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Thursday, December 15, 2011

Ontario Energy Board
P.O. Box 2319, 27th Floor
2300 Yonge Street
Toronto, ON
M4P 1E4

Attention: Kristen Walli, Board Secretary

Dear Ms. Walli:

Re: North Bay Hydro Distribution Ltd. (EB-2011-0187)
Application for 2012 Electricity Distribution Rates
Responses - VECC Interrogatories

Please find attached a complete copy of the Board Staff's interrogatory responses.

Two hard copies of this submission will be sent via courier. An electronic copy of the response in PDF format will be submitted through the Ontario Energy Board's RESS.

An electronic copy of the response in PDF format will be forwarded via email to the Intervenor as follows:

Donald Rennick
a) Donald Rennick, Independent Participant

Vulnerable Energy Consumers Coalition
a) Michael Buonaguro, Public Interest Advocacy Centre
b) Shelley Grice, Econalysis Consulting Services Inc.

Yours truly,

Original signed by

Melissa Wanner,
Regulatory Manager
North Bay Hydro Distribution Limited
(705) 474-8100 (300)
mwanner@northbayhydro.com

VECC Question # 1

Reference: 2012 IRM Revenue-to-Cost Ratio Adjustment Workform

a) Please reconcile the 76 customers for the Unmetered Scattered Load (USL) customer class shown on Sheet 3 of the Workform to the 21 customers shown on NBHDL's most recent Board approved load forecast (EB-2009-0270).

Response:

In response to Board Staff interrogatory 17 a) in its 2010 Cost of Service (COS) application (EB-2009-0270) NBHDL advised that its cost allocation filings had incorrectly listed 140 connection – subsequent review showed that the correct # of connections was 76. NBHDL has included a copy of the relevant question and response in Appendix “A” for reference.

Lost Revenue Adjustment Mechanism (LRAM) VECC Question # 2

Reference: Manager's Summary, LRAM/SSM Cost Claims, Page 3

Preamble: North Bay Hydro Distribution Limited (NBHDL) seeks an LRAM claim of \$187,545 for energy savings from 2008 to 2010 OPA CDM activities, for the years January 1, 2008 through April 30, 2012.

a) Please confirm that the LRAM amounts NBHDL is seeking to recover in this application are new amounts not included in past LRAM claims.

Response:

NBHDL confirms that the LRAM amounts it is seeking to recover in this application are new amounts not included in past LRAM recoveries. The table below illustrates the claim periods of both the previous and current LRAM claims. It shows that the current LRAM claim is for lost revenue that was not included in the previous LRAM claim.

	2005	2006	2007	2008	2009	2010	2011	Jan 1 to Apr 30 2012
2005 programs	Past LRAM claim	Past LRAM claim	Past LRAM claim	Past LRAM claim				
2006 programs		Past LRAM claim	Past LRAM claim	Past LRAM claim				
2007 programs			Past LRAM claim	Past LRAM claim				
2008 Third Tranche programs				Past LRAM claim				
2008 OPA programs				Current LRAM claim	Current LRAM claim	Current LRAM claim	Current LRAM claim	Current LRAM claim
2009 programs					Current LRAM claim	Current LRAM claim	Current LRAM claim	Current LRAM claim
2010 programs						Current LRAM claim	Current LRAM claim	Current LRAM claim

b) Please discuss how any CDM savings have been accounted for in NBHDL's approved load forecast.

Response:

NBHDL adjusted its 2010 load forecast for CDM programs launched in 2009 and 2010. It did not adjust the load forecast for other earlier CDM programs completed under the Third Tranche initiative or from initiatives delivered directly by the OPA.

At the time that NBHDL's 2010 load forecast was prepared, final results for 2009 and 2010 programs were not available. As such, only estimates of the impacts of 2009 and 2010 CDM programs were considered in the 2010 load forecast. Estimates were based on a 50% impact in terms of estimated annual kWh savings in 2010 from 2010 programs

and a 100% impact in terms of estimated annual kWh savings in 2010 from 2009 programs.¹ This amounts to the following adjustment to the load forecast:

	2010 kWh impact
2009 CDM programs	4,727,510
2010 CDM programs	2,501,192
Total load forecast adjustment due to CDM	7,228,702

As 7.5 GWh were incorporated into the load forecast due to the estimated impacts of 2009 and 2010 CDM programs, the LRAM claim requested by NBHDL has been adjusted (decreased) by the same amount annually to avoid a double counting of savings between the load forecast and the LRAM claim. This decrease was applied annually to the LRAM claim between May 1 2010 and April 30 2012.

	Final, verified CDM program energy savings	Energy savings already included in the 2010 load forecast	Remaining energy savings for which an LRAM will be claimed
May 1 2010 – April 30 2011	9,752,224	7,228,702	2,523,522
May 1 2011 – April 30 2012	9,752,224	7,228,702	2,523,522

¹ See NBHDL's response to Board Staff IR #5a filed January 28, 2009 related to its 2010 EDR application, filed number OEB-2009-0270.

In order to remain revenue neutral, NBHDL requests an updated LRAM claim of \$97,210, broken down as follows:

Rate class	LRAM as previously requested	Updated LRAM claim
Residential	\$93,272	\$77,235
GS < 50 kW	\$60,402	\$0
GS 50 to 2999 kW	\$33,872	\$19,974
GS 3000 to 4000 kW	\$0	\$0
Total	\$187,545	\$97,210

NBHDL requests the following rate riders in relation to the adjusted (decreased) LRAM claim:

Rate Rider Calculations						
Rate Class	LRAM Claim	Recovery Period (Years)	Annual Recovery Amount	2010 Approved Billing Determinant (kWh/kW)	Proposed Rate Rider	
Residential	\$ 77,235	2	\$ 38,618	214,923,813	\$ 0.0002	per kWh
General Service <50 kW	\$ -	2	\$ -	85,026,017	\$ -	per kWh
General Service 50 to 2,999 kW	\$ 19,974	2	\$ 9,987	638,330	\$ 0.0156	per kW
Total	\$ 97,209	2	\$ 48,605			

NOTES:

1. Totals differ from the sum of rows or columns due to rounding

A revised 3rd party report from IndEco Strategy Consulting Inc. reflecting the revised LRAM claim can be found in Appendix "B".

c) Please provide the rationale for requesting lost revenues for 2011 and January 1, 2012 to April 30, 2012.

