, 2010.
- b) If not, please explain why ERHDC grouped these asset categories together.
- c) Please update the Incremental Capital Project Summary and the Incremental Capital Workform to differentiate the project by asset components grouped by equivalent useful lives and apply the applicable depreciation rate and CCA rate.

ERHDC Response

- a) PUC confirms that all asset components grouped under the municipal substation and the 44 kV extension fall under similar asset categories with comparable useful lives as established by the Kinetrics Report, issued July 8, 2010. In ERHDC's 2012 Cost of Service Rate Application (EB-2011-01319), which was filed under MIFRS, ERHDC reviewed its PP&E balances and allocated amounts to specific components to be depreciated separately. Significant parts of an item of PP&E that have the same useful life and method of depreciation were grouped in determining depreciation expense. ERHDC's review was guided by the OEB's commissioned "Asset Depreciation Study for the Ontario Energy Board" of July 2010.

Municipal Substation

In ERHDC's 2012 Cost of Service Application, the three current substations were revised from a useful life of 25 years to a useful life of 40 years as per the typical lives identified in the Kinectrics report. Regarding substations, ERHDC further stated in the COS application "*The cost of the stations is significant with the most significant component being transformers. The stations are outdoors therefore structural costs such as fencing are minor in comparison to the other costs. The structural costs will be included with the cost of the transformers and transformer components and depreciated over the same estimated useful life.*"

Therefore, in the ICM application, ERHDC grouped the substation costs together as approved in

the Cost of Service Rate Application for the existing substations and used a useful life of 40 years. In the ICM model 2.5% (40 years) is the depreciation rate input in the model but due to rounding 3% is being shown as the depreciation rate.

44 kV Line Build

In ERHDC's 2012 Cost of Service Rate Application, which was filed under MIFRS, the Overhead System which consists of poles, cross arms, insulators and switchgear were changed to an estimated useful life of 40 years which was in agreement with the proposed typical life in the Kinectrics report. In the ICM model 2.5% (40 years) is the depreciation rate input in the model but due to rounding 3% is being shown as the depreciation rate.

b) Not applicable

c) Not applicable

**Board Staff - Interrogatory #4 – 2014 Capital Budget**

**Ref: Incremental Capital Workform, sheet E3.1 and Manager's summary, p. 9**

In the Manager's summary on page 9, ERHDC shows a total non-discretionary capital budget of \$2,415,863. On sheet E3.1, ERHDC shows a 2014 non-discretionary capital budget (including ICM Projects) in the amount of \$2,356,056, please explain.

ERHDC Response

Although all of the 2014 projects on page 9 of the Manager's Summary totaling \$2,415,863 are considered non-discretionary, the amount ERHDC is applying for in the ICM relates only to the new municipal substation and the build of the required 44 kV line. The total ICM amount in this application is \$2,062,500 (\$1,787,500 – substation costs and \$275,000 – 44 kV line build costs). On sheet E3.1 ERHDC backed into the \$2,356,056 in the model so that after the threshold capex was deducted of \$293,556 only \$2,062,500 would be the remaining amount that is eligible as incremental capital.

**VECC Question # 2**

**Reference: 10. Incremental Capital Module, Page 9**

Preamble: Espanola indicates that none of the capital costs provided in the table (2014 Preliminary Budget) are discretionary in nature.

a) Please discuss on what basis each of the projects provided in the 2014 Preliminary Budget are considered non-discretionary.

ERHDC Response

a) It should be noted that although ERHDC considers all 2014 budgeted capital costs non-discretionary in nature, in this ICM application, ERHDC is only applying for the incremental capital related to the new municipal substation and the required 44 kV line build.

New services (\$24,452); upgrade services (\$66,025); and Micro-Fit installations (\$7,099) are all considered non-discretionary items and are directly related to customer demand.

Substation upgrades (\$54,127) are required for the 3 existing substations as identified in the Asset Management Plan submitted as part of ERHDC's 2012 Cost of Service Rate Application (EB-2011-0319). The Asset Management Plan supports major capital investments in distribution stations for 2012 to 2017 to address major deficiencies.

Replace restricted wire (\$58,638) is a multi-year capital program to eliminate the potential hazards to workers and the public.

Pole Replacements (\$84,158) – ERHDC has an on-going program for replacement of end-of-life and deteriorated poles.

Tools (\$16,915) – Miscellaneous tool replacement is required to enable employees to perform necessary maintenance.

Spanish River Drive (\$41,589) – This is an on-going capital project to replace significantly deteriorated line build on Spanish River Drive.

### **VECC Question # 3**

#### **Reference: 10. Incremental Capital Module, Page 11**

Preamble: Espanola indicates it is seeking funding from Infrastructure Ontario for a loan related to the costs of the new municipal substation.

- a) Please provide the amount of the funding request and the status of the request.
- b) Please discuss the likelihood that Espanola will receive the funding in 2014 and provide the impact on the current ICM request should Espanola be approved for a loan.

#### ERHDC Response

- a) The amount of the funding requested from Infrastructure Ontario is \$2,100,000. ERHDC is expecting a term sheet offer from Infrastructure Ontario in early January 2014.
- b) Espanola is expecting the funding to be received in 2014. Since the ICM application was submitted with the expectation of funding in 2014, there would be no impact on the current ICM request.

### **Board Staff - Interrogatory #5 – Price Cap Index Parameters**

#### **Ref: Manager's Summary, p. 2 and Incremental Capital Workform**

On page 2 of the Manager's Summary ERHDC stated that "Board staff will update each distributor's Rate Generator Model once the final parameters are established".

Please confirm that ERHDC agrees that the Incremental Capital Workform as well as the Rate Generator will be updated to reflect the updated price cap index parameters once issued by the Board.

#### ERHDC Response

ERHDC confirms the Incremental Capital Workform as well as the Rate Generator will be updated to reflect the updated price cap index parameters once issued by the Board.

### **Board Staff - Interrogatory #6 – Fixed/Variable Rate Rider**

#### **Ref: Manager's Summary, p. 11 and Incremental Capital Workform, sheet F1.1, Option A**

ERHDC is requesting that the Incremental Capital Rate Riders have both a fixed and a variable component.

- a) Please provide the rational for this request.
- b) Please confirm that the proposed fixed/variable split is consistent with the split underpinning ERHDC's current Board approved distribution rates.

#### ERHDC Response

- a) The rational for recovering the requested incremental capital rate rider through a variable and fixed component is to minimize the risk of fluctuations in consumption.

- b) ERHDC confirms the proposed fixed/variable split is consistent with the split underpinning ERHDC's current Board approved distribution rates.

**VECC Question # 4**

**Reference: 10. Incremental Capital Module, Page 11**

Preamble: The evidence states that in the event the Board does not approve the ICM application, Espanola will likely be faced with a significant negative cash flow in the short term and financial hardship during the IR term.

- a) Please explain this statement more fully.  
b) Please discuss this statement in the context of Espanola being approved for a loan from Infrastructure Ontario related to the costs of the new municipal substation.

ERHDC Response

- a) The consequences of not having the ICM rate rider approved will have short-term financial implications. Without the funds provided by the ICM rate rider, ERHDC will have to consider funding the capital expenditure from existing working capital which may not be feasible. If the ICM rate rider is not approved ERHDC will have to evaluate the progress of the construction and potentially halt construction until ERHDC would be eligible to re-base in 2016.  
b) Without the ICM rate rider, ERHDC would experience difficulty meeting the Infrastructure Ontario loan obligations.

**VECC Question # 5**

**Reference: Exhibit 11, Station Contingency Review – Costello Associates, 10. Additional Substation Capacity**

Preamble: Costello Associates recommends that Espanola consider adding new substation capacity to allow for the unplanned failure of an existing station and also to allow for system growth. It appears as though there is some winter growth but it is clear that there is definitely summer growth occurring.

- a) Please provide and discuss actual system growth over the period 2008 to 2013 and planned load growth for the period 2014 to 2017.

ERHDC Response

- a) Annual energy usage has been very steady over the past ten years, indicating that on average, there is little growth. However the summer demand has steadily increased from 2008. One possible explanation for this summer demand increase is the increased use of air conditioning by residential customers, as well as air conditioning and refrigeration for new commercial loads. Summer peak demands have been consistently higher than 8000 kW since the summer of 2009.

The impact of the increasing summer electricity demand is significant. The summer demand is now higher than the capacity of the existing substations when one of the two 5000 kVA substations is out of service. Any serious failure at either MS-1 or MS-2 during summer or winter peak conditions will result in a shortfall of station capacity.

**VECC Question # 6**

**Reference: Exhibit 12, New Municipal Substation Report - Costello Associates**

- a) Please provide the date of the report at Exhibit 12.
- b) Page 2 – Requirement for SCADA – Costello Associates indicate that it is anticipated that a small SCADA system will either be purchased in the future or provided as a shared-service by a nearby LDC.
  - i. Please discuss Espanola's preference, plans, timeframe and forecast costs regarding the purchase of a SCADA system compared to a shared-service by a nearby LDC and confirm the LDC.
- c) Page 4 – Costello Associates indicates that to replace a transformer with a unit that is physically quite different could take much more time than at least 3 days work to replace a failed transformer with an identical unit. Please explain what is meant by much more time.
- d) Page 5 – Costello Associates indicates that the proposed design has been utilized by several northern LDCs in recent years. Please confirm the northern LDCs.
- e) Page 10 – Please discuss if Espanola has sourced a replacement transformer or other major component. If yes, please provide the source and timeframe needed to both receive the replacement and install the replacement. If not, why not?

**ERHDC Response**

- a) The date of the report at Exhibit 12 is October 2013.
- b) At this point Espanola does not have a preference, plan, or timeframe regarding the purchase or shared-service of a SCADA system.
- c) It often takes at least three days to replace a like for like transformer. This includes the time to source a similar unit, have it shipped to the site, remove the existing unit, place the new unit on the pad, make the connections, and test. If a physically similar transformer could not be found, additional work would be required on site, such as the construction of a temporary transformer foundation, installation of high and low voltage cabling, duct banks, conduits, and so on. The existing switchgear would have to be adapted to accommodate the new equipment. This alternative would require the sourcing and procurement of temporary high voltage cables. If all the materials could be found from suppliers, it could take easily 7-10 days to put everything together in a safe manor.
- d) In recent years the proposed design has been used by North Bay Hydro, Sudbury Hydro, and Centre Wellington. Espanola understands that similar projects are planned in 2014 for Parry Sound and Wellington North Hydro.
- e) Espanola has not sourced a replacement transformer or other major components. In the event of a failure, the "do nothing alternative" would result in sourcing a component including delivery and installation. ERHDC believes this is not a feasible solution due to prolonged power outages and possible rotating blackouts. In addition, sourcing parts when there is a failure does not address the additional capacity issue.

