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July 2, 2009

VIA E-MAIL

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

Dear Ms. Walli

**Re: EB-2008-0401 Toronto Hydro Electric System Limited
Recovery of Amounts Related to Conservation and Demand
Management Activities in the City of Toronto**

Please find enclosed the submissions of VECC in the above noted proceeding.

Yours truly,

Original signed

Michael Buonaguro
Counsel for VECC
Encl.

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S. O. 1998, c.15 Schedule B of the *Energy Competition Act, 1998*;

AND IN THE MATTER OF an application for recovery of amounts related to Conservation and Demand Management activities.

**TORONTO HYDRO-ELECTRIC SYSTEM LIMITED
APPLICATION FOR APPROVAL AND RECOVERY OF
AMOUNTS RELATED TO
CDM IN 2009 RATES**

Submissions of the Vulnerable Energy Consumers Coalition (VECC)

Overview of VECC Submission

1. VECC is a coalition formed from the Federation of Metro Tenants Associations and the Ontario Coalition of Senior Citizens Organizations. The coalition is represented by the Public Interest Advocacy Centre based in Ottawa. PIAC provides Legal Counsel and retains consultants in support of interventions.
2. Accordingly the interests represented by VECC are residential home owners and tenants that include lower income families, seniors living on fixed incomes, and other ratepayers that can be considered vulnerable to increases in energy bills.
3. VECC is particularly concerned about the current application since Toronto Hydro Electric System Limited ("THESL") appears to be seeking to recover costs from ratepayers that in VECC's view are materially overstated due to the selective use of input/savings assumptions for residential prescriptive CDM measures.
4. In summary, VECC submits that THESL's LRAM claim for 2007 is overstated, as a result of THESL refusing to apply the most up to date assumptions regarding the program savings they claim have resulted in lost revenue. Accordingly, VECC submits, THESL is seeking to recover a windfall amount of LRAM from ratepayers by applying outdated assumptions.
5. VECC has structured its main submission in two parts:

I Threshold Issue- Use of Best Available Assumptions

// Cost Consequences of Best Available Assumptions

If the Board supports VECC's submissions on the *threshold* issue in Part I then VECC has provided a discussion on the cost consequences, including an estimate of the impact on ratepayers.

6. With respect to the need to provide an estimate of the cost consequences of using the best available assumptions, VECC was placed in this position because not only did THESL disagree with VECC's position on the best available input assumptions as expressed in its information requests, but THESL also refused to provide an estimate of the impact of alternative assumptions¹.

The Application

7. The requested LRAM relief is composed of the 2007 calendar year savings resulting from:
 1. Third Tranche CDM programs implemented in 2005 and 2006;
 2. New Third Tranche CDM programs implemented in 2007; and
 3. Ontario Power Authority ("OPA") CDM programs implemented in 2007.
8. None of the load reductions produced were factored in to the load forecast underpinning 2006 and 2007 rates. Therefore, THESL proposes for recovery the LRAM amounts related to the entire load reductions, net of free rider quantities.
9. The total LRAM amount sought from Third Tranche programs is \$1,837,481 for 2005 and 2006 initiatives carrying forward to 2007, and \$143,134 for 2007 initiatives. The LRAM amount resulting from OPA Programs is \$923,196. Combined carrying charges amount to \$212,414. The total requested recovery related to all CDM activities for the 2007 calendar year is therefore \$3,702,235.
10. All of the CDM programs for which SSM amounts are sought were undertaken in connection with THESL's Third Tranche CDM spending obligations in the 2007 calendar year. No SSM amount is sought in relation to the activities of other parties. The total SSM amount sought for recovery is \$586,011.

Authorization for LRAM/SSM Recovery

11. The authorization to file an application seeking recovery of LRAM and SSM amounts is the Board's EB-2008-0037 Guidelines for Electricity Distributor Conservation and Demand Management ("CDM Guidelines").

¹ THESL Response to VECC IR #1-3

In preparing this Application, THESL asserts it has relied on and conformed to these Guidelines.

Threshold Issue: Use of Best Available Input Assumptions

12. VECC disagrees that THESL has conformed to the CDM Guidelines in respect of the use of “Best Available” input assumptions.
13. These assumptions include, for prescriptive measures such as residential mass market measures, unit savings (kwh/kw), lifetime, cost and free-ridership.