Response:

The requested lost revenues in 2011 and the first four months of 2012 are associated with verified savings arising from programs that were delivered in 2008, 2009 and 2010. NBHDL is **not** requesting recovery of lost revenue associated with unverified programs delivered in 2011, or unverified programs delivered between January 1 and April 30

2012. NBHDL is requesting LRAM for the period in question in order to remain revenue neutral with respect to 2008, 2009 and 2010 programs.

A distinction must be made between lost revenue in 2011 due to programs delivered in 2011, and lost revenue in 2011 due to programs delivered in earlier years. A program will lead to energy savings, and thus lost revenues, that will persist over the lifetime of the program's measures. For example, if a 2009 program consists of a measure with a lifetime of two years, the program will lead to lost revenues each year until the end of 2011. This would be unrelated to lost revenue due to a program delivered in 2011.

The use of a program's verified results, extended over multiple years, is standard for the calculation of an LRAM claim. This approach is consistent with numerous Board-approved LRAM claims, including Burlington Hydro Inc.'s previous LRAM claims (Decision on EB-2010-0067 dated March 17, 2011; Decision on EB-2009-0259 dated March 1, 2010), as well as decisions on other LRAM claims (Decision on Middlesex Power Distribution's LRAM claim EB-2010-0098 dated March 17, 2011; Decision on Norfolk Power Distribution's LRAM claim EB-2011-0046 dated May 6, 2011; Decision on Hydro One Brampton's LRAM claim EB-2010-0132 dated April 4, 2011).

d) Please provide the calculation of the LRAM Rate Riders for each applicable rate class to the end of 2010.

Response:

LRAM rate riders for each applicable rate class to the end of 2010 are provided below. NBHDL feels that these rate riders would not be the appropriate rate riders for programs delivered in 2008, 2009 and 2010. Lost revenue between January 1 2011 and April 30 2012 from programs delivered in 2008, 2009, and 2010 would be unaccounted for.

Rate Rider Calculations						
Rate Class	LRAM Claim up to Dec.31 2010 only	Recovery Period (Years)	Annual Recovery Amount	2010 Approved Billing Determinant (kWh/kW)	Proposed Rate Rider	
Residential	\$ 50,734	2	\$ 25,367	214,923,813	\$ 0.0001	per kWh
General Service <50 kW	\$ -	2	\$ -	85,026,017	\$ -	per kWh
General Service 50 to 2,999 kW	\$ 12,399	2	\$ 6,200	638,330	\$ 0.0097	per kW
Total	\$ 63,133	2	\$ 31,567			

VECC Question # 3

Reference: Appendix K, LRAM - 3rd Party Review, IndEco Report

a) List and confirm OPA's input assumptions for Every Kilowatt Counts (EKC) 2006 including the measure life, unit kWh savings and free ridership rate for Compact Fluorescent Lights (CFLs) and Seasonal Light Emitting Diodes (LED). Confirm some of these assumptions were changed in 2007 and again in 2009 and compare the values.

Response:

NBHDL is not claiming any LRAM related to the 2006 EKC program, including CFLs and SLEDs. LRAM is being claimed for programs delivered in 2008, 2009 and 2010 only.

The table below compares final OPA-verified 2006 EKC results for 2006 EKC CFLs and seasonal light emitting diodes (SLEDs) to the final OPA-verified 2007 EKC results and the 2009 OPA Measures and Assumptions list. Input assumptions for CFLs and SLEDs have changed periodically, including most recently in 2009, as reflected in updates to the generic OPA Measures and Assumptions list.

	OPA-verified Final 2006 EKC results		OPA-verified Final 2007 EKC results		From 2009 OPA M&A list	
2006 EKC Energy Efficient Measure	Measure life	Gross savings (kWh/a)	Measure life	Gross savings (kWh/a)	Measure life	Gross savings (kWh/a)
Energy Star® CFL	4	104	8	43	8	43
SLEDs	30	31	5	14	5	14

b) Demonstrate that savings for EKC 2006 Mass Market measures 13-15 W Energy Star CFLs & Seasonal LEDs have been removed from the LRAM claim beginning in 2010.

Response:

NBHD's current LRAM claim does not include any energy saved or revenue lost in any year arising from the 2006 EKC program. Neither the 2006 EKC program nor any other program launched prior to 2008 was included in NBHD's current LRAM claims. See the IndEco LRAM report filed as Appendix K of NBHD's IRM3 application EB-2011-0187.

c) Adjust the LRAM claim as necessary to reflect the measure lives and unit savings for any/all measures that have expired starting in 2010.

Response:

No adjustments to the current LRAM claim are needed in order to reflect measure lives (and unit savings) for measures that have expired starting in 2010.

The current LRAM claim already accounts for any measures that have expired before the full span of the LRAM claim. LRAM is calculated over the individual measures lives of each measure. For example, if a measure installed in 2009 had a measure life of only 1 year, LRAM was only claimed for that measure for 2009.

VECC Question # 4

Reference: Appendix K, LRAM - 3rd Party Review, IndEco Report, Appendix A, Inputs used for TRC and energy saving calculations

Preamble: Appendix A, Page 24 refers to the 2009 Every Kilowatt Counts Power Savings Event and the Measure – Installed CFLs, Spring Campaign, Participant Spillover.

a) For this measure, the life is shown as 8 years and the annual energy savings is shown as 101 kWh/a. Please explain these input assumptions.

