October 14, 2011

Ms. Kirsten Walli
Ontario Energy Board
PO Box 2319
27th Floor, 2300 Yonge Street
Toronto, Ontario M4P 1E4

Re: Chatham-Kent Hydro 2012 IRM3 Application, LRAM Rate Rider Update
Board File No.: EB-2011-0163

Dear Ms. Walli,

As described in the Chatham-Kent Hydro ("CKH") 2012 IRM3 application, at the time of application submission the final 2010 Ontario Power Authority ("OPA") program results had yet to be released. Accordingly, the component of CKH's LRAM claim relating to 2010 programs was preliminary and based on savings estimates.

CKH has now received final 2010 OPA program results, and subsequently engaged its third party CDM consultant to update the LRAM calculations. The revised consultant's report is enclosed, along with updated LRAM rate rider calculations.

If you have any further questions, please do not hesitate to contact me at (519) 352-6300, extension 243 or at regulatory@ckenergy.com.

Regards,

[Original Signed By]

Andrya Eagen
Senior Regulatory Specialist
Phone: (519) 352-6300 Ext. 243
Email: andryaeagen@ckenergy.com

cc: Dan Charron, President of Chatham-Kent Hydro & Middlesex Power Distribution
Chris Cowell, Chief Financial and Regulatory Officer
David Ferguson, Director of Regulatory Affairs and Risk Management
Intervenors

Chatham-Kent Hydro Inc.
LRAM Claim for 2009 & 2010

Originally Filed September 16, 2011 - Based on Estimates

Rate Class	Unit	2010 Billing Determinants		Total Amount	Rate/kWh	Rate/kW
		kWh	kW			
Residential	kWh	236,272,579	-	$32,365	$0.0001	
General Service Less Than 50 kW	kWh	95,572,850	-	$139,111	$0.0015	
General Service 50 to 999 kW	kW	235,286,439	666,072	$39,786		$0.0597
General Service Intermediate 1,000 To 4,999 kW		117,233,581	311,407	$23,689		$0.0761
Intermediate With Self Generation		28,498,021	76,612			
Unmetered Scattered Load		870,035	-			
Standby Power		-	-			
Sentinel Lighting		390,325	1,103			
Street Lighting		6,592,641	19,516			
TOTAL		**720,716,470**	**1,074,710**	**$234,951**		

Revised October 14, 2011 - Based on OPA Final Results issued September 16, 2011

Rate Class	Unit	2010 Billing Determinants		Total Amount	Rate/kWh	Rate/kW
		kWh	kW			
Residential	kWh	236,272,579	-	$30,529	$0.0001	
General Service Less Than 50 kW	kWh	95,572,850	-	$105,208	$0.0011	
General Service 50 to 999 kW	kW	235,286,439	666,072	$32,607		$0.0490
General Service Intermediate 1,000 To 4,999 kW		117,233,581	311,407	$19,104		$0.0613
Intermediate With Self Generation		28,498,021	76,612			
Unmetered Scattered Load		870,035	-			
Standby Power		-	-			
Sentinel Lighting		390,325	1,103			
Street Lighting		6,592,641	19,516			
TOTAL		**720,716,470**	**1,074,710**	**$187,448**		

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Chatham-Kent Hydro LRAM

Third party review:

Chatham-Kent Hydro LRAM claims

This document was prepared for Chatham-Kent Hydro by IndEco Strategic Consulting Inc.

For additional information about this document, please contact:

IndEco Strategic Consulting Inc.
77 Mowat Avenue, Suite 412
Toronto, ON, Canada
M6K 3E3

Tel: 416 532-4333
E-mail: **info@indeco.com**

IndEco report B1704

13 October 2011

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Executive summary

A third party review of the Conservation and Demand Management (CDM) programs run by Chatham-Kent Hydro (CKH) 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 CKH'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 CKH's CDM activities in 2009 and 2010 supported through Ontario Power Authority (OPA) funding for the period between January 1 of the program launch year 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 1 2009 to April 30 2012, these savings totalled approximately 3 GWh in the residential rate class and 9 GWh in the GS < 50 kW rate class. Savings in the GS 50 to 999 kW and GS 1,000 to 4,999 kW rate classes totalled approximately 12 MW-months and 4 MW-months, respectively.