LRAM

14. For residential mass market measures, in order to estimate Lost Revenue and calculate and apply the appropriate Adjustment Mechanism due to savings/load loss from CDM measures, the unit savings (kw) are multiplied by the number of units installed, with the result multiplied by the unit distribution rate for the specific utility.
 $\Sigma_{\text{measures a-z}} [\text{kw saved/unit/yr} * \# \text{ of units}] * [\text{free-ridership \%}] * [\text{unit distribution rate c/kwh}] = \LRAM

15. VECC submits that it is critical that the LRAM claim reflect the actual units installed and, as accurately as possible, the actual savings /load reduction. If this is not the case, then
 - a) the utility will be compensated for lost revenues that were not, in actuality, lost from CDM measures, and
 - b) future load forecasts may incorporate load reductions that are over/under stated.

16. In order to ensure that LRAM and SSM amounts claimed by utilities reflect actual CDM savings there are two controls applied by regulators, including :
 - The use of best available input assumptions, and
 - Independent Third party Audit/Evaluation of the Programs and LRAM/SSM claims

These two requirements come together in the case of THESL’s claim.

17. THESL has used the OEB TRC Guide assumptions for its’ 2007 claim; the SEeline evaluation confirms that THESL used these assumptions for all measures including CFLs.

At page 6 of its Report SEeline states;

* 14W and 23W CFL Savings Derived from OEB Measure List

In the opinion of SeeLine THESL has used the appropriate OEB input assumptions.

18. The Issue is not whether THESL used the TRC Guide Assumptions but as indicated below whether these were the best available assumptions.

19. The primary threshold issue which VECC is requesting the Board to determine in considering the THESL Application is as follows:

For THESL’s 2007 residential sector CDM programs are the best available input assumptions those in the Appendix to the OEB CDM Guidelines, or are they the input assumptions that the OPA specified for its 2007 residential mass market CDM programs -specifically the 2007 Spring, Summer and Fall Every Kilowatt Counts (EKC) campaigns.²

20. The difference in the kw Savings estimates using OPA EKC Program calculator results is both significant and material. For example, OPA updated the savings estimates for the largest single mass market measure Compact Fluorescent Lights(CFLs) to less than half as illustrated below for a15w screw in CFL:³

MEASURE	OEB TRC GUIDE		OPA 2007 EKC Program Calculator		OPA 2009 Measures List	
	Life yrs	Gross kwh/yr*	Life yrs	Gross kwh/yr*	Life yrs	Gross kwh/yr*
CFL 15W	4	104	6	44.3	8	43

* Before adjustments for free ridership etc.

21. The secondary Issue is *Timing*; when should the best available input assumptions be applied? The options include:

- a) At the time of the program design;
- b) At the time of program/measure implementation;
- c) At the time of the Third Party independent evaluation; or
- d) At the time that the Board adopted the OPA Input Measures and Assumptions List.

22. VECC respectfully submits that the Board’s Guidelines and clarifying correspondence with distributors have already provided the answers to these questions.

² A copy of the OPA 2007 EKC Program Calculator is found in Appendix A of this Submission. This copy was taken directly from Pages 9 and 10 of the evidence filed by Oshawa PUC in EB-2008-0205.

³ OEB Inputs and Assumptions for Calculating Total Resource Cost March 28, 2008; 2007 OPA Every Kilowatt Counts Program Calculator; 2009 OPA Measures and Assumptions List (Mass Market) November 2008 Page 93

23. Section 7.3 of the Board's Guidelines address the issue of "best available input assumptions":

LRAM

The input assumptions used for the calculation of LRAM should be the best available at the time of the third party assessment referred to in section 7.5. For example, if any input assumptions change in 2007, those changes should apply for LRAM purposes from the beginning of 2007 onwards until changed again.

Assume a program was delivered from January 1, 2007 until December 31, 2007. In June 2007, it was determined that the free rider rate used in the initial program analysis was under-stated. The distributor obtains a third party review of its evaluation of program results in April 2008. The input assumptions that will apply in relation to any lost revenue between January 1, 2007 and December 31, 2007, will be those that were introduced in June 2007. That is, the new free rider rates apply for the entire period from January 1, 2007 to December 31, 2007.

SSM

Assumptions used from the beginning of any year will be those assumptions in existence in the immediately prior year. For example, if any input assumptions change in 2007, those changes should apply for SSM purposes from the beginning of 2008 onwards until changed again.