Response:

The measure life and energy savings inputs for the measure identified by the OPA as the *“2009 Every Kilowatt Counts Power Savings Event Installed CFLs, Spring Campaign, Participant Spillover”* were provided in the Ontario Power Authority’s evaluation results. These results come from an evaluation conducted on behalf of the OPA. 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. NBHDL has no information on how the OPA developed these energy savings and measure life inputs, and has no reason to reject these values that were developed through OPA’s evaluation of the EKC programs.

APPENDIX “A”

EB-2009-0270

BOARD STAFF INTERROGATORY RESPONSE – QUESTION 17 (a)

Please provide information on the form of the billing by NBHDL to Hydro One, the rates charged in 2008 and proposed for 2010, and the amount of revenue in 2008 and forecast for 2010.

Response:

Hydro One is billed as retail General Service 50 to 2,999 kW customer of NBHDL for energy, RTSR and distribution charges. Billing is monthly on NBHDL's CIS billing system.

Rates charged in 2008 are as follows:

- January to April 2008 – Distribution Volumetric - \$2.1981/kW
Service Charge (on 30 days) - \$314.23
- May to December 2008 – Distribution Volumetric - \$2.1783/kW
Service Charge (on 30 days) - \$311.40

Proposed 2010 rates are as follows:

- Service Charge (on 30 days) - \$329.78
- Distribution Volumetric - \$2.3014/kW
- LRAM & SSM Rider - \$.0679/kW

- Distribution Revenue for 2008 is \$24,869

2010 Forecast Revenue is \$27,514.

17. Unmetered Scattered Load ("USL") Service Charge

Ref: NBHDL Cost Allocation Model Sheet I6 'Customer Data', and Exhibit 9, p. 24

The information in the cost allocation filing shows that NBHDL serves 21 USL customers (252 bills annually), and there are 140 connections

- a) Please provide a list of how many connections each USL customer has.

Response:

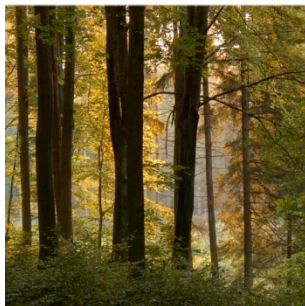
NBHDL incorrectly showed 140 connections. This count was derived from the 2006 Cost Allocation Study. The correct number of connections is 76. 20 of the 21 customers have 1 connection each and 1 customer has 56 connections.

APPENDIX “B”

REVISED 3RD PARTY REVIEW – LRAM

INDECO STRATEGY CONSULTING SOLUTIONS INC.

North Bay Hydro LRAM



Third party review:

North Bay Hydro LRAM claims



This document was prepared for North Bay Hydro by IndEco Strategic Consulting Inc.

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IndEco report B1700

12 December 2011

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Executive summary

A third party review of the Conservation and Demand Management (CDM) programs run by North Bay Hydro (NBH) 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 NBH'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 NBH's CDM activities in 2008, 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 2008 to April 30 2012, these savings totalled approximately 7 GWh in the residential rate class and 3 GWh in the GS < 50 kW rate class. Savings in the GS 50 to 2,999 kW rate class totalled approximately 14 MW-months.

Energy savings achieved by 2009 and 2010 programs between May 1 2010 and April 30 2012 were reduced to account for energy savings that were previously incorporated in NBH's 2010 load forecast.

IndEco concludes that NBH's electricity rates should be adjusted to reflect an LRAM claim of \$97,210.

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 and OPA 2011c)
- 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).

In principal, we might have consulted values from the literature and adopted these if they could be shown to be more current, specific or otherwise suitable than the values from sources 4 through 7. However, this was not necessary in this case.

Between January 1 2008 and April 30 2012, NBH's involvement in 2008-2010 OPA programs led to savings of approximately 7 GWh in the residential rate class, 3 GWh in the GS < 50 kW rate class and 14 MW-months in the GS 50 to 2,999 kW rate class.

Scope

This review examines the measures, energy savings, and equipment specifications for programs run under contract to the Ontario Power Authority (OPA) in 2008, 2009 and 2010. Lost revenues associated with these programs are estimated from January 1 of the program launch year through April 30 2012.

Energy savings achieved by 2009 and 2010 programs between May 1 2010 and April 30 2012 were reduced to account for energy savings that were previously incorporated in NBH's 2010 load forecast.² The reduced energy savings for which an LRAM is being claimed are given in Table 1.

Table 1 – Reductions to the energy savings for which an LRAM is being claimed

	Gross CDM program energy savings	Energy savings already included in the 2010 load forecast	Remaining energy savings for which an LRAM will be claimed
May 1 2010 – April 30 2011	9,752,224	7,575,680	2,176,544
May 1 2011 – April 30 2012	9,752,224	7,575,680	2,176,544

² See NBHDL's response to Board Staff IR #5a filed January 28, 2009 related to its 2010 EDR application, filed number OEB-2009-0270.

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 North Bay Hydro Distribution Limited' and the '2010 Final CDM Results Summary North Bay Hydro Distribution Limited' were used as a source 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."³ 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 2.

The measure inputs used to calculate LRAM claims can be found in Table 8 in Appendix A.

Table 2 and Table 4 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 NBH distribution rates. Distribution rates are in Table 5.

The requested LRAM is presented in Table 6.