**VECC Question # 7**

**Reference: Excel Spreadsheet, Espanola 2014 IRM Incremental Capital Project\_20131018**

- a) Please provide the nature of the land costs of \$54,000.

ERHDC Response

The land costs are associated with the purchase of property at 103 Algoma Street in Espanola for the new municipal substation. The estimate relates to property costs, legal fees, and land transfer tax.

**VECC Question # 8**

**Reference: Exhibit 11, Station Contingency Review – Costello Associates**

- a) Please provide information on the winter and summer failure rates for each of the three existing substations for the years 2008 to 2013.

ERHDC Response

- a) There have been no failures during this time period. ERHDC has a regular ongoing maintenance program that includes monthly visual inspections, annual transformer oil analysis, and complete end to end component testing every three years. Maintenance issues are addressed immediately based on risk analysis and resource availability. The existing stations are all approaching the typical end of life, and will require replacement within the next 10-20 years. The requirement for new capacity at the proposed MS-4 station is based partly on the risk of failure at an existing station, but also partly to allow for outage scheduling at one of the existing stations to facilitate maintenance and/or construction activities on the distribution system.

**LRAM AND LRAMVA**

**VECC Question # 1**

**Reference 1: 6. LRAM and LRAM Variance Account, Page 5**

**Reference 2: Exhibit 9, 2012 IndEco Report, Page 3**

Preamble: At reference 1, Espanola summarizes the persisting losses by rate class from pre-2010 programs in 2011 and for the 4 months of 2012 ending April 30, 2012. At reference 2, Espanola indicates that since final 2010 OPA program results have yet to be provided by the OPA, the LRAM claim for the 2010 programs is based on savings estimates and is thus preliminary. The LRAM claim associated with 2010 OPA programs will be finalized once the OPA releases its final 2010 OPA program results.

- a) Please confirm the year that Espanola's load forecast was approved by the Board prior to the 2012 load forecast that underpins current rates and discuss how CDM is reflected in that forecast.
- b) Please confirm the persisting losses in the current application are based on pre-2011 CDM programs implemented from 2006 to 2010.
- c) Please provide a table to show the energy savings by customer class by CDM measure that support the requested LRAM amounts separately for 2011 and for the 4 months of 2012 ending April 20, 2012.
- d) Please update the LRAM request as required to reflect the OPA's final CDM program results for 2010 and the OPA's latest information regarding persisting savings in 2011 and the 4 months of 2012 ending April 30, 2012 from pre-2011 programs and provide a copy of the OPA results. In



the update please include the energy savings by customer class by CDM measure and the calculation to determine the LRAM amount by customer class.

- e) Please confirm the LRAM claim for persisting savings in 2011 and the first 4 months in 2012 reflects the measure lives and unit savings for any/all measures that have expired prior to or in 2011 and 2012.
- f) Please adjust the LRAM as necessary to reflect the measure lives and unit savings for any/all measures that have expired.

**ERHDC Response**

- a) ERHDC's load forecast (prior to the 2012 load forecast) was approved in 2008 as part of the cost of service rate application EB-2007-0901. ERHDC did not include any CDM savings in the 2008 Board approved load forecast. ERHDC's 2008 cost of service rate application was filed November 6, 2007 and thus pre-dates the 2008 CDM Guidelines which were released on March 28, 2008. In ERHDC's 2012 cost of service rate application (EB-2011-0319) the Board approved an LRAM amount that represents the effect of CDM programs implemented from 2006 to 2010 for the period 2006 to 2010.
- b) ERHDC confirms the persisting losses in the current application are based on pre-2011 CDM programs implemented from 2006 to 2010.
- c) The table below shows the kWh savings by customer class for CDM measures that support the requested LRAM amounts separated into 2011 and January 1 to April 30, 2012.

Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2006 Secondary Refrigerator Retirement Pilot	Refrigerator Retirement	4,367	0	0	0
2006 Secondary Refrigerator Retirement Pilot	Freezer Retirement	142	0	0	0
2006 Cool Savings Rebate	Energy Star® Central Air Conditioner - Cool Savings	4,071	1,018	0	0
2006 Cool Savings Rebate	Programmable Thermostat - Cool Savings	1,405	351	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2006 Cool Savings Rebate	Central Air Conditioner Tune-ups - Cool Savings	2,919	730	0	0
2006 Cool Savings Rebate	Energy Star® Central Air Conditioner - Hot Savings	209	52	0	0
2006 Cool Savings Rebate	Efficient Furnace with ECM - Hot Savings	2,459	615	0	0
2006 Cool Savings Rebate	Programmable Thermostat - Hot Savings	68	17	0	0
2006 Every Kilowatt Counts	Electric Timers - Spring Campaign	4,979	1,245	0	0
2006 Every Kilowatt Counts	Programmable Thermostats - Spring Campaign	2,557	639	0	0
2006 Every Kilowatt Counts	Energy Star® Ceiling Fans - Spring Campaign	1,270	317	0	0
2006 Every Kilowatt Counts	Seasonal Light Emitting Diode Light String - Autumn Campaign	10,651	2,663	0	0
2006 Every Kilowatt Counts	Programmable Thermostats - Autumn Campaign	11,921	2,980	0	0
2006 Every Kilowatt Counts	Dimmers - Autumn Campaign	2,510	627	0	0
2006 Every Kilowatt Counts	Indoor Motion Sensors - Autumn Campaign	1,354	339	0	0
2006 Every Kilowatt Counts	Programmable Basebaord Thermostats - Autumn Campaign	1,994	499	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2007 Great Refrigerator Roundup	Bottom Freezer Fridge	219	55	0	0
2007 Great Refrigerator Roundup	Chest Freezer	1,052	263	0	0
2007 Great Refrigerator Roundup	Side by Side Fridge-Freezer	822	205	0	0
2007 Great Refrigerator Roundup	Single Door Fridge	1,825	456	0	0
2007 Great Refrigerator Roundup	Small Freezer (under 10 cubic feet)	18	5	0	0
2007 Great Refrigerator Roundup	Small Fridge (under 10 cubic feet)	75	19	0	0
2007 Great Refrigerator Roundup	Top Freezer Fridge	6,708	1,677	0	0
2007 Great Refrigerator Roundup	Upright Freezer	320	80	0	0
2007 Great Refrigerator Roundup	Window Air Conditioner	52	0	0	0
2007 Cool Savings Rebate	Energy Star® Central Air Conditioner - Hot Savings	202	51	0	0
2007 Cool Savings Rebate	Efficient Furnace with ECM - Hot Savings	2,377	594	0	0
2007 Cool Savings Rebate	Programmable Thermostat - Hot Savings	65	16	0	0
2007 Cool Savings	Energy Star® Central Air Conditioner, Tier 2 - Cool	1,575	394	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
Rebate	Savings				
2007 Cool Savings Rebate	Medium Efficiency Furnace with ECM - Cool Savings	11,664	2,916	0	0
2007 Cool Savings Rebate	Programmable Thermostat - Cool Savings	324	81	0	0
2007 Cool Savings Rebate	Central Air Conditioner Tune-ups - Cool Savings	807	0	0	0
2007 Every Kilowatt Counts	15 W CFL	62,083	15,521	0	0
2007 Every Kilowatt Counts	20+ W CFL	14,596	3,649	0	0
2007 Every Kilowatt Counts	Energy Star® Light Fixture	486	121	0	0
2007 Every Kilowatt Counts	T8 Fluorescent Tube	404	101	0	0
2007 Every Kilowatt Counts	Seasonal LED Light String	3,292	0	0	0
2007 Every Kilowatt Counts	Project Porchlight CFL	12,729	3,182	0	0
2007 Every Kilowatt Counts	Solar Light	149	0	0	0
2007 Every Kilowatt Counts	Energy Star® Ceiling Fan	737	184	0	0
2007 Every Kilowatt Counts	Power Bar with Timer	367	92	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2007 Every Kilowatt Counts	Lighting Control Device	3,024	756	0	0
2007 Every Kilowatt Counts	Outdoor Motion Sensor	2,089	522	0	0
2007 Every Kilowatt Counts	Dimmer Switch	197	49	0	0
2007 Every Kilowatt Counts	Programmable Thermostat	600	150	0	0
2007 Summer Savings	Households, Combination of Change in Behaviour and "Pulled Forward" Equipment - Compact Fluorescent Light Bulb Related	621	155	0	0
2007 Summer Savings	Households, Change in Behaviour and Incremental Equipment (With Full Equipment Life) - Equipment Related	2,337	584	0	0
2007 Summer Savings	Households, Change in Behaviour and Incremental Equipment (With Full Equipment Life) - Compact Fluorescent Light Bulb Related	722	180	0	0
2007 Social Housing Pilot	Custom Retrofit Projects	9,270	2,318	0	0
2008 Great Refrigerator Roundup	Bottom Freezer Fridge	109	27	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2008 Great Refrigerator Roundup	Chest Freezer	2,868	717	0	0
2008 Great Refrigerator Roundup	Side by Side Fridge-Freezer	1,013	253	0	0
2008 Great Refrigerator Roundup	Single Door Fridge	1,967	492	0	0
2008 Great Refrigerator Roundup	Small Freezer (under 10 cubic feet)	33	8	0	0
2008 Great Refrigerator Roundup	Small Fridge (under 10 cubic feet)	59	15	0	0
2008 Great Refrigerator Roundup	Top Freezer Fridge	9,214	2,303	0	0
2008 Great Refrigerator Roundup	Upright Freezer	562	141	0	0
2008 Great Refrigerator Roundup	Window Air Conditioner	71	18	0	0
2008 Cool Savings Rebate	2007 Energy Star® Central Air Conditioner, Tier 2	318	80	0	0
2008 Cool Savings Rebate	2007 Medium Efficiency Furnace with ECM	3,686	922	0	0
2008 Cool Savings Rebate	2007 Programmable Thermostat	86	21	0	0
2008 Cool Savings Rebate	2008 Energy Star® Central Air Conditioner, Tier 2	1,268	317	0	0
2008 Cool Savings	2008 Efficient Furnace with	12,928	3,232	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
Rebate	ECM				
2008 Cool Savings Rebate	2008 Programmable Thermostat	335	84	0	0
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Compact Fluorescent Light Bulbs	19,901	4,975	0	0
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Dimmable CFLs	2,885	721	0	0
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Decorative CFLs	14,233	0	0	0
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Compact Fluorescent Floods (Indoor & Outdoor)	11,073	2,768	0	0
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Light Fixtures	23,318	5,829	0	0
2008 Every Kilowatt Counts Power Savings Event	T8 Fluorescent Fixtures	1,164	291	0	0
2008 Every Kilowatt Counts Power Savings Event	Lighting Control Devices	4,748	1,187	0	0
2008 Every Kilowatt Counts Power Savings Event	Power Bars with Timers	122	30	0	0