Assume a program was delivered from January 1, 2007 until December 31, 2007. In June 2007, it was determined that the free rider rate used in the initial program analysis was under-stated. The distributor obtains a third party review of its evaluation of program results in April 2008. The input assumptions that will apply in relation to SSM amounts for a program delivered from January 1, 2007 and December 31, 2007, that the third party reviewer should confirm, will be those that were in effect on December 31, 2006. The new free rider rates would only apply for SSM purposes to programs that began January 1, 2008.

THESL's position on the threshold issue

24. In response to VECC IRR #1 THESL stated as follows:

THESL submits that there is limited value in comparing input assumption methodologies in this proceeding, given that the OEB had a clear Assumptions and Measures List in place for use by distributors at the time this application was prepared, and with which THESL has complied. The OPA List was approved in EB-2008-0352 by the OEB on Jan 27, 2009, well after this application was prepared and filed. It is THESL's position that debating the variance in outcome and relative merits of OEB and OPA input and assumptions lists is irrelevant to this proceeding, given that the former was approved for use by the OEB at the time this application was prepared, while the latter was not. The OEB provided clear direction as to the input assumptions to be used by distributors in

their LRAM and SSM applications, and THESL, having complied with those guidelines, maintains that any debate or discussion as to alternative hypothetical outcomes using different assumptions is unhelpful in determining the merits of this application.

25. THESL also refused to provide the information requested in VECC IR#, 1 wherein VECC asked THESL to calculate the 2007 LRAM claim using the OPA EKC Program Calculator for mass market measures.
26. VECC submits that THESL's refusal to answer these reasonable requests diminishes the value of the IR process, and unnecessarily complicates the Board's ability to assess the impact of using the best available assumptions.

VECC's Submission on Threshold Issue

27. VECC's submission on the threshold issue concerning the use of best available assumptions is guided by the regulatory principles of fairness and ensuring that rates are just and reasonable –in this case THESL's 2009 rate riders for LRAM and SSM.
28. As noted earlier, it is VECC's position that the best available input assumptions should be used to ensure accuracy of LRAM/SSM claims. For 2007 mass market measures, the best available input assumptions, particularly CFL kwh savings, are clearly those in the OPA 2007 EKC Program Calculator. The OPA required utilities participating in 2007 EKC campaigns, including THESL, to use these assumptions.
29. The narrow interpretation advanced by THESL, that distributors were required to use the assumptions in the Appendix to the OEB TRC guide, should be rejected. VECC respectfully submits that for the purpose of ensuring that the LRAM rate impacts flowing from CDM activities are just and reasonable, it is clearly the case that the best available input assumptions be used.
30. The Guide requires better assumptions to be used, provided they are supported. That is clearly case for 2007 OPA EKC Assumptions.
31. The OPA 2007 EKC Program Calculators were widely available to, and required by the OPA to be used by, distributors including Oshawa PUC (See Appendix A) and THESL for 2007 EKC Programs. As a result there was little doubt that these were and remain a credible set of alternative assumptions to those in the TRC Guide.
32. It is disingenuous of THESL to suggest that it should report 2007 savings to OPA using OPA assumptions and report to the OEB and claim recovery from ratepayers based on different assumptions for the same 2007 programs.

33. The changes to input assumptions that OPA instituted in 2007 were not a “one shot” event. Apart from minor “tweaks” the savings, life and free-ridership assumptions for these mass market measures (particularly CFLs) are substantially the same as those in the 2008 and 2009 OPA Measures and Input Assumptions List, the latter of which the Board has now specifically adopted.
34. VECC submits that the Board should find that the input assumptions in the OPA 2007 EKC Program Calculator were the “best available for 2007” and should apply to THESL’s LRAM claim for
- 2007 OPA funded programs
 - 2007 Rate payer funded CDM, and
 - carry forward into 2007 of measures implemented in 2005 and 2006.
35. VECC believes that in reporting to the OPA on the OPA EKC Program THESL used the EKC calculator assumptions for CFLs (see J4T4G).
36. It is clear from Exhibit J, Tab 4, Schedule A that the 2007 OPA EKC assumptions were used for the 2007 EKC Program.
37. However it appears that these assumptions were not used for calculation of the LRAM claim for other OPA programs (TAPs and Mass Market) in this Application.
38. For the other components of the LRAM claim THESL used the 2006 TRC Guide assumptions and therefore in VECC’s submission the savings and LRAM should be recalculated to use the OPA 2007 assumptions where appropriate.