³ OEB 2008a. Guidelines for Electricity Distributor Conservation and Demand Management. p.28

Table 2 – Source of information used for the calculation of the LRAM claim

Funding source	Rate class	Program	Source of LRAM inputs
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 to 2999 kW	2008 Electricity Retrofit Incentive	OPA 2010
OPA	GS < 50 kW	2008 High Performance New Construction	OPA 2010
OPA	GS < 50 kW	2008 Power Savings Blitz	OPA 2010
OPA	GS < 50 kW	2008 Renewable Energy Standard Offer	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 to 2999 kW	2009 Electricity Retrofit Incentive	OPA 2010
OPA	GS < 50 kW	2009 High Performance New Construction	OPA 2010
OPA	GS < 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	GS 50 to 2999 kW	2010 Electricity Retrofit Incentive	OPA 2011c
OPA	GS < 50 kW	2010 High Performance New Construction	OPA 2011c
OPA	GS < 50 kW	2010 Power Savings Blitz	OPA 2011c

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

Funding source	Program	Year	Residential (kWh)	GS < 50 kW (kWh)	GS 50 to 2,999 kW (kW-mo)
OPA	Cool Savings Rebate	2008	533,245		
		2009	517,986		
		2010	169,747		
	Electricity Retrofit Incentive	2008			814
		2009			10,435
		2010			3,690
	Every Kilowatt Counts Power Savings Event	2008	2,666,471		
		2009	874,847		
		2010	226,427		
	Great Refrigerator Roundup	2008	857,579		
		2009	613,651		
		2010	450,937		
	High Performance New Construction	2008		5,367	
		2009		127,754	
		2010		316,692	
	Multifamily Energy Efficiency Rebates	2010		35,682	
	Power Savings Blitz	2008		314,887	
		2009		2,614,776	
		2010		219,983	
	Renewable Energy Standard Offer	2008		49,225	
	Summer Sweepstakes	2008	568,623		
Reductions to LRAM claim			(1,238,321)	(4,863,016)	(6,306)
Total			6,241,191	0	8,633

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

Funding source	Program	Year	Residential (kWh)	GS < 50 kW (kW)	GS 50 to 2,999 kW (kW-mo)
OPA	Cool Savings Rebate	2008	928,287		
		2009	1,212,586		
		2010	409,358		
	Electricity Retrofit Incentive	2008			1,403
		2009			12,572
		2010			7,049
	Every Kilowatt Counts Power Savings Event	2008	6,606,382		
		2009	2,291,329		
		2010	489,603		
	Great Refrigerator Roundup	2008	1,575,466		
		2009	1,145,487		
		2010	843,269		
	High Performance New Construction	2008		7,668	
		2009		182,506	
		2010		452,417	
	Multifamily Energy Efficiency Rebates	2010		48,440	
	Power Savings Blitz	2008		338,588	
		2009		2,752,396	
		2010		220,494	
	Renewable Energy Standard Offer	2008		49,225	
	Summer Sweepstakes	2008	732,894		
Reductions to LRAM claim			(1,238,321)	(4,863,016)	(6,306)
Total			14,996,342	0	14,718

Table 5 – Distribution rates per rate class

Rate Class	Units	2008	2009	2010	2011
Residential	\$/kWh	0.0112	0.0112	0.0127	0.0127
GS < 50 kW	\$/kWh	0.0139	0.0139	0.0168	0.0169
GS 50 to 2,999 kW	\$/kW	2.1783	2.1783	2.2209	2.1012

Table 6 – Summary of requested LRAM amounts in 2012\$¹

Funding	Program	Year	Residential	GS < 50 kW	GS 50 to 2999 kW	LRAM
OPA	Cool Savings Rebate	2008	\$6,598	\$0	\$0	\$6,598
		2009	\$6,483	\$0	\$0	\$6,483
		2010	\$2,194	\$0	\$0	\$2,194
	Electricity Retrofit Incentive	2008	\$0	\$0	\$1,852	\$1,852
		2009	\$0	\$0	\$23,636	\$23,636
		2010	\$0	\$0	\$8,384	\$8,384
	Every Kilowatt Counts Power Savings Event	2008	\$32,978	\$0	\$0	\$32,978
		2009	\$10,939	\$0	\$0	\$10,939
		2010	\$2,926	\$0	\$0	\$2,926
	Great Refrigerator Roundup	2008	\$10,611	\$0	\$0	\$10,611
		2009	\$7,681	\$0	\$0	\$7,681
		2010	\$5,828	\$0	\$0	\$5,828
	High Performance New Construction	2008	\$0	\$86	\$0	\$86
		2009	\$0	\$2,084	\$0	\$2,084
		2010	\$0	\$5,432	\$0	\$5,432
	Multifamily Energy Efficiency Rebates	2010	\$0	\$612	\$0	\$612
	Power Savings Blitz	2008	\$0	\$4,972	\$0	\$4,972
		2009	\$0	\$42,657	\$0	\$42,657
		2010	\$0	\$3,773	\$0	\$3,773
	Renewable Energy Standard Offer	2008	\$0	\$785	\$0	\$785
	Summer Sweepstakes	2008	\$7,035	\$0	\$0	\$7,035
Reductions to LRAM claim			(\$16,036)	(\$83,554)	(\$13,898)	
Total			\$77,235	\$0	\$19,974	\$97,210

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 2008, 2009, and 2010 OPA-funded programs.

IndEco has concluded that sufficient detail and documentation exists to recommend increasing North Bay Hydro 's distribution rates in order to collect \$97,210 in LRAM, allocated by rate class as shown in Table 7.

Table 7 – LRAM amounts by rate class in 2012\$

Rate class	LRAM
Residential	\$77,235
General Service < 50 kW	\$0
General Service 50 to 2,999 kW	\$19,974
Total	\$97,210

References

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Appendix A. Inputs used for TRC and energy savings calculations

Table 8 – LRAM inputs and contribution to the total LRAM for all measures.