IndEco concludes that CKH's electricity rates should be adjusted to reflect an LRAM claim of $187,449. This LRAM claim is based on final results from 2010 OPA programs. It updates and replaces the LRAM claim of $234,951 originally filed in OEB case number EB-2011-0163, which was based on estimates of 2010 OPA program results. All other calculations between the LRAM originally filed in EB-2011-0163 and the updated LRAM claim found within this report remain the same.

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. The calculation of energy savings 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.[1]

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

[1] 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).

Scope

This review examines the measures, energy savings, and equipment specifications for programs run under contract to the Ontario Power Authority (OPA) in 2009 and 2010. Lost revenues associated with these programs are estimated from January 1 of the program launch year through April 30 2012.

The LRAM claim within this report is based on final results from 2010 OPA programs. It updates and replaces the LRAM claim of $234,951 originally filed in OEB case number EB-2011-0163, which was based on estimates of 2010 OPA program results. All other calculations between the LRAM originally filed in EB-2011-0163 and the updated LRAM claim found within this report remain the same.

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 Chatham-Kent Hydro ' and the '2010 Final CDM Results Summary Chatham-Kent 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."[2] 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.

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

The requested LRAM is presented in Table 5.

[2] 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

Funding source	Rate class	Program	Source of LRAM inputs
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	Residential	2009 peaksaver®	OPA 2010
OPA	GS 50 to 999 kW and GS 1,000 to 4,999 kW	2009 Electricity Retrofit Incentive	OPA 2010
OPA	General Service < 50 kW	2009 High Performance New Construction	OPA 2010
OPA	General Service < 50 kW	2009 Power Savings Blitz	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	Residential	2010 peaksaver®	OPA 2011c
OPA	GS 50 to 999 kW and GS 1,000 to 4,999 kW	2010 Electricity Retrofit Incentive	OPA 2011c
OPA	General Service < 50 kW	2010 High Performance New Construction	OPA 2011c
OPA	General Service < 50 kW	2010 Power Savings Blitz	OPA 2011c

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

Funding	Program	Year	Residential (kWh)	GS < 50 kW (kWh)	GS 50 to 999 kW (kW-mo)	GS 1000 to 4999 kW (kW-mo)
OPA	Cool Savings Rebate	2009	555,835			
		2010	843,091			
	Electricity Retrofit Incentive	2009			11,267	3,756
		2010			1,132	377
	Every Kilowatt Counts Power Savings Event	2009	938,772			
		2010	259,028			
	Great Refrigerator Roundup	2009	106,763			
		2010	532,941			
	High Performance New Construction	2009		175,364		
		2010		423,839		
	Multifamily Energy Efficiency Rebates	2010		60,508		
	peaksaver®	2009	1,281			
		2010	1,480			
	Power Savings Blitz	2009		7,221,762		
		2010		1,718,909		
Total			**3,239,192**	**9,600,382**	**12,399**	**4,133**

1. Rates for general service rate class of customers rated at greater than 50 kW are on a monthly demand basis (kW), not an energy one (kWh). Lost revenue results when the customer's monthly peak demand is lower than it otherwise would be as a result of the CDM initiatives. These are measured in kW-month, which is the reduction within one month of the peak kilowatt demand. (So a 2 kW-month reduction could be realized by reducing the peak demand in the month by 1 kW for two months, or by 2 kW for one month.) Excluded are peak demand reductions associated with demand response programs, which are not anticipated to impact on revenues.