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		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2008 Every Kilowatt Counts Power Savings Event	Heavy Duty Timers	1,187	297	0	0
2008 Every Kilowatt Counts Power Savings Event	Programmable Thermostats - Baseboard	978	244	0	0
2008 Every Kilowatt Counts Power Savings Event	Pipe Wrap	11,936	2,984	0	0
2008 Every Kilowatt Counts Power Savings Event	Keep Cool Pilot – Dehumidifier	37	9	0	0
2008 Every Kilowatt Counts Power Savings Event	Keep Cool Pilot – Room Air Conditioner	14	3	0	0
2008 Every Kilowatt Counts Power Savings Event	Rewards for Recycling – Dehumidifier	1,382	346	0	0
2008 Every Kilowatt Counts Power Savings Event	Rewards for Recycling – Room Air Conditioner	421	105	0	0
2008 Every Kilowatt Counts Power Savings Event	Rewards for Recycling – Halogen Lamp	716	179	0	0
2008 Summer Sweepstakes	Registered qualified active households	6,806	1,701	0	0
2008 Summer	Registered unqualified	10,208	2,552	0	0



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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
Sweepstakes	active households				
2008 Summer Sweepstakes	Registered qualified inactive households	681	170	0	0
2008 Summer Sweepstakes	Registered unqualified inactive households	2,560	640	0	0
2008 Summer Sweepstakes	Non-registered active households	16,895	4,224	0	0
2008 High Performance New Construction	Custom	0	0	109	27
2009 Great Refrigerator Roundup	Chest Freezer - Not Replaced - Running Part Time (26% of the time)	30	8	0	0
2009 Great Refrigerator Roundup	Chest Freezer - Standard Efficiency Unit Replacement - Running Part Time (26% of the time)	7	2	0	0
2009 Great Refrigerator Roundup	Chest Freezer - Energy Star Unit Replacement - Running Part Time (26% of the time)	35	9	0	0
2009 Great Refrigerator Roundup	Chest Freezer - Not Replaced - Running All Time (100% of time time)	1,171	293	0	0
2009 Great Refrigerator Roundup	Chest Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time time)	283	71	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2009 Great Refrigerator Roundup	Chest Freezer - Energy Star Unit Replacement - Running All Time (100% of time time)	1,365	341	0	0
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Not Replaced - Running Part Time (38% of the time)	20	5	0	0
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	4	1	0	0
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Energy Star Unit Replacement - Running Part Time (38% of the time)	23	6	0	0
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Not Replaced - Running All Time (100% of time time)	371	93	0	0
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time time)	70	18	0	0
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Energy Star Unit Replacement - Running All Time (100% of time time)	440	110	0	0
2009 Great Refrigerator Roundup	Single Door Fridge - Not Replaced - Running Part Time (38% of the time)	24	6	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2009 Great Refrigerator Roundup	Single Door Fridge - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	5	1	0	0
2009 Great Refrigerator Roundup	Single Door Fridge - Energy Star Unit Replacement - Running Part Time (38% of the time)	31	8	0	0
2009 Great Refrigerator Roundup	Single Door Fridge - Not Replaced - Running All Time (100% of time time)	460	115	0	0
2009 Great Refrigerator Roundup	Single Door Fridge - Standard Efficiency Unit Replacement - Running All Time (100% of time time)	97	24	0	0
2009 Great Refrigerator Roundup	Single Door Fridge - Energy Star Unit Replacement - Running All Time (100% of time time)	585	146	0	0
2009 Great Refrigerator Roundup	Top Freezer Fridge - Not Replaced - Running Part Time (38% of the time)	216	54	0	0
2009 Great Refrigerator Roundup	Top Freezer Fridge - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	43	11	0	0
2009 Great Refrigerator Roundup	Top Freezer Fridge - Energy Star Unit Replacement - Running Part Time (38% of	264	66	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
	the time)				
2009 Great Refrigerator Roundup	Top Freezer Fridge - Not Replaced - Running All Time (100% of time time)	4,102	1,026	0	0
2009 Great Refrigerator Roundup	Top Freezer Fridge - Standard Efficiency Unit Replacement - Running All Time (100% of time time)	815	204	0	0
2009 Great Refrigerator Roundup	Top Freezer Fridge - Energy Star Unit Replacement - Running All Time (100% of time time)	5,016	1,254	0	0
2009 Great Refrigerator Roundup	Upright Freezer - Not Replaced - Running Part Time (26% of the time)	6	2	0	0
2009 Great Refrigerator Roundup	Upright Freezer - Standard Efficiency Unit Replacement - Running Part Time (26% of the time)	1	0	0	0
2009 Great Refrigerator Roundup	Upright Freezer - Energy Star Unit Replacement - Running Part Time (26% of the time)	4	1	0	0
2009 Great Refrigerator Roundup	Upright Freezer - Not Replaced - Running All Time (100% of time time)	251	63	0	0
2009 Great Refrigerator Roundup	Upright Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of	34	9	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
	time time)				
2009 Great Refrigerator Roundup	Upright Freezer - Energy Star Unit Replacement - Running All Time (100% of time time)	165	41	0	0
2009 Cool Savings Rebate	Energy Star® 14.5 SEER (Tier 1) Central Air Conditioner (CAC)	538	135	0	0
2009 Cool Savings Rebate	Energy Star® 14.5 SEER (Tier 1) Central Air Conditioner (CAC) with change in behaviour	236	59	0	0
2009 Cool Savings Rebate	Energy Star® 15.0 SEER (Tier 2) Central Air Conditioner (CAC)	2,219	555	0	0
2009 Cool Savings Rebate	Energy Star® 15.0 SEER (Tier 2) Central Air Conditioner (CAC) with change in behaviour	718	179	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, AHRI Matched CAC & Furnace, Continuous Fan, No change	2,033	508	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, AHRI Matched CAC & Furnace, Non-continuous	976	244	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
	Fan, No change				
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, AHRI Matched CAC & Furnace, Continuous Fan, Change from non-continuous	22	5	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace, Continuous Fan, No change	3,651	913	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace, Non-continuous Fan, No change	1,983	496	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace, Continuous Fan, Change from non-continuous	59	15	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only,	325	81	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
	Continuous Fan, No change				
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Non-continuous Fan, No change	282	71	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Continuous Fan, Change from non-continuous	13	3	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, AHRI Matched CAC & Furnace, Continuous Fan, No change	2,466	617	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, AHRI Matched CAC & Furnace, Non-continuous Fan, No change	732	183	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, AHRI Matched CAC & Furnace, Continuous Fan, Change from non-	-14	-3	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
	continuous				
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Continuous Fan, No change	4,444	1,111	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Non-continuous Fan, No change	1,667	417	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Continuous Fan, Change from non-continuous	5	1	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Continuous Fan, No change	391	98	0	0
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Non-continuous Fan, No change	212	53	0	0