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2008 Great Refrigerator Roundup	Bottom Freezer Fridge	3	9	45%	775	\$78	OPA 2010
2008 Great Refrigerator Roundup	Chest Freezer	67	8	48%	740	\$1,384	OPA 2010
2008 Great Refrigerator Roundup	Side by Side Fridge-Freezer	32	9	45%	775	\$730	OPA 2010
2008 Great Refrigerator Roundup	Single Door Fridge	62	9	45%	775	\$1,418	OPA 2010
2008 Great Refrigerator Roundup	Small Freezer (under 10 cubic feet)	1	8	48%	740	\$16	OPA 2010
2008 Great Refrigerator Roundup	Small Fridge (under 10 cubic feet)	2	9	45%	775	\$43	OPA 2010
2008 Great Refrigerator Roundup	Top Freezer Fridge	291	9	45%	775	\$6,643	OPA 2010
2008 Great Refrigerator Roundup	Upright Freezer	13	8	48%	740	\$271	OPA 2010
2008 Great Refrigerator Roundup	Window Air Conditioner	7	5	64%	197	\$27	OPA 2010
2008 Cool Savings Rebate	2007 Energy Star® Central Air Conditioner, Tier 2	24	18	43%	155	\$113	OPA 2010
2008 Cool Savings Rebate	2007 Medium Efficiency Furnace with ECM	49	15	41%	837	\$1,306	OPA 2010
2008 Cool Savings	2007 Programmable Thermostat	38	15	73%	54	\$30	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
Rebate							
2008 Cool Savings Rebate	2008 Energy Star® Central Air Conditioner, Tier 2	117	18	43%	125	\$449	OPA 2010
2008 Cool Savings Rebate	2008 Efficient Furnace with ECM	176	18	41%	819	\$4,581	OPA 2010
2008 Cool Savings Rebate	2008 Programmable Thermostat	150	18	73%	54	\$119	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Compact Fluorescent Light Bulbs	4,752	8	48%	53	\$7,051	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Dimmable CFLs	518	6	62%	98	\$1,022	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Decorative CFLs	8,028	4	61%	30	\$4,643	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Compact Fluorescent Floods (Indoor & Outdoor)	2,229	7	63%	88	\$3,923	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Energy Star® Qualified Light Fixtures	3,459	16	67%	133	\$8,262	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	T8 Fluorescent Fixtures	629	16	67%	37	\$412	OPA 2010
2008 Every Kilowatt Counts Power Savings	Lighting Control Devices	677	10	55%	102	\$1,682	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
Event							
2008 Every Kilowatt Counts Power Savings Event	Power Bars with Timers	37	10	59%	53	\$43	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Heavy Duty Timers	78	10	67%	301	\$421	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Programmable Thermostats - Baseboard	218	15	53%	64	\$346	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Air Conditioner/Furnace Filters	205	1	65%	38	\$32	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Pipe Wrap	4,433	6	53%	38	\$4,229	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Keep Cool Pilot – Dehumidifier	1	12	65%	500	\$13	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Keep Cool Pilot – Room Air Conditioner	2	9	58%	141	\$5	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Rewards for Recycling – Dehumidifier	42	12	56%	500	\$490	OPA 2010
2008 Every Kilowatt Counts Power Savings Event	Rewards for Recycling – Room Air Conditioner	45	9	56%	141	\$149	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
Event							
2008 Every Kilowatt Counts Power Savings Event	Rewards for Recycling – Halogen Lamp	36	16	52%	275	\$254	OPA 2010
2008 Summer Sweepstakes	Summer Sweepstakes	74	5	22%	421	\$1,289	OPA 2010
2008 Summer Sweepstakes	Summer Sweepstakes	110	5	22%	421	\$1,933	OPA 2010
2008 Summer Sweepstakes	Summer Sweepstakes	7	5	22%	421	\$129	OPA 2010
2008 Summer Sweepstakes	Summer Sweepstakes	28	5	22%	421	\$485	OPA 2010
2008 Summer Sweepstakes	Summer Sweepstakes	3,585	5	22%	21	\$3,200	OPA 2010
2008 Electricity Retrofit Incentive	All measures	1	15	42%	148,634	\$1,852	OPA 2010
2008 High Performance New Construction	Custom Project	1	14	30%	1,769	\$86	OPA 2010
2008 Power Savings Blitz	T8 Fixture With Electronic Ballast	432	15	7%	151	\$4,198	OPA 2010
2008 Power Savings Blitz	Energy Star® rated LED Exit Sign	10	16	7%	237	\$152	OPA 2010
2008 Power Savings Blitz	Energy Star® rated CLF	106	2	7%	191	\$548	OPA 2010
2008 Power Savings Blitz	Electric Water Heater Tank Wrap	2	7	7%	436	\$56	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2008 Power Savings Blitz	Electric Water Heater Pipe Insulation	1	15	7%	277	\$18	OPA 2010
2008 Renewable Energy Standard Offer	Solar PV	1	20	0%	11,360	\$785	OPA 2010
2009 Great Refrigerator Roundup	Bottom Freezer Fridge - Not Replaced - Running Part Time (38% of the time)	0	5	46%	674	\$1	OPA 2010
2009 Great Refrigerator Roundup	Bottom Freezer Fridge - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	0	5	46%	454	\$0	OPA 2010
2009 Great Refrigerator Roundup	Bottom Freezer Fridge - Energy Star Unit Replacement - Running Part Time (38% of the time)	0	5	46%	498	\$1	OPA 2010
2009 Great Refrigerator Roundup	Bottom Freezer Fridge - Not Replaced - Running All Time (100% of time)	0	5	46%	1,769	\$10	OPA 2010
2009 Great Refrigerator Roundup	Bottom Freezer Fridge - Standard Efficiency Unit Replacement - Running All Time (100% of time)	0	5	46%	1,193	\$3	OPA 2010
2009 Great Refrigerator Roundup	Bottom Freezer Fridge - Energy Star Unit Replacement - Running All Time (100% of time)	1	5	46%	1,308	\$15	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Not Replaced - Running Part Time (26% of the time)	2	4	48%	282	\$10	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Standard Efficiency Unit Replacement - Running Part Time (26% of the time)	0	4	48%	247	\$2	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Energy Star Unit Replacement - Running Part Time (26% of the time)	2	4	48%	261	\$11	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Great Refrigerator Roundup	Chest Freezer - Not Replaced - Running All Time (100% of time)	16	4	48%	1,096	\$383	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time)	4	4	48%	959	\$93	OPA 2010
2009 Great Refrigerator Roundup	Chest Freezer - Energy Star Unit Replacement - Running All Time (100% of time)	20	4	48%	1,012	\$446	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Not Replaced - Running Part Time (38% of the time)	1	5	46%	507	\$8	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	0	5	46%	260	\$1	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Energy Star Unit Replacement - Running Part Time (38% of the time)	1	5	46%	309	\$9	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Not Replaced - Running All Time (100% of time)	5	5	46%	1,331	\$147	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time)	2	5	46%	682	\$28	OPA 2010
2009 Great Refrigerator Roundup	Side by Side Fridge-Freezer - Energy Star Unit Replacement - Running All Time (100% of time)	10	5	46%	812	\$175	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Not Replaced - Running Part Time (38% of the time)	1	5	46%	418	\$11	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	0	5	46%	237	\$2	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Great Refrigerator Roundup	Single Door Fridge - Energy Star Unit Replacement - Running Part Time (38% of the time)	2	5	46%	273	\$14	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Not Replaced - Running All Time (100% of time)	8	5	46%	1,097	\$205	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Standard Efficiency Unit Replacement - Running All Time (100% of time)	3	5	46%	623	\$43	OPA 2010
2009 Great Refrigerator Roundup	Single Door Fridge - Energy Star Unit Replacement - Running All Time (100% of time)	16	5	46%	718	\$260	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Not Replaced - Running Part Time (38% of the time)	11	5	46%	470	\$114	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Standard Efficiency Unit Replacement - Running Part Time (38% of the time)	4	5	46%	252	\$23	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Energy Star Unit Replacement - Running Part Time (38% of the time)	21	5	46%	295	\$139	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Not Replaced - Running All Time (100% of time)	78	5	46%	1,234	\$2,165	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Standard Efficiency Unit Replacement - Running All Time (100% of time)	29	5	46%	661	\$430	OPA 2010
2009 Great Refrigerator Roundup	Top Freezer Fridge - Energy Star Unit Replacement - Running All Time (100% of time)	151	5	46%	776	\$2,648	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Great Refrigerator Roundup	Upright Freezer - Not Replaced - Running Part Time (26% of the time)	0	4	48%	365	\$3	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Standard Efficiency Unit Replacement - Running Part Time (26% of the time)	0	4	48%	180	\$0	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Energy Star Unit Replacement - Running Part Time (26% of the time)	0	4	48%	189	\$2	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Not Replaced - Running All Time (100% of time)	4	4	48%	1,416	\$115	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Standard Efficiency Unit Replacement - Running All Time (100% of time)	1	4	48%	697	\$16	OPA 2010
2009 Great Refrigerator Roundup	Upright Freezer - Energy Star Unit Replacement - Running All Time (100% of time)	5	4	48%	736	\$76	OPA 2010
2009 Great Refrigerator Roundup	Dehumidifier - Not Replaced - Running All Time (100% of time)	2	4	64%	960	\$27	OPA 2010
2009 Great Refrigerator Roundup	Dehumidifier - Standard Efficiency Unit Replacement - Running All Time (100% of time)	1	4	64%	540	\$8	OPA 2010
2009 Great Refrigerator Roundup	Dehumidifier - Energy Star Unit Replacement - Running All Time (100% of time)	3	4	64%	463	\$22	OPA 2010
2009 Great Refrigerator Roundup	Window Air Conditioner - Not Replaced - Running All Time (100% of time)	3	3	64%	371	\$12	OPA 2010
2009 Great Refrigerator Roundup	Window Air Conditioner - Standard Efficiency Unit Replacement - Running All Time (100% of time)	0	3	64%	118	\$1	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Great Refrigerator Roundup	Window Air Conditioner - Energy Star Unit Replacement - Running All Time (100% of time)	1	3	64%	141	\$2	OPA 2010
2009 Cool Savings Rebate	Energy Star® 14.5 SEER (Tier 1) Central Air Conditioner (CAC)	53	18	42%	113	\$143	OPA 2010
2009 Cool Savings Rebate	Energy Star® 14.5 SEER (Tier 1) Central Air Conditioner (CAC) with change in behaviour	8	18	42%	317	\$63	OPA 2010
2009 Cool Savings Rebate	Energy Star® 15.0 SEER (Tier 2) Central Air Conditioner (CAC)	139	18	42%	177	\$591	OPA 2010
2009 Cool Savings Rebate	Energy Star® 15.0 SEER (Tier 2) Central Air Conditioner (CAC) with change in behaviour	22	18	42%	366	\$191	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, AHRI Matched CAC & Furnace, Continuous Fan, No change	12	19	60%	2,773	\$541	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	48	19	60%	324	\$260	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	19	60%	91	\$6	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Unmatched CAC & Furnace, Continuous Fan, No change	21	19	60%	2,823	\$972	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	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, Unmatched CAC & Furnace, Non-continuous Fan, No change	85	19	60%	373	\$528	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	7	19	60%	140	\$16	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Continuous Fan, No change	3	19	60%	1,535	\$87	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed before 1980, Heating only, Non-continuous Fan, No change	14	19	60%	324	\$75	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	19	60%	192	\$4	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, AHRI Matched CAC & Furnace, Continuous Fan, No change	14	19	60%	2,867	\$657	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	57	19	60%	207	\$195	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980,	5	19	60%	(49)	(\$4)	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
	AHRI Matched CAC & Furnace, Continuous Fan, Change from non-continuous						