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

Funding	Program	Year	Residential (kWh)	GS < 50 kW (kWh)	GS 50 to 999 kW (kW-mo)	GS 1000 to 4999 kW (kW-mo)
OPA	Cool Savings Rebate	2009	1,301,189			
		2010	1,951,616			
	Electricity Retrofit Incentive	2009			17,884	5,961
		2010			2,230	743
	Every Kilowatt Counts Power Savings Event	2009	2,458,756			
		2010	560,098			
	Great Refrigerator Roundup	2009	201,299			
		2010	1,003,144			
	High Performance New Construction	2009		250,519		
		2010		605,485		
	Multifamily Energy Efficiency Rebates	2010		82,143		
	peaksaver®	2009	1,424			
		2010	1,628			
	Power Savings Blitz	2009		7,601,855		
		2010		1,722,900		
Total			**7,479,155**	**10,262,901**	**20,115**	**6,705**

Table 4 – Distribution rates per rate class

Rate Class	Units	2009	2010	2011
Residential	$/kWh	0.0139	0.0084	0.0084
General Service < 50 kW	$/kWh	0.0092	0.0112	0.0112
General Service 50 to 999 kW	$/kW	1.5717	2.6761	3.004
General Service 1000 to 4999 kW	$/kW	1.5717	5.8603	5.1971

Table 5 – Summary of requested LRAM amounts in 2012$[1]

Funding	Program	Year	Residential	GS < 50 kW	GS 50 to 999 kW	GS 1000 to 4999 kW	LRAM
OPA	Cool Savings Rebate	2009	$5,720	$0	$0	$0	*$5,720*
		2010	$7,206	$0	$0	$0	*$7,206*
	Electricity Retrofit Incentive	2009	$0	$0	$29,189	$16,922	*$46,111*
		2010	$0	$0	$3,418	$2,183	*$5,600*
	Every Kilowatt Counts Power Savings Event	2009	$9,709	$0	$0	$0	*$9,709*
		2010	$2,214	$0	$0	$0	*$2,214*
	Great Refrigerator Roundup	2009	$1,099	$0	$0	$0	*$1,099*
		2010	$4,555	$0	$0	$0	*$4,555*
	High Performance New Construction	2009	$0	$1,899	$0	$0	*$1,899*
		2010	$0	$4,830	$0	$0	*$4,830*
	Multifamily Energy Efficiency Rebates	2010	$0	$690	$0	$0	*$690*
	peaksaver®	2009	$13	$0	$0	$0	*$13*
		2010	$13	$0	$0	$0	*$13*
	Power Savings Blitz	2009	$0	$78,199	$0	$0	*$78,199*
		2010	$0	$19,590	$0	$0	*$19,590*
Total			**$30,529**	**$105,208**	**$32,607**	**$19,104**	**$187,449**

1. LRAM amounts by program and program year, and program totals are for energy (or demand) reductions for the years between the year of program launch and April 30 2012.

Findings

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

IndEco has concluded that sufficient detail and documentation exists to recommend increasing Chatham-Kent Hydro's distribution rates in order to collect $187,449 in LRAM, allocated by rate class as shown in Table 6.

This LRAM claim updates and replaces the LRAM claim of $234,951 originally filed in OEB case number EB-2011-0163.

Table 6 – LRAM amounts by rate class in 2012$

Rate class	LRAM
Residential	$30,529
General Service < 50 kW	$105,208
General Service 50 to 999 kW	$32,607
General Service 1000 to 4999 kW	$19,104
Total	**$187,449**

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. Chatham-Kent 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 Chatham-Kent Hydro. Toronto: OPA Release September 19, 2010.