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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Continuous Fan, Change from non-continuous	6	2	0	0
2009 Cool Savings Rebate	Programmable Thermostat - Central Air Conditioning (CAC) & Gas heating	204	51	0	0
2009 Cool Savings Rebate	Programmable Thermostat - Energy Star® Central Air Conditioning (CAC) & Gas Heating	233	58	0	0
2009 Cool Savings Rebate	Programmable Thermostat - Gas Heating only	18	5	0	0
2009 Cool Savings Rebate	Participant Spillover - Lighting	96	24	0	0
2009 Cool Savings Rebate	Participant Spillover - Cooling or Heating	87	0	0	0
2009 Cool Savings Rebate	Participant Spillover - Water heating	165	41	0	0
2009 Cool Savings Rebate	Participant Spillover - Appliances	125	31	0	0
2009 Cool Savings Rebate	Participant Spillover - Insulation of other weatherization	182	45	0	0
2009 Cool Savings	Participant Spillover -	189	47	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
Rebate	Windows				
2009 Cool Savings Rebate	Participant Spillover - Roof products	46	11	0	0
2009 Cool Savings Rebate	Participant Spillover - Other products	51	13	0	0
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Spring Campaign - Participant Rebated	1,451	363	0	0
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Decorative CFLs - Spring Campaign - Participant Rebated	4,301	1,075	0	0
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Spring Campaign - Participant Rebated	1,081	270	0	0
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Ceiling Fans - Spring Campaign - Participant Rebated	413	103	0	0
2009 Every Kilowatt Counts Power Savings Event	Heavy Duty Pool and Spa Timers - Spring Campaign - Participant Rebated	983	246	0	0
2009 Every Kilowatt Counts Power Savings Event	Clotheslines - Spring Campaign - Participant Rebated	313	78	0	0
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Spring Campaign - Participant Rebated	38	10	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Spring Campaign - Participant Rebated	34	8	0	0
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Window Air Conditioner - Spring Campaign - Participant Promoted	484	121	0	0
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Dehumidifiers - Spring Campaign - Participant Promoted	1,374	343	0	0
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Spring Campaign - Participant Promoted	1,088	272	0	0
2009 Every Kilowatt Counts Power Savings Event	Solar Power Products - Spring Campaign - Participant Promoted	132	33	0	0
2009 Every Kilowatt Counts Power Savings Event	Control Products - Spring Campaign - Participant Promoted	872	218	0	0
2009 Every Kilowatt Counts Power Savings Event	Installed CFLs - Spring Campaign - Participant Spillover	111	28	0	0
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Refrigerator - Spring Campaign - Participant Spillover	55	14	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Clothes washing machine - Spring Campaign - Participant Spillover	52	13	0	0
2009 Every Kilowatt Counts Power Savings Event	Added ceiling/attic/wall/basement insulation - Spring Campaign - Participant Spillover	166	42	0	0
2009 Every Kilowatt Counts Power Savings Event	Installed Programmable Thermostat - Spring Campaign - Participant Spillover	137	34	0	0
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Spring Campaign - Non-Participant Rebated	540	135	0	0
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Decorative CFLs - Spring Campaign - Non-Participant Rebated	359	90	0	0
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Spring Campaign - Non-Participant Rebated	892	223	0	0
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Ceiling Fans - Spring Campaign - Non-Participant Rebated	92	23	0	0
2009 Every Kilowatt Counts Power Savings Event	Heavy Duty Pool and Spa Timers - Spring Campaign - Non-Participant Rebated	368	92	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2009 Every Kilowatt Counts Power Savings Event	Clotheslines - Spring Campaign - Non-Participant Rebated	229	57	0	0
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Spring Campaign - Non-Participant Rebated	56	14	0	0
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Spring Campaign - Non-Participant Rebated	53	13	0	0
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Window Air Conditioner - Spring Campaign - Non-Participant Promoted	521	130	0	0
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Dehumidifiers - Spring Campaign - Non-Participant Promoted	1,869	467	0	0
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Spring Campaign - Non-Participant Promoted	945	236	0	0
2009 Every Kilowatt Counts Power Savings Event	Solar Power Products - Spring Campaign - Non-Participant Promoted	285	71	0	0
2009 Every Kilowatt Counts Power Savings Event	Control Products - Spring Campaign - Non-Participant Promoted	1,303	326	0	0
2009 Every Kilowatt Counts Power Savings	Energy Star Qualified Compact Fluorescent - Autumn Campaign -	7,295	1,824	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
Event	Participant Rebated				
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Specialty CFLs - Autumn Campaign - Participant Rebated	2,480	620	0	0
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Autumn Campaign - Participant Rebated	1,659	415	0	0
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - adhesive foam or V-strip - Autumn Campaign - Participant Rebated	162	41	0	0
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - door frame kits - Autumn Campaign - Participant Rebated	111	28	0	0
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Autumn Campaign - Participant Rebated	174	43	0	0
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Autumn Campaign - Participant Rebated	20	5	0	0
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Autumn Campaign - Participant Rebated	54	13	0	0
2009 Every Kilowatt Counts Power Savings Event	Lighting/Appliance Controls - Autumn Campaign - Participant Rebated	215	54	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Holiday LED Lights - Autumn Campaign - Participant Promoted	395	99	0	0
2009 Every Kilowatt Counts Power Savings Event	Dimmer Switches - Autumn Campaign - Participant Promoted	243	61	0	0
2009 Every Kilowatt Counts Power Savings Event	Solar Powered Products - Autumn Campaign - Participant Promoted	116	29	0	0
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance – Refrigerator - Autumn Campaign - Participant Spillover	133	33	0	0
2009 Every Kilowatt Counts Power Savings Event	Added ceiling/attic/wall/basement insulation - Autumn Campaign - Participant Spillover	581	145	0	0
2009 Every Kilowatt Counts Power Savings Event	Replaced my old furnace with a high efficiency furnace - Autumn Campaign - Participant Spillover	411	103	0	0
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Clothes washing machine - Autumn Campaign - Participant Spillover	150	38	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Autumn Campaign - Non-Participant Rebated	1,220	305	0	0
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Specialty CFLs - Autumn Campaign - Non-Participant Rebated	539	135	0	0
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Autumn Campaign - Non-Participant Rebated	293	73	0	0
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - adhesive foam or V-strip - Autumn Campaign - Non-Participant Rebated	138	34	0	0
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - door frame kits - Autumn Campaign - Non-Participant Rebated	109	27	0	0
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Autumn Campaign - Non-Participant Rebated	284	71	0	0
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Autumn Campaign - Non-Participant Rebated	60	15	0	0
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Autumn Campaign - Non-Participant Rebated	100	25	0	0
2009 Every Kilowatt Counts Power Savings	Lighting/Appliance Controls - Autumn Campaign - Non-	419	105	0	0



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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
Event	Participant Rebated				
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Holiday LED Lights - Autumn Campaign - Non-Participant Promoted	768	192	0	0
2009 Every Kilowatt Counts Power Savings Event	Dimmer Switches - Autumn Campaign - Non-Participant Promoted	324	81	0	0
2009 Every Kilowatt Counts Power Savings Event	Solar Powered Products - Autumn Campaign - Non-Participant Promoted	156	39	0	0
2009 Every Kilowatt Counts Power Savings Event	Working Room Air Conditioner Retirement - Rewards for Recycling Campaign - Incented	47	12	0	0
2009 Every Kilowatt Counts Power Savings Event	Working Room Dehumidifier Retirement - Rewards for Recycling Campaign - Incented	499	125	0	0
2009 Every Kilowatt Counts Power Savings Event	Working Halogen Torchiere Retirement - Rewards for Recycling Campaign - Incented	35	9	0	0
2009 Every Kilowatt Counts Power Savings Event	Recycled Second Refrigerator - Rewards for Recycling Campaign - Spillover	365	91	0	0
2009 Every Kilowatt Counts Power Savings	Recycled Additional Room Air Conditioner - Rewards	7	2	0	0

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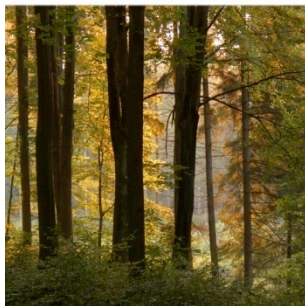
Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
Event	for Recycling Campaign - Spillover				
2009 Every Kilowatt Counts Power Savings Event	Recycled Central Air Conditioner - Rewards for Recycling Campaign - Spillover	17	4	0	0
2009 Every Kilowatt Counts Power Savings Event	Recyled Additional Room Dehumidifier - Rewards for Recycling Campaign - Spillover	79	20	0	0
2009 Every Kilowatt Counts Power Savings Event	Installed Energy Star® Windows - Rewards for Recycling Campaign - Spillover	317	79	0	0
2009 Every Kilowatt Counts Power Savings Event	Installed Energy Star® CFL Bulbs - Rewards for Recycling Campaign - Spillover	31	8	0	0
2009 High Performance New Construction	Custom	0	0	3,545	886
2010 Cool Savings Rebate	All measures	5,307	1,327	0	0
2010 Every Kilowatt Counts Power Savings Event	All measures	14,672	3,668	0	0
2010 Great Refrigerator Roundup	All measures	19,337	4,834	0	0

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Program	Energy Efficient Measure	Residential energy savings (kWh)		GS < 50 kW energy savings (kWh)	
		Calendar year 2011	Jan 1 - Apr 30 2012	Calendar year 2011	Jan 1 - Apr 30 2012
2010 High Performance New Construction	Custom	0	0	10,951	2,738
2010 Multifamily Energy Efficiency Rebates	All measures	0	0	2,312	578

- d) No update is required, as all information with regards to Espanola Regional Hydro's LRAM request are based upon the OPA's final 2010 results, which included information on persistence of savings through 2012. In the 2014 application, the attached IndEco report stated it was based on preliminary 2010 results. The final version of the IndEco report was not submitted in error but the calculations and the LRAM was based on the final report and final 2010 OPA results. ERHDC has included the final IndEco report below.
- e) The calculation of the lost revenue in the time period of January 1, 2011 to April 30, 2012 only included unit savings results that persisted into that time period. Measures with assumed lifespans that expired prior to this time period were excluded from the lost revenue calculations.
- f) As the lost revenue calculations took into account measure lives and unit savings into the time period of January 1, 2011 to April 30, 2012, no adjustment to the lost revenue is required.

# Espanola Regional Hydro LRAM





Third party review:

Espanola Regional Hydro LRAM claims



This document was prepared for Espanola Regional Hydro Inc. by IndEco Strategic Consulting Inc.

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IndEco report B1698

26 October 2011

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## Executive summary

A third party review of the Conservation and Demand Management (CDM) programs run by Espanola Regional Hydro (ERH) was required as part of its application to the Ontario Energy Board (OEB) for collection of Lost Revenue Adjustment Mechanism (LRAM) claims.

IndEco Strategic Consulting Inc. (IndEco) acted as third party reviewer by examining the participant rates, equipment specifications, and calculations that enter into the energy savings associated with ERH's CDM portfolio. The review was completed as detailed in the OEB *Guidelines for Electricity Distributor Conservation and Demand Management*.

The third party review included ERH's CDM activities in 2006, 2007, 2008, 2009 and 2010 supported through Ontario Power Authority (OPA) funding for the period between January 1 2006 and April 30 2012.

Lost revenues are calculated using estimated energy savings or monthly peak demand savings using the best available and most current input assumptions. Energy savings are those from the results of OPA's program evaluations. In the span from January 2006 to April 2012, these savings totalled approximately 11 GWh in the residential rate class and 41 MWh in the GS < 50 kW rate class.

IndEco concludes that ERH's electricity rates should be adjusted to reflect an LRAM claim of \$160,270.



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## Introduction

### *What is the lost revenue adjustment mechanism (LRAM)*

Lost Revenue Adjustment Mechanism claims can benefit a local distribution company (LDC) by removing the disincentive for energy conservation.