Remedy Requested

39. If the Board Agrees with VECC on the threshold issue, then THESL should be directed to re-file its 2007 LRAM claim and proposed rate rider using the OPA 2007 EKC program calculator assumptions for 2007 savings. The impact on the LRAM will be material.
40. To assist the Board in assessing the materiality of the impact of changed assumptions VECC’s consultants have made an estimate of the change to the 2007 LRAM claim that results from using 2007 OPA EKC Program Calculator assumptions for CFLs. This calculation is provided In Appendix B and summarized in Part II of this submission.
41. However, VECC intends that this be illustrative of the “order of magnitude” only; as earlier stated, if the Board agrees with VECC’s position that THESL’s LRAM claim should be calculated on the basis of the most up to date information on the basis that

the LRAM amount recovered should most closely mirror the losses in revenue actually incurred by THESL, then THESL should be required to re-file the claim based on the most up to date information.

Part II Cost Consequences of Use of OPA EKC Savings Assumptions for LRAM/SSM

42. In order to assess the cost consequences of using OPA 2007 EKC assumptions for CFLs it is necessary to determine how the existing LRAM claim is calculated and to determine the # of CFL units that are included in each component of the calculation.

43. As noted in the Application the Residential LRAM and SSM Claim filed by THESL has three components of Savings and Lost Revenue for 2007, resulting from;

1. Third Tranche CDM programs implemented in 2005 and 2006 (carry forward);

THESLs position is set out at page 14 of the Managers Summary
The 2005 and 2006 Third Tranche programs have been extensively reviewed and the assumptions underpinning LRAM calculations approved in EB-2007-0096. In calculating the 2007 LRAM component for these programs, THESL used the same assumptions and methodology, as no update to the OEB Assumptions and Measures List has since been released. The CDM Guidelines do not require additional third party verification of results for programs funded prior to 2007, as noted in section 7.5, "This independent third party review applies to LRAM or SSM claims made in relation to programs funded in 2007 and beyond."

The Carry forward 05/06 3rd Tranche programs are shown in the Managers Summary Page 9 Table 5

Mass Markets#
Enbridge TAPS#
Low Income/Social Housing#
Great Refrigerator Round up

#includes CFLs as measure

2. New Third Tranche CDM programs implemented in 2007;
THESL's position is that The SSM and LRAM claim for 2007 Third Tranche programs was reviewed and audited by the SeeLine Group Ltd., which found that THESL's approach and calculation are accurate and consistent with the Board-approved decision in EB-2007-0096 and the CDM Guidelines. Complete audit results are contained in Exhibit 1. THESL is also submitting its 2007 CDM Annual Report, contained in Exhibit 2. As the report fully covers the entire 2007 calendar year, it satisfies the evaluation reporting requirement of this application.

The programs are as shown in the Managers Summary Page 10 Table 6

Enbridge TAPs#
Social and Low Income Housing#

#includes CFLs as measure

3. Ontario Power Authority ("OPA") CDM programs implemented in 2007.(standard and new).

In calculating the LRAM claim for 2007 OPA programs, THESL has relied on savings data obtained directly from the OPA, as contained in Exhibit 3. This savings data matches the values used by THESL in calculating the OPA program LRAM component. In the case of some specific programs where THESL felt it had a more accurate estimate of realized savings (the Great Refrigerator Round-Up, for example), THESL used values lower than those reported by the OPA for the calculation of its LRAM claim.

The programs are as shown in Managers Summary Page 11 Table 7

Enbridge TAPs#
Social and Low Income Housing#
Great refrigerator round up
Every Kilowatt Counts#*
Summer Savings

Include CFLs as component

**THESL has used the EKC calculator assumptions for CFLs for this part of the LRAM claim J4 G Tab 4.*

44. The response to VECC #3 shows the input assumptions used in reporting to the OPA 2007 program:

Table 1: Input Assumptions for 2007 OPA Programs

Measure Description	Unit Gross kWh Savings	Free Ridership
CFLs - 14 watt	107	10%
CFLs - 23 watt	179	10%
Aerators	34	10%
Efficient Showerheads	545	10%
Pipewrap	76	10%
Energy Star Refrigerators	74	1%
High Efficiency Range/Oven	55	1%
SLEDs	15.6	5%
Room Air Conditioner Recycle	621	30%
Refrigerator Retirement	1,200	30%
Freezer Retirement	900	30%
Ceiling Fans	102	30%
CFLs	44	30%
Dimmer Switch	24	30%
Furnace Filters	105	30%
Outdoor Motion Sensors	161	30%
Outdoor Solar Lights	10	30%