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 Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
2009 Great Refrigerator Roundup	Chest Freezer - Not Replaced - Running Part Time (26% of the time)	1	0	48%	282	$3	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Standard Efficiency Unit Replacement - Running Part Time (26% of the time)	0	0	48%	247	$1	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Energy Star Unit Replacement - Running Part Time (26% of the time)	1	0	48%	261	$4	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Not Replaced - Running All Time (100% of time)	7	0	48%	1,096	$127	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time)	2	0	48%	959	$31	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Energy Star Unit Replacement - Running All Time (100% of time)	8	0	48%	1,012	$148	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Not Replaced - Running Part Time (38% of the time)	0	0	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	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	0	46%	309	$1	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Not Replaced - Running All Time (100% of time)	1	0	46%	1,331	$13	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time)	0	0	46%	682	$2	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Energy Star Unit Replacement - Running All Time (100% of time)	1	0	46%	812	$15	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Not Replaced - Running Part Time (38% of the time)	0	0	46%	418	$1	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
2009 Great Refrigerator Roundup	Single Door Fridge - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	0	0	46%	237	$0	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Energy Star Unit Replacement - Running Part Time (38% of the time)	0	0	46%	273	$2	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Not Replaced - Running All Time (100% of time)	1	0	46%	1,097	$26	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Standard Efficiency Unit Replacement - Running All Time (100% of time)	0	0	46%	623	$6	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Energy Star Unit Replacement - Running All Time (100% of time)	3	0	46%	718	$33	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Not Replaced - Running Part Time (38% of the time)	1	0	46%	470	$13	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	1	0	46%	252	$2	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Energy Star Unit Replacement - Running Part Time (38% of the time)	3	0	46%	295	$15	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Not Replaced - Running All Time (100% of time)	10	0	46%	1,234	$239	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Standard Efficiency Unit Replacement - Running All Time (100% of time)	4	0	46%	661	$47	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Energy Star Unit Replacement - Running All Time (100% of time)	20	0	46%	776	$292	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Not Replaced - Running Part Time (26% of the time)	0	0	48%	365	$1	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Standard Efficiency Unit Replacement - Running Part Time (26% of the time)	0	0	48%	180	$0	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Energy Star Unit Replacement - Running Part Time (26% of the time)	0	0	48%	189	$1	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Not Replaced - Running All Time (100% of time)	1	0	48%	1,416	$34	OPA 2010
2009 Great	Upright Freezer - Standard Efficiency Unit Replacement -	0	0	48%	697	$5	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
Refrigerator Roundup	Running All Time (100% of time)						
2009 Great Refrigerator Roundup	Upright Freezer - Energy Star Unit Replacement - Running All Time (100% of time)	2	0	48%	736	$23	OPA 2010
2009 Great Refrigerator Roundup	Window Air Conditioner - Not Replaced - Running All Time (100% of time)	3	0	64%	371	$10	OPA 2010
2009 Great Refrigerator Roundup	Window Air Conditioner - Standard Efficiency Unit Replacement - Running All Time (100% of time)	0	0	64%	118	$0	OPA 2010
2009 Great Refrigerator Roundup	Window Air Conditioner - Energy Star Unit Replacement - Running All Time (100% of time)	1	0	64%	141	$2	OPA 2010
2009 Cool Savings Rebate	Energy Star® 14.5 SEER (Tier 1) Central Air Conditioner (CAC)	57	0	42%	113	$126	OPA 2010
2009 Cool Savings Rebate	Energy Star® 14.5 SEER (Tier 1) Central Air Conditioner (CAC) with change in behaviour	9	0	42%	317	$55	OPA 2010
2009 Cool Savings Rebate	Energy Star® 15.0 SEER (Tier 2) Central Air Conditioner (CAC)	149	0	42%	177	$521	OPA 2010
2009 Cool Savings Rebate	Energy Star® 15.0 SEER (Tier 2) Central Air Conditioner (CAC) with change in behaviour	23	0	42%	366	$169	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, AHRI Matched CAC & Furnace, Continuous Fan, No change	13	0	60%	2,773	$477	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	52	0	60%	324	$229	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, AHRI Matched CAC & Furnace, Continuous Fan, Change from non-continuous	4	0	60%	91	$5	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace, Continuous Fan, No change	22	0	60%	2,823	$857	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace,	92	0	60%	373	$466	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
	Non-continuous Fan, No change						
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace, Continuous Fan, Change from non-continuous	7	0	60%	140	$14	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Continuous Fan, No change	4	0	60%	1,535	$76	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Non-continuous Fan, No change	15	0	60%	324	$66	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Continuous Fan, Change from non-continuous	1	0	60%	192	$3	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, AHRI Matched CAC & Furnace, Continuous Fan, No change	15	0	60%	2,867	$579	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	61	0	60%	207	$172	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	5	0	60%	(49)	($3)	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Continuous Fan, No change	26	0	60%	2,927	$1,044	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Non-continuous Fan, No change	108	0	60%	267	$391	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Continuous Fan, Change from non-continuous	9	0	60%	11	$1	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Continuous Fan, No change	4	0	60%	1,570	$92	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Non-continuous Fan, No change	18	0	60%	207	$50	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Continuous Fan, Change from non-continuous	1	0	60%	76	$1	OPA 2010