LRAM is designed to ensure that the LDC does not have a disincentive to promote energy efficiency and energy conservation by compensating the LDC for revenues lost as a result of its conservation initiatives. It requires the calculation of electricity savings over the period between the last rate application, and the time of the application. In turn, this calculation requires information on what the electricity use would have been in the absence of the LDC initiatives, and what it was with the LDC initiative. Some of the inputs to the calculation include: hours the equipment is used, wattage rating of the old and new equipment, and lifetime of the equipment if it is less than the period over which the LRAM is being claimed. Also required are the number of participants, or pieces of equipment installed, and an estimate of the free-rider rate, which is the fraction of the savings that would have occurred anyway, in the absence of the program. These savings are estimated for each rate class, and revenue losses are determined by multiplying those losses by the cost of distribution per unit for each rate class. Carrying charges are calculated using deferral and variance account interest rates prescribed by the OEB.<sup>1</sup>

### *Sources of information*

Although these input data requirements are sometimes measured, they sometimes are values from published sources, or assumptions provided by the Ontario Energy Board, or other reputable agencies. For some types of programs, such as large scale distribution of compact fluorescent bulbs, it would be impractical to measure the hours each bulb is used, for example, and therefore these published sources provide an average value that is typical for this equipment type.

In some cases, estimated values for a particular component of the calculation are available from multiple sources. In these cases, information is taken from the sources highest in the information hierarchy. The information hierarchy (from greatest to least confidence) for LRAM calculations is:

- 1 Information or results from an OPA conducted or sponsored evaluation of the specific program (e.g. OPA 2010)
- 2 Information or results from a third-party evaluation of the specific program

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<sup>1</sup> For prescribed interest rates, see <http://www.oeb.gov.on.ca/OEB/Industry/Rules+and+Requirements/Rules+Codes+Guidelines+and+Forms/Prescribed+Interest+Rates>

- 3 Information or results from a site-specific assessment of the application of the technology, including on-site measurement or survey of the specific customer
- 4 Manufacturer specifications for energy use/demand of the specific technology installed
- 5 Information from the OPA's most current measures and assumptions lists (OPA 2011a, OPA 2011b)
- 6 Information from earlier OPA measures and assumptions lists
- 7 Information from the OEB's TRC guide list of measures and assumptions (OEB 2008b).

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## Scope

This review examines the measures, energy savings, and equipment specifications for programs run under contract to the Ontario Power Authority (OPA) in 2006, 2007, 2008, 2009 and 2010. Lost revenues associated with these programs are estimated through April 30 2012.

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## Requested LRAM amounts

### *LRAM inputs*

IndEco finds that appropriate measure specifications were used to calculate program energy savings and lost revenues. For the calculation of LRAM claims, the '2006-2009 Final OPA CDM results Espanola Regional Hydro ' and the '2010 Final CDM Results Summary Espanola Regional Hydro' were used as sources of inputs for OPA funded CDM programs. These evaluated results have been adopted in accordance with Board recommendations that "The Board would consider an evaluation by the OPA or a third party designated by the OPA to be sufficient."<sup>2</sup> OPA advises that these estimates are prepared in a manner consistent with OPA current practice, and are the same values used to report progress against provincial conservation targets.

A summary list of the assumption sources used for the calculation of the LRAM claim is provided in Table 1.

The measure inputs used to calculate LRAM claims can be found in Table 7 in Appendix A.

Table 2 and Table 3 show the net and gross energy savings or demand reductions of each program by rate class. OPA program energy savings in Table 2 and Table 3 were acquired directly from spreadsheets provided by the OPA. Note that the results of 2010 OPA programs are preliminary.

Energy savings were converted to LRAM values by using ERH distribution rates. Distribution rates are in Table 4.

The requested LRAM is presented in Table 5.

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<sup>2</sup> OEB 2008a. Guidelines for Electricity Distributor Conservation and Demand Management. p.28

Table 1 – Source of information used for the calculation of the LRAM claim

<b>Funding source</b>	<b>Rate class</b>	<b>Program</b>	<b>Source of LRAM inputs</b>
OPA	Residential	2006 Secondary Refrigerator Retirement Pilot	OPA 2010
OPA	Residential	2006 Cool Savings Rebate	OPA 2010
OPA	Residential	2006 Every Kilowatt Counts	OPA 2010
OPA	Residential	2007 Great Refrigerator Roundup	OPA 2010
OPA	Residential	2007 Cool Savings Rebate	OPA 2010
OPA	Residential	2007 Every Kilowatt Counts	OPA 2010
OPA	Residential	2007 Summer Savings	OPA 2010
OPA	Residential	2007 Aboriginal	OPA 2010
OPA	Residential	2007 Social Housing Pilot	OPA 2010
OPA	Residential	2008 Great Refrigerator Roundup	OPA 2010
OPA	Residential	2008 Cool Savings Rebate	OPA 2010
OPA	Residential	2008 Every Kilowatt Counts Power Savings Event	OPA 2010
OPA	Residential	2008 Summer Sweepstakes	OPA 2010
OPA	GS < 50 kW	2008 High Performance New Construction	OPA 2010
OPA	Residential	2009 Great Refrigerator Roundup	OPA 2010
OPA	Residential	2009 Cool Savings Rebate	OPA 2010
OPA	Residential	2009 Every Kilowatt Counts Power Savings Event	OPA 2010
OPA	GS < 50 kW	2009 High Performance New Construction	OPA 2010
OPA	Residential	2010 Great Refrigerator Roundup	OPA 2011c
OPA	Residential	2010 Cool Savings Rebate	OPA 2011c
OPA	Residential	2010 Every Kilowatt Counts Power Savings Event	OPA 2011c
OPA	GS < 50 kW	2010 High Performance New Construction	OPA 2011c



Table 2 – Cumulative net program energy savings and demand savings by rate class through April 30 2012

<b>Funding source</b>	<b>Program</b>	<b>Program year</b>	<b>Residential (kWh)</b>	<b>GS &lt; 50 kW (kWh)</b>
OPA	Aboriginal	2007	7,941,600	
	Cool Savings Rebate	2006	69,563	
		2007	89,130	
		2008	79,139	
		2009	79,150	
		2010	11,942	
	Every Kilowatt Counts	2006	1,238,983	
		2007	529,332	
	Every Kilowatt Counts Power	2008	396,834	
	Savings Event	2009	133,713	
		2010	33,011	
	Great Refrigerator Roundup	2007	58,422	
		2008	67,555	
		2009	51,804	
		2010	43,507	
	High Performance New Construction	2008		461
		2009		11,521
		2010		24,640
	Multifamily Energy Efficiency Rebates	2010		5,202
	Secondary Refrigerator Retirement Pilot	2006	27,052	
	Social Housing Pilot	2007	48,670	
	Summer Savings	2007	79,360	
	Summer Sweepstakes	2008	157,884	
<b>Total savings</b>			<b>11,136,652</b>	<b>41,825</b>

Table 3 – Cumulative gross program energy savings and peak demand savings by rate class through April 30 2012

Funding source	Program	Program year	Residential (kWh)	GS < 50 kW (kWh)
OPA	Aboriginal	2007	7,941,600	
	Cool Savings Rebate	2006	88,124	
		2007	174,173	
		2008	137,767	
		2009	185,279	
		2010	29,115	
	Every Kilowatt Counts	2006	1,376,648	
		2007	718,951	
	Every Kilowatt Counts Power Savings Event	2008	983,316	
		2009	350,370	
		2010	71,380	
	Great Refrigerator Roundup	2007	145,488	
		2008	124,661	
		2009	96,510	
		2010	81,648	
	High Performance New Construction	2008		659
		2009		16,458
		2010		35,201
	Multifamily Energy Efficiency Rebates	2010		7,062
	Secondary Refrigerator Retirement Pilot	2006	30,058	
	Social Housing Pilot	2007	48,670	
	Summer Savings	2007	661,330	
	Summer Sweepstakes	2008	203,496	
<b>Total savings</b>			<b>13,448,584</b>	<b>59,380</b>

Table 4 – Distribution rates per rate class

Rate Class	Units	2006	2007	2008	2009	2010	2011
Residential	\$/kWh	0.0131	0.0135	0.0146	0.0144	0.012	0.012
GS < 50 kW	\$/kWh	0.0198	0.0203	0.017	0.0168	0.0147	0.0147

Table 5 – Summary of requested LRAM amounts in 2012\$

<b>Funding</b>	<b>Program</b>	<b>Year</b>	<b>Residential</b>	<b>GS &lt; 50 kW</b>	<b>LRAM</b>
OPA	Aboriginal	2007	\$114,455	\$0	\$114,455
	Cool Savings Rebate	2006	\$979	\$0	\$979
		2007	\$1,237	\$0	\$1,237
		2008	\$1,077	\$0	\$1,077
		2009	\$1,032	\$0	\$1,032
		2010	\$146	\$0	\$146
	Every Kilowatt Counts	2006	\$18,490	\$0	\$18,490
		2007	\$7,346	\$0	\$7,346
	Every Kilowatt Counts Power Savings Event	2008	\$5,409	\$0	\$5,409
		2009	\$1,746	\$0	\$1,746
		2010	\$403	\$0	\$403
	Great Refrigerator Roundup	2007	\$811	\$0	\$811
		2008	\$920	\$0	\$920
		2009	\$675	\$0	\$675
		2010	\$532	\$0	\$532
	High Performance New Construction	2008	\$0	\$7	\$7
		2009	\$0	\$181	\$181
		2010	\$0	\$369	\$369
	Multifamily Energy Efficiency Rebates	2010	\$0	\$78	\$78
	Secondary Refrigerator Retirement Pilot	2006	\$383	\$0	\$383
	Social Housing Pilot	2007	\$675	\$0	\$675
	Summer Savings	2007	\$1,170	\$0	\$1,170
	Summer Sweepstakes	2008	\$2,150	\$0	\$2,150
<b>Total</b>			<b>\$159,635</b>	<b>\$635</b>	<b>\$160,270</b>

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## Findings

IndEco has reviewed the input values associated with 2006, 2007, 2008, 2009, and 2010 OPA-funded programs.

IndEco has concluded that sufficient detail and documentation exists to recommend increasing Espanola Regional Hydro 's distribution rates in order to collect \$160,270 in LRAM, allocated by rate class as shown in Table 6.