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Continuous Fan, No change	24	19	60%	2,927	\$1,183	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Unmatched CAC & Furnace, Non-continuous Fan, No change	100	19	60%	267	\$444	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	8	19	60%	11	\$1	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Continuous Fan, No change	4	19	60%	1,570	\$104	OPA 2010
2009 Cool Savings Rebate	Furnace with Electronically Commutated Motor (ECM), Home constructed after 1980, Heating only, Non-continuous Fan, No change	16	19	60%	207	\$56	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	19	60%	76	\$2	OPA 2010
2009 Cool Savings Rebate	Programmable Thermostat - Central Air Conditioning (CAC) & Gas heating	110	15	61%	30	\$54	OPA 2010
2009 Cool Savings Rebate	Programmable Thermostat - Energy Star® Central Air Conditioning (CAC) & Gas Heating	148	15	61%	26	\$62	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Cool Savings Rebate	Programmable Thermostat - Gas Heating only	31	15	61%	9	\$5	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Lighting	15	5	0%	40	\$25	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Cooling or Heating	6	3	0%	100	\$21	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Water heating	7	10	0%	141	\$44	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Appliances	10	4	0%	76	\$33	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Insulation of other weatherization	15	10	0%	75	\$48	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Windows	12	10	0%	100	\$50	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Roof products	6	15	0%	50	\$12	OPA 2010
2009 Cool Savings Rebate	Participant Spillover - Other products	6	5	0%	50	\$14	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Spring Campaign - Participant Rebated	581	8	31%	23	\$386	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Decorative CFLs - Spring Campaign - Participant Rebated	1,379	6	23%	26	\$1,145	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Spring Campaign - Participant Rebated	112	16	47%	116	\$288	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Ceiling Fans - Spring Campaign - Participant Rebated	48	10	24%	71	\$110	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Heavy Duty Pool and Spa Timers - Spring Campaign - Participant Rebated	18	10	24%	454	\$262	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Clotheslines - Spring Campaign - Participant Rebated	47	10	45%	77	\$83	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Spring Campaign - Participant Rebated	38	6	22%	8	\$10	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Spring Campaign - Participant Rebated	5	10	20%	52	\$9	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Window Air Conditioner - Spring Campaign - Participant Promoted	48	12	33%	96	\$129	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Dehumidifiers - Spring Campaign - Participant Promoted	45	12	32%	284	\$366	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Spring Campaign - Participant Promoted	111	15	55%	138	\$290	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Power Products - Spring Campaign - Participant Promoted	290	5	40%	5	\$35	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Control Products - Spring Campaign - Participant Promoted	144	10	47%	72	\$232	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Reduce power to electronics (Behavioural) - Spring Campaign - Participant Spillover	61	1	85%	21	\$2	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed CFLs - Spring Campaign - Participant Spillover	53	8	87%	101	\$29	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Washed in Cold Laundry (Behavioural) - Spring Campaign - Participant Spillover	53	1	86%	30	\$3	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned off/Reduced lights (Behavioural) - Spring Campaign - Participant Spillover	49	1	88%	263	\$18	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dried clothes outside or on rack (Behavioural) - Spring Campaign - Participant Spillover	43	1	89%	74	\$4	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Refrigerator - Spring Campaign - Participant Spillover	39	14	86%	65	\$15	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Unplugged devices usually left plugged in (Behavioural) - Spring Campaign - Participant Spillover	37	1	80%	70	\$6	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Clothes washing machine - Spring Campaign - Participant Spillover	23	14	88%	122	\$14	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Added ceiling/attic/wall/basement insulation - Spring Campaign - Participant Spillover	23	20	88%	394	\$44	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed Programmable Thermostat - Spring Campaign - Participant Spillover	23	15	87%	308	\$36	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Spring Campaign - Non-Participant Rebated	443	8	65%	22	\$144	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Decorative CFLs - Spring Campaign - Non-Participant Rebated	220	6	60%	26	\$96	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Spring Campaign - Non-Participant Rebated	207	16	59%	68	\$237	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Ceiling Fans - Spring Campaign - Non-Participant Rebated	61	10	86%	71	\$24	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Heavy Duty Pool and Spa Timers - Spring Campaign - Non-Participant Rebated	38	10	86%	454	\$98	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Clotheslines - Spring Campaign - Non-Participant Rebated	140	10	86%	77	\$61	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Spring Campaign - Non-Participant Rebated	325	6	86%	8	\$15	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Spring Campaign - Non-Participant Rebated	48	10	86%	52	\$14	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Window Air Conditioner - Spring Campaign - Non-Participant Promoted	80	12	57%	96	\$139	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Dehumidifiers - Spring Campaign - Non-Participant Promoted	96	12	56%	284	\$498	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Spring Campaign - Non-Participant Promoted	150	15	71%	138	\$252	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Power Products - Spring Campaign - Non-Participant Promoted	971	5	61%	5	\$76	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Control Products - Spring Campaign - Non-Participant Promoted	334	10	66%	72	\$347	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Autumn Campaign - Participant Rebated	2,631	8	31%	25	\$1,942	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Specialty CFLs - Autumn Campaign - Participant Rebated	1,064	6	29%	21	\$660	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Autumn Campaign - Participant Rebated	127	16	30%	119	\$442	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - adhesive foam or V-strip - Autumn Campaign - Participant Rebated	118	15	43%	15	\$43	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - door frame kits - Autumn Campaign - Participant Rebated	77	15	47%	17	\$29	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Autumn Campaign - Participant Rebated	51	15	33%	32	\$46	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Autumn Campaign - Participant Rebated	44	6	55%	7	\$5	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Autumn Campaign - Participant Rebated	10	10	37%	56	\$14	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Lighting/Appliance Controls - Autumn Campaign - Participant Rebated	89	17	28%	21	\$57	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Holiday LED Lights - Autumn Campaign - Participant Promoted	313	5	41%	14	\$105	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dimmer Switches - Autumn Campaign - Participant Promoted	132	10	50%	24	\$65	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Powered Products - Autumn Campaign - Participant Promoted	256	4	48%	6	\$31	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Washed laundry with cold water - Autumn Campaign - Participant Spillover	93	1	83%	30	\$6	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned off / reduced use of power to electronics - Autumn Campaign - Participant Spillover	86	1	81%	21	\$4	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned off / reduced use of lights - Autumn Campaign - Participant Spillover	80	1	83%	263	\$40	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dried clothes outside or inside on a rack - Autumn Campaign - Participant Spillover	56	1	87%	74	\$6	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Turned down the thermostat setting on my furnace - Autumn Campaign - Participant Spillover	56	1	81%	270	\$33	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Unplugged devices usually plugged into outlet - Autumn Campaign - Participant Spillover	53	1	82%	70	\$8	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance – Refrigerator - Autumn Campaign - Participant Spillover	53	14	75%	65	\$35	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Added ceiling/attic/wall/basement insulation - Autumn Campaign - Participant Spillover	43	20	78%	394	\$155	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Replaced my old furnace with a high efficiency furnace - Autumn Campaign - Participant Spillover	38	15	80%	352	\$109	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Installed a new energy efficient appliance - Clothes washing machine - Autumn Campaign - Participant Spillover	35	15	81%	142	\$40	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Compact Fluorescent - Autumn Campaign - Non-Participant Rebated	2,396	8	86%	24	\$325	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Specialty CFLs - Autumn Campaign - Non-Participant Rebated	761	6	85%	30	\$143	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	ENERGY STAR Fixtures - Autumn Campaign - Non-Participant Rebated	212	16	76%	36	\$78	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - adhesive foam or V-strip - Autumn Campaign - Non-Participant Rebated	826	15	93%	15	\$37	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Weatherstripping - door frame kits - Autumn Campaign - Non-Participant Rebated	630	15	94%	17	\$29	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Programmable Thermostat - Autumn Campaign - Non-Participant Rebated	125	15	83%	83	\$76	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Pipe Wrap - Autumn Campaign - Non-Participant Rebated	585	6	89%	6	\$16	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Water Blanket - Autumn Campaign - Non-Participant Rebated	73	10	78%	40	\$27	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Lighting/Appliance Controls - Autumn Campaign - Non-Participant Rebated	625	17	90%	42	\$111	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Energy Star Qualified Holiday LED Lights - Autumn Campaign - Non-Participant Promoted	1,023	5	65%	14	\$204	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Dimmer Switches - Autumn Campaign - Non-Participant Promoted	322	10	73%	24	\$86	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Solar Powered Products - Autumn Campaign - Non-Participant Promoted	517	4	58%	5	\$42	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Working Room Air Conditioner Retirement - Rewards for Recycling Campaign - Incented	25	6	62%	32	\$13	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Working Room Dehumidifier Retirement - Rewards for Recycling Campaign - Incented	23	8	53%	300	\$133	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Working Halogen Torchier Retirement - Rewards for Recycling Campaign - Incented	8	10	49%	58	\$9	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Recycled Second Refrigerator - Rewards for Recycling Campaign - Spillover	5	14	64%	1,238	\$97	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Recycled Additional Room Air Conditioner - Rewards for Recycling Campaign - Spillover	4	6	64%	30	\$2	OPA 2010