2009 Cool Savings Rebate	Programmable Thermostat - Central Air Conditioning (CAC) & Gas heating	118	0	61%	30	$48	OPA 2010
2009 Cool Savings Rebate	Programmable Thermostat - Energy Star® Central Air Conditioning (CAC) & Gas Heating	158	0	61%	26	$55	OPA 2010
2009 Cool Savings Rebate	Programmable Thermostat - Gas Heating only	34	0	61%	9	$4	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Lighting	16	0	0%	40	$22	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Cooling or Heating	6	0	0%	100	$19	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Water heating	8	0	0%	141	$39	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Appliances	11	0	0%	76	$29	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Insulation of other weatherization	17	0	0%	75	$43	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Windows	13	0	0%	100	$44	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Roof products	6	0	0%	50	$11	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Other products	7	0	0%	50	$12	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Spring Campaign - Participant Rebated	624	0	31%	23	$341	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Decorative CFLs - Spring Campaign - Participant Rebated	1,480	0	23%	26	$1,010	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Spring Campaign - Participant Rebated	120	0	47%	116	$254	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Ceiling Fans - Spring Campaign - Participant Rebated	52	0	24%	71	$97	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Heavy Duty Pool and Spa Timers - Spring Campaign - Participant Rebated	20	0	24%	454	$231	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Clotheslines - Spring Campaign - Participant Rebated	50	0	45%	77	$73	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Spring Campaign - Participant Rebated	41	0	22%	8	$9	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Spring Campaign - Participant Rebated	5	0	20%	52	$8	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Window Air Conditioner - Spring Campaign - Participant Promoted	51	0	33%	96	$114	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Dehumidifiers - Spring Campaign - Participant Promoted	49	0	32%	284	$323	OPA 2010
2009 Every Kilowatt	Programmable Thermostat - Spring Campaign - Participant	119	0	55%	138	$255	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
Counts Power Savings Event	Promoted						
2009 Every Kilowatt Counts Power Savings Event	Solar Power Products - Spring Campaign - Participant Promoted	312	0	40%	5	$31	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Control Products - Spring Campaign - Participant Promoted	155	0	47%	72	$205	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Reduce power to electronics (Behavioural) - Spring Campaign - Participant Spillover	65	0	85%	21	$3	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed CFLs - Spring Campaign - Participant Spillover	57	0	87%	101	$26	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Washed in Cold Laundry (Behavioural) - Spring Campaign - Participant Spillover	57	0	86%	30	$3	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned off/Reduced lights (Behavioural) - Spring Campaign - Participant Spillover	53	0	88%	263	$23	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dried clothes outside or on rack (Behavioural) - Spring Campaign - Participant Spillover	46	0	89%	74	$5	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Refrigerator - Spring Campaign - Participant Spillover	41	0	86%	65	$13	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Unplugged devices usually left plugged in (Behavioural) - Spring Campaign - Participant Spillover	40	0	80%	70	$8	OPA 2010
2009 Every Kilowatt Counts Power Savings	Installed a new energy efficient appliance - Clothes washing machine - Spring Campaign - Participant Spillover	25	0	88%	122	$12	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
Event							
2009 Every Kilowatt Counts Power Savings Event	Added ceiling/attic/wall/basement insulation - Spring Campaign - Participant Spillover	25	0	88%	394	$39	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed Programmable Thermostat - Spring Campaign - Participant Spillover	24	0	87%	308	$32	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Spring Campaign - Non-Participant Rebated	475	0	65%	22	$127	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Decorative CFLs - Spring Campaign - Non-Participant Rebated	236	0	60%	26	$84	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Spring Campaign - Non-Participant Rebated	222	0	59%	68	$209	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Ceiling Fans - Spring Campaign - Non-Participant Rebated	65	0	86%	71	$22	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Heavy Duty Pool and Spa Timers - Spring Campaign - Non-Participant Rebated	41	0	86%	454	$86	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Clotheslines - Spring Campaign - Non-Participant Rebated	150	0	86%	77	$54	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Spring Campaign - Non-Participant Rebated	349	0	86%	8	$13	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Spring Campaign - Non-Participant Rebated	51	0	86%	52	$12	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Window Air Conditioner - Spring Campaign - Non-Participant Promoted	85	0	57%	96	$122	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Dehumidifiers - Spring Campaign - Non-Participant Promoted	103	0	56%	284	$439	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Spring Campaign - Non-Participant Promoted	161	0	71%	138	$222	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Power Products - Spring Campaign - Non-Participant Promoted	1,042	0	61%	5	$67	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Control Products - Spring Campaign - Non-Participant Promoted	359	0	66%	72	$306	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Autumn Campaign - Participant Rebated	2,823	0	31%	25	$1,713	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Specialty CFLs - Autumn Campaign - Participant Rebated	1,142	0	29%	21	$582	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Autumn Campaign - Participant Rebated	136	0	30%	119	$390	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - adhesive foam or V-strip - Autumn Campaign - Participant Rebated	126	0	43%	15	$38	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - door frame kits - Autumn Campaign - Participant Rebated	83	0	47%	17	$26	OPA 2010