*Table 6 – LRAM amounts by rate class in 2012\$*

<b>Rate class</b>	<b>LRAM</b>
Residential	\$159,635
General Service < 50 kW	\$635
General Service 50 to 4,999 kW	\$0
Sentinel Lights	\$0
Street Lighting	\$0
Unmetered Scattered Load	\$0
<b>Total</b>	<b>\$160,270</b>

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## References

- Ontario Energy Board. (OEB) 2007. Report of the Board on the Regulatory Framework for Conservation and Demand Management by Ontario Electricity Distributors in 2007 and Beyond. (March 2)
- Ontario Energy Board. (OEB) 2008a. Guidelines for Electricity Distributor Conservation and Demand Management. (March 28)
- Ontario Energy Board (OEB) 2008b. Inputs and Assumptions for Calculating Total Resource Cost. (March 28)
- Ontario Power Authority. (OPA) 2010. 2006-2009 Final OPA CDM results. Espanola Regional Hydro E-mail from J. Yue (OPA) dated 1 December 2010.
- Ontario Power Authority. (OPA) 2011a. 2011 prescriptive measures and assumptions. Toronto: OPA Release March 7, 2011. Source: <http://powerauthority.on.ca/evaluation-measurement-and-verification/measures-assumptions-lists>
- Ontario Power Authority. (OPA) 2011b. 2011 quasi-prescriptive measures and assumptions. Toronto: OPA Release March 7, 2011 From: <http://powerauthority.on.ca/evaluation-measurement-and-verification/measures-assumptions-lists>
- Ontario Power Authority. (OPA) 2011c. 2010 Final CDM Results Summary Espanola Regional Hydro. Toronto: OPA Release September 19, 2011.

## Appendix A. Inputs used for TRC and energy savings calculations

Table 7 – LRAM inputs and contribution to the total LRAM for all measures.

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2006 Secondary Refrigerator Retirement Pilot	Refrigerator Retirement	4.0	6	10%	1,200	\$371	OPA 2010
2006 Secondary Refrigerator Retirement Pilot	Freezer Retirement	0.2	6	10%	900	\$12	OPA 2010
2006 Cool Savings Rebate	Energy Star® Central Air Conditioner - Cool Savings	11.6	6	10%	390	\$358	OPA 2010
2006 Cool Savings Rebate	Programmable Thermostat - Cool Savings	8.8	6	10%	177	\$124	OPA 2010
2006 Cool Savings Rebate	Central Air Conditioner Tune-ups - Cool Savings	7.9	6	10%	410	\$257	OPA 2010
2006 Cool Savings Rebate	Energy Star® Central Air Conditioner - Hot Savings	2.4	6	43%	155	\$18	OPA 2010
2006 Cool Savings Rebate	Efficient Furnace with ECM - Hot Savings	5.0	6	41%	837	\$216	OPA 2010
2006 Cool Savings Rebate	Programmable Thermostat - Hot Savings	4.6	6	73%	54	\$6	OPA 2010
2006 Every Kilowatt Counts	Energy Star® Compact Fluorescent Light Bulb - Spring Campaign	1,078.4	4	10%	104	\$6,128	OPA 2010
2006 Every Kilowatt Counts	Electric Timers - Spring Campaign	30.2	6	10%	183	\$438	OPA 2010
2006 Every Kilowatt Counts	Programmable Thermostats - Spring Campaign	13.2	6	10%	216	\$225	OPA 2010
2006 Every Kilowatt Counts	Energy Star® Ceiling Fans - Spring Campaign	10.0	6	10%	141	\$112	OPA 2010
2006 Every Kilowatt Counts	Energy Star® Compact Fluorescent Light Bulb - Autumn Campaign	1,599.0	4	10%	104	\$9,086	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2006 Every Kilowatt Counts	Seasonal Light Emitting Diode Light String - Autumn Campaign	384.9	6	10%	31	\$937	OPA 2010
2006 Every Kilowatt Counts	Programmable Thermostats - Autumn Campaign	25.4	6	10%	522	\$1,049	OPA 2010
2006 Every Kilowatt Counts	Dimmers - Autumn Campaign	20.1	6	10%	139	\$221	OPA 2010
2006 Every Kilowatt Counts	Indoor Motion Sensors - Autumn Campaign	7.2	6	10%	209	\$119	OPA 2010
2006 Every Kilowatt Counts	Programmable Baseboard Thermostats - Autumn Campaign	1.5	6	10%	1,466	\$175	OPA 2010
2007 Great Refrigerator Roundup	Bottom Freezer Fridge	0.3	5	27%	1,064	\$16	OPA 2010
2007 Great Refrigerator Roundup	Chest Freezer	4.9	5	54%	471	\$77	OPA 2010
2007 Great Refrigerator Roundup	Side by Side Fridge-Freezer	2.3	5	61%	900	\$60	OPA 2010
2007 Great Refrigerator Roundup	Single Door Fridge	6.5	5	61%	721	\$133	OPA 2010
2007 Great Refrigerator Roundup	Small Freezer (under 10 cubic feet)	0.2	5	70%	339	\$1	OPA 2010
2007 Great Refrigerator Roundup	Small Fridge (under 10 cubic feet)	0.5	5	70%	490	\$5	OPA 2010
2007 Great Refrigerator Roundup	Top Freezer Fridge	23.4	5	61%	732	\$489	OPA 2010
2007 Great Refrigerator Roundup	Upright Freezer	0.9	5	54%	743	\$23	OPA 2010
2007 Great Refrigerator Roundup	Window Air Conditioner	1.0	5	57%	240	\$7	OPA 2010
2007 Cool Savings Rebate	Energy Star® Central Air Conditioner - Hot Savings	2.3	5	43%	155	\$15	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2007 Cool Savings Rebate	Efficient Furnace with ECM - Hot Savings	4.8	5	41%	837	\$173	OPA 2010
2007 Cool Savings Rebate	Programmable Thermostat - Hot Savings	4.4	5	73%	54	\$5	OPA 2010
2007 Cool Savings Rebate	Energy Star® Central Air Conditioner, Tier 2 - Cool Savings	17.8	5	43%	155	\$115	OPA 2010
2007 Cool Savings Rebate	Medium Efficiency Furnace with ECM - Cool Savings	23.6	5	41%	837	\$850	OPA 2010
2007 Cool Savings Rebate	Programmable Thermostat - Cool Savings	22.0	5	73%	54	\$24	OPA 2010
2007 Cool Savings Rebate	Central Air Conditioner Tune-ups - Cool Savings	21.9	5	84%	235	\$56	OPA 2010
2007 Every Kilowatt Counts	15 W CFL	1,851.0	5	22%	43	\$4,522	OPA 2010
2007 Every Kilowatt Counts	20+ W CFL	301.3	5	22%	62	\$1,063	OPA 2010
2007 Every Kilowatt Counts	Energy Star® Light Fixture	7.2	5	45%	123	\$35	OPA 2010
2007 Every Kilowatt Counts	T8 Fluorescent Tube	14.1	5	23%	37	\$29	OPA 2010
2007 Every Kilowatt Counts	Seasonal LED Light String	490.4	5	51%	14	\$230	OPA 2010
2007 Every Kilowatt Counts	Project Porch light CFL	389.5	5	24%	43	\$927	OPA 2010
2007 Every Kilowatt Counts	Solar Light	237.6	5	87%	5	\$10	OPA 2010
2007 Every Kilowatt Counts	Energy Star® Ceiling Fan	14.9	5	45%	90	\$54	OPA 2010
2007 Every Kilowatt Counts	Furnace Filter	60.2	1	45%	38	\$19	OPA 2010
2007 Every Kilowatt Counts	Power Bar with Timer	6.6	5	23%	72	\$27	OPA 2010
2007 Every Kilowatt Counts	Lighting Control Device	76.1	5	45%	72	\$220	OPA 2010
2007 Every Kilowatt Counts	Outdoor Motion Sensor	23.8	5	45%	160	\$152	OPA 2010
2007 Every Kilowatt Counts	Dimmer Switch	15.1	5	45%	24	\$14	OPA 2010
2007 Every Kilowatt Counts	Programmable Thermostat	14.5	5	45%	75	\$44	OPA 2010



Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2007 Summer Savings	Households, Change in Behaviour Only - Behaviour Related	30.3	1	88%	5,453	\$297	OPA 2010
2007 Summer Savings	Households, Combination of Change in Behaviour and "Pulled Forward" Equipment - Behaviour Related	30.3	1	88%	2,919	\$159	OPA 2010
2007 Summer Savings	Households, Combination of Change in Behaviour and "Pulled Forward" Equipment - Equipment Related	30.3	2	88%	1,662	\$184	OPA 2010
2007 Summer Savings	Households, Combination of Change in Behaviour and "Pulled Forward" Equipment - Compact Fluorescent Light Bulb Related	30.3	5	88%	171	\$45	OPA 2010
2007 Summer Savings	Households, Change in Behaviour and Incremental Equipment (With Full Equipment Life) - Behaviour Related	30.3	1	88%	4,822	\$262	OPA 2010
2007 Summer Savings	Households, Change in Behaviour and Incremental Equipment (With Full Equipment Life) - Equipment Related	30.3	5	88%	643	\$170	OPA 2010
2007 Summer Savings	Households, Change in Behaviour and Incremental Equipment (With Full Equipment Life) - Compact Fluorescent Light Bulb Related	30.3	5	88%	199	\$53	OPA 2010
2007 Aboriginal	Conservation Kits	2,206.0	4	0%	900	\$114,455	OPA 2010
2007 Social Housing Pilot	Custom Retrofit Projects	7.5	5	0%	1,229	\$675	OPA 2010
2008 Great Refrigerator Roundup	Bottom Freezer Fridge	0.3	4	45%	775	\$6	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2008 Great Refrigerator Roundup	Chest Freezer	7.5	4	48%	740	\$166	OPA 2010
2008 Great Refrigerator Roundup	Side by Side Fridge-Freezer	2.4	4	45%	775	\$59	OPA 2010
2008 Great Refrigerator Roundup	Single Door Fridge	4.6	4	45%	775	\$114	OPA 2010
2008 Great Refrigerator Roundup	Small Freezer (under 10 cubic feet)	0.1	4	48%	740	\$2	OPA 2010
2008 Great Refrigerator Roundup	Small Fridge (under 10 cubic feet)	0.1	4	45%	775	\$3	OPA 2010
2008 Great Refrigerator Roundup	Top Freezer Fridge	21.6	4	45%	775	\$533	OPA 2010
2008 Great Refrigerator Roundup	Upright Freezer	1.5	4	48%	740	\$33	OPA 2010
2008 Great Refrigerator Roundup	Window Air Conditioner	1.0	4	64%	197	\$4	OPA 2010
2008 Cool Savings Rebate	2007 Energy Star® Central Air Conditioner, Tier 2	3.6	4	43%	155	\$18	OPA 2010
2008 Cool Savings Rebate	2007 Medium Efficiency Furnace with ECM	7.5	4	41%	837	\$213	OPA 2010
2008 Cool Savings Rebate	2007 Programmable Thermostat	5.8	4	73%	54	\$5	OPA 2010
2008 Cool Savings Rebate	2008 Energy Star® Central Air Conditioner, Tier 2	17.7	4	43%	125	\$73	OPA 2010
2008 Cool Savings Rebate	2008 Efficient Furnace with ECM	26.7	4	41%	819	\$748	OPA 2010
2008 Cool Savings Rebate	2008 Programmable Thermostat	22.7	4	73%	54	\$19	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Compact Fluorescent Light Bulbs	719.1	4	48%	53	\$1,152	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Dimmable CFLs	78.3	4	62%	98	\$167	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Decorative CFLs	1,214.8	4	61%	30	\$781	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Compact Fluorescent Floods (Indoor & Outdoor)	337.3	4	63%	88	\$641	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Light Fixtures	523.4	4	67%	133	\$1,349	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	T8 Fluorescent Fixtures	95.2	4	67%	37	\$67	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Lighting Control Devices	102.4	4	55%	102	\$275	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Power Bars with Timers	5.6	4	59%	53	\$7	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Heavy Duty Timers	11.8	4	67%	301	\$69	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Programmable Thermostats - Baseboard	33.0	4	53%	64	\$57	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Air Conditioner/Furnace Filters	31.1	1	65%	38	\$6	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Pipe Wrap	670.8	4	53%	38	\$691	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Keep Cool Pilot – Dehumidifier	0.2	4	65%	500	\$2	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Keep Cool Pilot – Room Air Conditioner	0.2	4	58%	141	\$1	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Rewards for Recycling – Dehumidifier	6.3	4	56%	500	\$80	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Rewards for Recycling – Room Air Conditioner	6.8	4	56%	141	\$24	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2008 Every Kilowatt Counts Power Savings Event	Rewards for Recycling – Halogen Lamp	5.4	4	52%	275	\$41	OPA 2010
2008 Summer Sweepstakes	Registered qualified active households	20.8	4	22%	421	\$394	OPA 2010
2008 Summer Sweepstakes	Registered unqualified active households	31.2	4	22%	421	\$591	OPA 2010
2008 Summer Sweepstakes	Registered qualified inactive households	2.1	4	22%	421	\$39	OPA 2010
2008 Summer Sweepstakes	Registered unqualified inactive households	7.8	4	22%	421	\$148	OPA 2010
2008 Summer Sweepstakes	Non-registered active households	1,014.9	4	22%	21	\$978	OPA 2010
2008 High Performance New Construction	Custom	1.0	4	30%	155	\$7	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Not Replaced - Running Part Time (26% of the time)	0.2	3	48%	282	\$1	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Standard Efficiency Unit Replacement - Running Part Time (26% of the time)	0.1	3	48%	247	\$0	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Energy Star Unit Replacement - Running Part Time (26% of the time)	0.3	3	48%	261	\$1	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Not Replaced - Running All Time (100% of time)	2.1	3	48%	1,096	\$50	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time)	0.6	3	48%	959	\$12	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Energy Star Unit Replacement - Running All Time (100% of time)	2.6	3	48%	1,012	\$58	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Not Replaced - Running Part Time (38% of the time)	0.1	3	46%	507	\$1	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	0.0	3	46%	260	\$0	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Energy Star Unit Replacement - Running Part Time (38% of the time)	0.1	3	46%	309	\$1	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Not Replaced - Running All Time (100% of time)	0.5	3	46%	1,331	\$16	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time)	0.2	3	46%	682	\$3	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Energy Star Unit Replacement - Running All Time (100% of time)	1.0	3	46%	812	\$19	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Not Replaced - Running Part Time (38% of the time)	0.1	3	46%	418	\$1	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	0.0	3	46%	237	\$0	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Energy Star Unit Replacement - Running Part Time (38% of the time)	0.2	3	46%	273	\$1	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Not Replaced - Running All Time (100% of time)	0.8	3	46%	1,097	\$19	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Great Refrigerator Roundup	Single Door Fridge - Standard Efficiency Unit Replacement - Running All Time (100% of time)	0.3	3	46%	623	\$4	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Energy Star Unit Replacement - Running All Time (100% of time)	1.5	3	46%	718	\$25	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Not Replaced - Running Part Time (38% of the time)	0.8	3	46%	470	\$9	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	0.3	3	46%	252	\$2	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Energy Star Unit Replacement - Running Part Time (38% of the time)	1.6	3	46%	295	\$11	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Not Replaced - Running All Time (100% of time)	6.1	3	46%	1,234	\$174	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Standard Efficiency Unit Replacement - Running All Time (100% of time)	2.3	3	46%	661	\$35	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Energy Star Unit Replacement - Running All Time (100% of time)	11.9	3	46%	776	\$212	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Not Replaced - Running Part Time (26% of the time)	0.0	3	48%	365	\$0	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Standard Efficiency Unit Replacement - Running Part Time (26% of the time)	0.0	3	48%	180	\$0	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Energy Star Unit Replacement - Running Part Time (26% of the time)	0.0	3	48%	189	\$0	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Great Refrigerator Roundup	Upright Freezer - Not Replaced - Running All Time (100% of time)	0.3	3	48%	1,416	\$11	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time)	0.1	3	48%	697	\$1	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Energy Star Unit Replacement - Running All Time (100% of time)	0.4	3	48%	736	\$7	OPA 2010
2009 Cool Savings Rebate	Energy Star® 14.5 SEER (Tier 1) Central Air Conditioner (CAC)	8.3	3	42%	113	\$23	OPA 2010
2009 Cool Savings Rebate	Energy Star® 14.5 SEER (Tier 1) Central Air Conditioner (CAC) with change in behaviour	1.3	3	42%	317	\$10	OPA 2010
2009 Cool Savings Rebate	Energy Star® 15.0 SEER (Tier 2) Central Air Conditioner (CAC)	21.7	3	42%	177	\$94	OPA 2010
2009 Cool Savings Rebate	Energy Star® 15.0 SEER (Tier 2) Central Air Conditioner (CAC) with change in behaviour	3.4	3	42%	366	\$30	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, AHRI Matched CAC & Furnace, Continuous Fan, No change	1.8	3	60%	2,773	\$86	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, AHRI Matched CAC & Furnace, Non-continuous Fan, No change	7.6	3	60%	324	\$41	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, AHRI Matched CAC & Furnace, Continuous Fan, Change from non-continuous	0.6	3	60%	91	\$1	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace, Continuous Fan, No change	3.3	3	60%	2,823	\$155	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace, Non-continuous Fan, No change	13.4	3	60%	373	\$84	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace, Continuous Fan, Change from non-continuous	1.1	3	60%	140	\$3	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Continuous Fan, No change	0.5	3	60%	1,535	\$14	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Non-continuous Fan, No change	2.2	3	60%	324	\$12	OPA 2010



Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Continuous Fan, Change from non-continuous	0.2	3	60%	192	\$1	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, AHRI Matched CAC & Furnace, Continuous Fan, No change	2.2	3	60%	2,867	\$104	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, AHRI Matched CAC & Furnace, Non-continuous Fan, No change	8.9	3	60%	207	\$31	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, AHRI Matched CAC & Furnace, Continuous Fan, Change from non-continuous	0.7	3	60%	(49)	(\$1)	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Continuous Fan, No change	3.8	3	60%	2,927	\$188	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Non-continuous Fan, No change	15.7	3	60%	267	\$71	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Continuous Fan, Change from non-continuous	1.2	3	60%	11	\$0	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Continuous Fan, No change	0.6	3	60%	1,570	\$17	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Non-continuous Fan, No change	2.6	3	60%	207	\$9	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Continuous Fan, Change from non-continuous	0.2	3	60%	76	\$0	OPA 2010
2009 Cool Savings Rebate	Programmable Thermostat - Central Air Conditioning (CAC) & Gas heating	17.3	3	61%	30	\$9	OPA 2010
2009 Cool Savings Rebate	Programmable Thermostat - Energy Star® Central Air Conditioning (CAC) & Gas Heating	23.1	3	61%	26	\$10	OPA 2010
2009 Cool Savings Rebate	Programmable Thermostat - Gas Heating only	4.9	3	61%	9	\$1	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Lighting	2.4	3	0%	40	\$4	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Cooling or Heating	0.9	3	0%	100	\$3	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Cool Savings Rebate	Participant Spillover - Water heating	1.2	3	0%	141	\$7	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Appliances	1.6	3	0%	76	\$5	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Insulation of other weatherization	2.4	3	0%	75	\$8	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Windows	1.9	3	0%	100	\$8	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Roof products	0.9	3	0%	50	\$2	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Other products	1.0	3	0%	50	\$2	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Spring Campaign - Participant Rebated	91.1	3	31%	23	\$61	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Decorative CFLs - Spring Campaign - Participant Rebated	216.1	3	23%	26	\$182	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Spring Campaign - Participant Rebated	17.6	3	47%	116	\$46	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Ceiling Fans - Spring Campaign - Participant Rebated	7.6	3	24%	71	\$18	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Heavy Duty Pool and Spa Timers - Spring Campaign - Participant Rebated	2.9	3	24%	454	\$42	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Clotheslines - Spring Campaign - Participant Rebated	7.3	3	45%	77	\$13	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Spring Campaign - Participant Rebated	6.0	3	22%	8	\$2	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Spring Campaign - Participant Rebated	0.8	3	20%	52	\$1	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Window Air Conditioner - Spring Campaign - Participant Promoted	7.5	3	33%	96	\$21	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Dehumidifiers - Spring Campaign - Participant Promoted	7.1	3	32%	284	\$58	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Spring Campaign - Participant Promoted	17.4	3	55%	138	\$46	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Power Products - Spring Campaign - Participant Promoted	45.5	3	40%	5	\$6	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Control Products - Spring Campaign - Participant Promoted	22.6	3	47%	72	\$37	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Reduce power to electronics (Behavioural) - Spring Campaign - Participant Spillover	9.5	1	85%	21	\$0	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed CFLs - Spring Campaign - Participant Spillover	8.3	3	87%	101	\$5	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Washed in Cold Laundry (Behavioural) - Spring Campaign - Participant Spillover	8.3	1	86%	30	\$1	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned off/Reduced lights (Behavioural) - Spring Campaign - Participant Spillover	7.7	1	88%	263	\$4	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dried clothes outside or on rack (Behavioural) - Spring Campaign - Participant Spillover	6.7	1	89%	74	\$1	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Refrigerator - Spring Campaign - Participant Spillover	6.0	3	86%	65	\$2	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Unplugged devices usually left plugged in (Behavioural) - Spring Campaign - Participant Spillover	5.8	1	80%	70	\$1	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Clothes washing machine - Spring Campaign - Participant Spillover	3.6	3	88%	122	\$2	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Added ceiling/attic/wall/basement insulation - Spring Campaign - Participant Spillover	3.6	3	88%	394	\$7	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed Programmable Thermostat - Spring Campaign - Participant Spillover	3.6	3	87%	308	\$6	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Spring Campaign - Non-Participant Rebated	69.4	3	65%	22	\$23	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Decorative CFLs - Spring Campaign - Non-Participant Rebated	34.4	3	60%	26	\$15	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Spring Campaign - Non-Participant Rebated	32.4	3	59%	68	\$38	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Ceiling Fans - Spring Campaign - Non-Participant Rebated	9.5	3	86%	71	\$4	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Heavy Duty Pool and Spa Timers - Spring Campaign - Non-Participant Rebated	6.0	3	86%	454	\$16	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Clotheslines - Spring Campaign - Non-Participant Rebated	22.0	3	86%	77	\$10	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Spring Campaign - Non-Participant Rebated	50.9	3	86%	8	\$2	OPA 2010