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2009 Every Kilowatt Counts Power Savings Event	Recycled Central Air Conditioner - Rewards for Recycling Campaign - Spillover	4	18	64%	72	\$4	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Recycled Additional Room Dehumidifier - Rewards for Recycling Campaign - Spillover	5	8	64%	309	\$21	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed Energy Star® Windows - Rewards for Recycling Campaign - Spillover	7	20	82%	1,530	\$84	OPA 2010
2009 Every Kilowatt Counts Power Savings Event	Installed Energy Star® CFL Bulbs - Rewards for Recycling Campaign - Spillover	24	8	82%	45	\$8	OPA 2010
2009 Electricity Retrofit Incentive	All measures	1	10	17%	2,402,901	\$23,636	OPA 2010
2009 High Performance New Construction	Custom Project	1	20	30%	54,752	\$2,084	OPA 2010
2009 Power Savings Blitz	All measures	1	9	5%	825,719	\$42,657	OPA 2010
2010 Cool Savings Rebate	All measures	291	3	59%	603	\$2,194	OPA 2011c
2010 Every Kilowatt Counts Power Savings Event	All measures	3,116	3	54%	67	\$2,926	OPA 2011c
2010 Great Refrigerator Roundup	All measures	327	3	47%	1,105	\$5,828	OPA 2011c
2010 Electricity Retrofit Incentive	All projects	11	3	48%	143,753	\$8,384	OPA 2011c