2009 Every Kilowatt	Programmable Thermostat - Autumn Campaign - Participant	55	0	33%	32	$41	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
Counts Power Savings Event	Rebated						
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Autumn Campaign - Participant Rebated	47	0	55%	7	$5	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Autumn Campaign - Participant Rebated	10	0	37%	56	$13	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Lighting/Appliance Controls - Autumn Campaign - Participant Rebated	96	0	28%	21	$51	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Holiday LED Lights - Autumn Campaign - Participant Promoted	336	0	41%	14	$93	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dimmer Switches - Autumn Campaign - Participant Promoted	142	0	50%	24	$57	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Powered Products - Autumn Campaign - Participant Promoted	275	0	48%	6	$27	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Washed laundry with cold water - Autumn Campaign - Participant Spillover	100	0	83%	30	$7	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned off / reduced use of power to electronics - Autumn Campaign - Participant Spillover	92	0	81%	21	$5	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned off / reduced use of lights - Autumn Campaign - Participant Spillover	86	0	83%	263	$54	OPA 2010
2009 Every Kilowatt Counts Power Savings	Dried clothes outside or inside on a rack - Autumn Campaign - Participant Spillover	61	0	87%	74	$9	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
Event							
2009 Every Kilowatt Counts Power Savings Event	Turned down the thermostat setting on my furnace - Autumn Campaign - Participant Spillover	61	0	81%	270	$44	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Unplugged devices usually plugged into outlet - Autumn Campaign - Participant Spillover	57	0	82%	70	$10	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance – Refrigerator - Autumn Campaign - Participant Spillover	57	0	75%	65	$31	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Added ceiling/attic/wall/basement insulation - Autumn Campaign - Participant Spillover	46	0	78%	394	$136	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Replaced my old furnace with a high efficiency furnace - Autumn Campaign - Participant Spillover	41	0	80%	352	$96	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Clothes washing machine - Autumn Campaign - Participant Spillover	37	0	81%	142	$35	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Autumn Campaign - Non-Participant Rebated	2,572	0	86%	24	$286	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Specialty CFLs - Autumn Campaign - Non-Participant Rebated	817	0	85%	30	$126	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Autumn Campaign - Non-Participant Rebated	228	0	76%	36	$69	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - adhesive foam or V-strip - Autumn Campaign - Non-Participant Rebated	887	0	93%	15	$32	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - door frame kits - Autumn Campaign - Non-Participant Rebated	676	0	94%	17	$26	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Autumn Campaign - Non-Participant Rebated	134	0	83%	83	$67	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Autumn Campaign - Non-Participant Rebated	628	0	89%	6	$14	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Autumn Campaign - Non-Participant Rebated	78	0	78%	40	$24	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Lighting/Appliance Controls - Autumn Campaign - Non-Participant Rebated	670	0	90%	42	$98	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Holiday LED Lights - Autumn Campaign - Non-Participant Promoted	1,097	0	65%	14	$180	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dimmer Switches - Autumn Campaign - Non-Participant Promoted	346	0	73%	24	$76	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Powered Products - Autumn Campaign - Non-Participant Promoted	555	0	58%	5	$37	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Working Room Air Conditioner Retirement - Rewards for Recycling Campaign - Incented	27	0	62%	32	$11	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Working Room Dehumidifier Retirement - Rewards for Recycling Campaign - Incented	24	0	53%	300	$117	OPA 2010
2009 Every Kilowatt	Working Halogen Torchiere Retirement - Rewards for	8	0	49%	58	$8	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
Counts Power Savings Event	Recycling Campaign - Incented						
2009 Every Kilowatt Counts Power Savings Event	Recycled Second Refrigerator - Rewards for Recycling Campaign - Spillover	6	0	64%	1,238	$86	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Recycled Additional Room Air Conditioner - Rewards for Recycling Campaign - Spillover	5	0	64%	30	$2	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Recycled Central Air Conditioner - Rewards for Recycling Campaign - Spillover	4	0	64%	72	$4	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Recycled Additional Room Dehumidifier - Rewards for Recycling Campaign - Spillover	5	0	64%	309	$19	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed Energy Star® Windows - Rewards for Recycling Campaign - Spillover	8	0	82%	1,530	$74	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed Energy Star® CFL Bulbs - Rewards for Recycling Campaign - Spillover	26	0	82%	45	$7	OPA 2010
2009 peaksaver®	Residential Air Conditioner - Switch	436	0	10%	1	$13	OPA 2010
2009 Electricity Retrofit Incentive	All projects	1	0	37%	4,272,708	$46,111	OPA 2010
2009 High Performance New Construction	Custom	1	0	30%	75,156	$1,899	OPA 2010
2009 Power Savings Blitz	All projects	1	0	5%	2,280,556	$78,199	OPA 2010
2010 Cool Savings Rebate	All measures	1,786	0	57%	468	$7,206	OPA 2011c