<b>Program</b>	<b>Energy Efficient Measure</b>	<b>Units</b>	<b>Measure life</b>	<b>LRAM Free Riders</b>	<b>Annual energy savings (kWh/a)</b>	<b>LRAM (2012\$)</b>	<b>Assumption Source</b>
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Spring Campaign - Non-Participant Rebated	7.5	3	86%	52	\$2	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Window Air Conditioner - Spring Campaign - Non-Participant Promoted	12.5	3	57%	96	\$22	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Dehumidifiers - Spring Campaign - Non-Participant Promoted	15.0	3	56%	284	\$79	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Spring Campaign - Non-Participant Promoted	23.5	3	71%	138	\$40	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Power Products - Spring Campaign - Non-Participant Promoted	152.2	3	61%	5	\$12	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Control Products - Spring Campaign - Non-Participant Promoted	52.4	3	66%	72	\$55	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Autumn Campaign - Participant Rebated	412.3	3	31%	25	\$309	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Specialty CFLs - Autumn Campaign - Participant Rebated	166.7	3	29%	21	\$105	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Autumn Campaign - Participant Rebated	19.9	3	30%	119	\$70	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weather-stripping - adhesive foam or V-strip - Autumn Campaign - Participant Rebated	18.4	3	43%	15	\$7	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weather-stripping - door frame kits - Autumn Campaign - Participant Rebated	12.1	3	47%	17	\$5	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Autumn Campaign - Participant Rebated	8.0	3	33%	32	\$7	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Autumn Campaign - Participant Rebated	6.9	3	55%	7	\$1	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Autumn Campaign - Participant Rebated	1.5	3	37%	56	\$2	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Lighting/Appliance Controls - Autumn Campaign - Participant Rebated	14.0	3	28%	21	\$9	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Holiday LED Lights - Autumn Campaign - Participant Promoted	49.1	3	41%	14	\$17	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dimmer Switches - Autumn Campaign - Participant Promoted	20.7	3	50%	24	\$10	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Powered Products - Autumn Campaign - Participant Promoted	40.1	3	48%	6	\$5	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Washed laundry with cold water - Autumn Campaign - Participant Spillover	14.6	1	83%	30	\$1	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned off / reduced use of power to electronics - Autumn Campaign - Participant Spillover	13.5	1	81%	21	\$1	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned off / reduced use of lights - Autumn Campaign - Participant Spillover	12.6	1	83%	263	\$8	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dried clothes outside or inside on a rack - Autumn Campaign - Participant Spillover	8.9	1	87%	74	\$1	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned down the thermostat setting on my furnace - Autumn Campaign - Participant Spillover	8.9	1	81%	270	\$7	OPA 2010

<b>Program</b>	<b>Energy Efficient Measure</b>	<b>Units</b>	<b>Measure life</b>	<b>LRAM Free Riders</b>	<b>Annual energy savings (kWh/a)</b>	<b>LRAM (2012\$)</b>	<b>Assumption Source</b>
2009 Every Kilowatt Counts Power Savings Event	Unplugged devices usually plugged into outlet - Autumn Campaign - Participant Spillover	8.3	1	82%	70	\$2	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance – Refrigerator - Autumn Campaign - Participant Spillover	8.3	3	75%	65	\$6	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Added ceiling/attic/wall/basement insulation - Autumn Campaign - Participant Spillover	6.7	3	78%	394	\$25	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Replaced my old furnace with a high efficiency furnace - Autumn Campaign - Participant Spillover	6.0	3	80%	352	\$17	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Clothes washing machine - Autumn Campaign - Participant Spillover	5.5	3	81%	142	\$6	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Autumn Campaign - Non-Participant Rebated	375.6	3	86%	24	\$52	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Specialty CFLs - Autumn Campaign - Non-Participant Rebated	119.3	3	85%	30	\$23	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Autumn Campaign - Non-Participant Rebated	33.3	3	76%	36	\$12	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weather-stripping - adhesive foam or V-strip - Autumn Campaign - Non-Participant Rebated	129.5	3	93%	15	\$6	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weather-stripping - door frame kits - Autumn Campaign - Non-Participant Rebated	98.7	3	94%	17	\$5	OPA 2010



Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Autumn Campaign - Non-Participant Rebated	19.5	3	83%	83	\$12	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Autumn Campaign - Non-Participant Rebated	91.7	3	89%	6	\$3	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Autumn Campaign - Non-Participant Rebated	11.4	3	78%	40	\$4	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Lighting/Appliance Controls - Autumn Campaign - Non-Participant Rebated	97.9	3	90%	42	\$18	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Holiday LED Lights - Autumn Campaign - Non-Participant Promoted	160.2	3	65%	14	\$33	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dimmer Switches - Autumn Campaign - Non-Participant Promoted	50.5	3	73%	24	\$14	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Powered Products - Autumn Campaign - Non-Participant Promoted	81.1	3	58%	5	\$7	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Working Room Air Conditioner Retirement - Rewards for Recycling Campaign - Incented	3.9	3	62%	32	\$2	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Working Room Dehumidifier Retirement - Rewards for Recycling Campaign - Incented	3.6	3	53%	300	\$21	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Working Halogen Torchier Retirement - Rewards for Recycling Campaign - Incented	1.2	3	49%	58	\$1	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Recycled Second Refrigerator - Rewards for Recycling Campaign - Spillover	0.8	3	64%	1,238	\$15	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Recycled Additional Room Air Conditioner - Rewards for Recycling Campaign - Spillover	0.7	3	64%	30	\$0	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Recycled Central Air Conditioner - Rewards for Recycling Campaign - Spillover	0.6	3	64%	72	\$1	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Recycled Additional Room Dehumidifier - Rewards for Recycling Campaign - Spillover	0.7	3	64%	309	\$3	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed Energy Star® Windows - Rewards for Recycling Campaign - Spillover	1.1	3	82%	1,530	\$13	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed Energy Star® CFL Bulbs - Rewards for Recycling Campaign - Spillover	3.8	3	82%	45	\$1	OPA 2010
2009 High Performance New Construction	Custom	1.0	3	30%	5,064	\$181	OPA 2010
2010 Cool Savings Rebate	All measures	23.0	2	59%	563	\$146	OPA 2011c
2010 Every Kilowatt Counts Power Savings Event	All measures	471.1	2	54%	67	\$403	OPA 2011c
2010 Great Refrigerator Roundup	All measures	34.0	2	47%	1,067	\$532	OPA 2011c
2010 High Performance New Construction	Custom	0.1	2	30%	145,999	\$369	OPA 2011c
2010 Multifamily Energy Efficiency Rebates	All measures	0.0	2	26%	75,155	\$78	OPA 2011c
<b>Total</b>						<b>\$160,270</b>	

Table 8 –LRAM contributions and carrying charges

Program	Year	LRAM pre-carrying charges	Carrying charges	Total
Aboriginal	2007	\$108,204	\$6,251	\$114,455
Cool Savings Rebate	2006	\$919	\$60	\$979
	2007	\$1,180	\$57	\$1,237
	2008	\$1,043	\$35	\$1,077
	2009	\$1,008	\$23	\$1,032
	2010	\$143	\$3	\$146
Every Kilowatt Counts	2006	\$17,063	\$1,427	\$18,490
	2007	\$7,009	\$337	\$7,346
Every Kilowatt Counts Power Savings Event	2008	\$5,234	\$176	\$5,409
	2009	\$1,706	\$40	\$1,746
	2010	\$396	\$7	\$403
Great Refrigerator Roundup	2007	\$773	\$37	\$811
	2008	\$890	\$30	\$920
	2009	\$660	\$15	\$675
	2010	\$522	\$9	\$532
High Performance New Construction	2008	\$7	\$0	\$7
	2009	\$177	\$4	\$181
	2010	\$362	\$7	\$369
Multifamily Energy Efficiency Rebates	2010	\$76	\$1	\$78
Secondary Refrigerator Retirement Pilot	2006	\$359	\$24	\$383
Social Housing Pilot	2007	\$644	\$31	\$675
Summer Savings	2007	\$1,073	\$97	\$1,170
Summer Sweepstakes	2008	\$2,080	\$69	\$2,150
<b>Total</b>		<b>\$151,530</b>	<b>\$8,740</b>	<b>\$160,270</b>

1. Carrying charges are calculated quarterly, at the measure (not program) level to capture different carrying charge interest rates by quarter, program ramp up, and measure life.





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