Program	Energy Efficient Measure	Units	Measure life	Free Riders	Annual energy savings (kWh/a)	LRAM (2012\$)	Assumption Source
2010 High Performance New Construction	Custom	1	3	30%	145,999	\$5,432	OPA 2011c
2010 Multifamily Energy Efficiency Rebates	All measures	0	3	26%	75,155	\$612	OPA 2011c
2010 Power Savings Blitz	All measures	35	3	0%	2,683	\$3,773	OPA 2011c
Reductions to LRAM claim due to energy savings already incorporated in NBH's 2010 load forecast						(\$90,335)	
Total LRAM						\$97,210	

Table 9 –LRAM contributions and carrying charges.

Program	Year	LRAM pre-carrying charges	Carrying charges	Total
Cool Savings Rebate	2008	\$6,403	\$195	\$6,598
	2009	\$6,345	\$138	\$6,483
	2010	\$2,156	\$38	\$2,194
Electricity Retrofit Incentive	2008	\$1,796	\$57	\$1,852
	2009	\$23,120	\$516	\$23,636
	2010	\$8,237	\$146	\$8,384
Every Kilowatt Counts Power Savings Event	2008	\$31,994	\$983	\$32,978
	2009	\$10,705	\$234	\$10,939
	2010	\$2,876	\$51	\$2,926
Great Refrigerator Roundup	2008	\$10,298	\$313	\$10,611
	2009	\$7,517	\$163	\$7,681
	2010	\$5,727	\$101	\$5,828
High Performance New Construction	2008	\$83	\$2	\$86
	2009	\$2,040	\$44	\$2,084
	2010	\$5,339	\$94	\$5,432
Multifamily Energy Efficiency Rebates	2010	\$601	\$11	\$612
Power Savings Blitz	2008	\$4,818	\$153	\$4,972
	2009	\$41,758	\$899	\$42,657
	2010	\$3,708	\$65	\$3,773
Renewable Energy Standard Offer	2008	\$763	\$23	\$785
Summer Sweepstakes	2008	\$6,828	\$208	\$7,035
Subtotal		\$183,113	\$4,433	\$187,545
Reductions to LRAM claim				(\$90,335)
Total LRAM claim				\$97,210

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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