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Annual energy savings (kWh/a)	Contribution to LRAM (2012$)	Assumption Source
2010 Every Kilowatt Counts Power Savings Event	All measures	3,564	0	54%	67	$2,214	OPA 2011c
2010 Great Refrigerator Roundup	All measures	396	0	47%	1,086	$4,555	OPA 2011c
2010 peaksaver®	All measures	287	0	9%	2	$13	OPA 2011c
2010 Electricity Retrofit Incentive	All projects	4	0	49%	143,753	$5,600	OPA 2011c
2010 High Performance New Construction	Custom	2	0	30%	145,999	$4,830	OPA 2011c
2010 Power Savings Blitz	All projects	275	0	0%	2,683	$19,590	OPA 2011c
2010 Multifamily Energy Efficiency Rebates	All measures	0	0	26%	75,155	$690	OPA 2011c
Total						**$187,449**	

Table 8 –LRAM contributions and carrying charges.

Program	Year	LRAM pre-carrying charges	Carrying charges	Total
Cool Savings Rebate	2009	$5,586	$133	$5,720
	2010	$7,082	$125	$7,206
Electricity Retrofit Incentive	2009	$45,208	$902	$46,111
	2010	$5,504	$96	$5,600
Every Kilowatt Counts Power Savings Event	2009	$9,481	$228	$9,709
	2010	$2,176	$38	$2,214
Great Refrigerator Roundup	2009	$1,073	$26	$1,099
	2010	$4,477	$79	$4,555
High Performance New Construction	2009	$1,859	$40	$1,899
	2010	$4,747	$83	$4,830
Multifamily Energy Efficiency Rebates	2010	$678	$12	$690
peaksaver®	2009	$13	$0	$13
	2010	$12	$0	$13
Power Savings Blitz	2009	$76,551	$1,648	$78,199
	2010	$19,252	$338	$19,590
Total		**$183,699**	**$3,750**	**$187,449**

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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IndEco Strategic Consulting Inc

77 Mowat Avenue Suite 412 Toronto ON M6K 3E3

*1 888 INDECO1 416 532 4333 **info@indeco.com** **www.indeco.com***