45. It is important to note that the above list uses two different sets of values for CFLs. VECC has assumed that the former relate to 2005/2006 programs since the free ridership was 10% not 30% as specified in the EKC 2007 calculator. The second value (44kwh) is close to the 2007 EKC Program calculator value and is the same as that used by THESL in the CFL savings for 2007 EKC Campaigns as filed in Exhibit t J4 Tab G 4. This is the only component of THESL's 2007 LRAM claim that used the OPA EKC updated value for CFL savings.
46. The response to VECC IR#1 purports to show the assumptions used in this Application and to which portions of the claim these were applied:

Input Assumptions for Prescriptive Measures under Residential Sector

Measure Description	Gross Unit kWh Savings	Net Unit kWh Savings	Gross Unit kWh Savings	Net Unit kWh Savings	Free Ridership *	Measure Life (Yrs)	Source of Estimates **	Year Estimates Applied to			
								OEB 05	OEB 06	OEB 07	OPA07
CFL 11 W	67	61	-	-	10%	3	Page 26	✓	✓		
CFL 15 W	104	94	-	-	10%	4	Page 26	✓	✓		✓
Energy Star Room Air Conditioner	88	79	0.090	0.081	10%	12	Page 27	✓	✓		✓
Efficient Showerhead	545	491	0.039	0.035	10%	12	Page 26	✓	✓	✓	✓
Pipe Wrap	76	68	0.005	0.005	10%	6	Page 26	✓	✓	✓	✓
Faucet Aerator	34	30	0.002	0.002	10%	12	Page 26	✓	✓	✓	✓
Programmable Thermostat	159	143	0.163	0.147	10%	18	Page 27	✓	✓	✓	✓
Refrigerator Recycle	1,200	1,080	0.272	0.245	10%	6	Page 26	✓			✓
Dimmer Switch	139	125	-	-	10%	10	Page 26		✓		✓
Motion Detector	209	188	-	-	10%	10	Page 26		✓		✓
Energy Star Refrigerator	74	73	0.017	0.017	1%	19	Page 26		✓	✓	
Energy Star Stove	55	54	-	-	1%	18	Page 26		✓	✓	

* Free Ridership is from OEB's Assumptions and Measures List except for Energy Star Refrigerator and Stove (the last two measures from above table), which are 1% according to OEB decision on Sep. 11 of 2007 on THESL's first LRAM/SSM application.

** Source of estimates is the Assumptions and Measures List from OEB's TRC Guide dated Oct. 2 of 2006.

47. The above is not a complete list of measures for which THESL has filed an LRAM and SSM claim. A review of the attachments to VECC IRR#4 provides a more complete list including the measures under the TAPS program with Enbridge.

48. THESL's Calculation of savings from CFLs is the major issue that VECC contends leads to significant overestimation of the 2007 savings and LRAM/SSM claim.

49. The material impact of differences between the input assumptions used by THESL and the 2007 OPA EKC Calculator can be determined by a comparison of the above assumptions and the calculator reproduced in Appendix A of this Submission.

50. VECC's consultants have made an estimate of this impact based on the approach outlined in Appendix B of this submission.

51. For convenience a summary comparison table of the impact of amended assumptions on savings from CFLs on the LRAM claim is provided below:

Measure	THESL		OPA EKC Calc		THESL		OPA EKC Calc	
	Gross Kwh Saved#	Free Riders#	Gross Kwh Saved	Free Riders	#units 06 and 07*	2007 \$LRAM Amount* Claimed	# units 06 and 07	2007 \$LRAM Amount* Adjusted
CFL 14/15 W	104	10%	44.3	30%	1,018,466	\$1,130,823	1,018,466	\$418,756

Exception EKC 2007 Campaign which comprised 3,013,615 kwh out of total claimed savings.

* VECC consultant's estimate based on TAPS filing and number of CFLs distributed in Mass Market Campaigns -see Appendix B2

52. VECC's estimate, based on the Excel Workbook in Appendix B, is that THESL's 2007 LRAM claim for the Residential Class is overestimated by about \$712,000.

53. As noted above, there are three components to the adjusted LRAM amount (see Appendix B):

- Carry forward of CFL savings from 2005 and 2006 Mass Market and TAPs programs
- Continuation of TAPS in 2007
- OPA 2007 Mass Market and EKC Campaign

54. The only component of the LRAM claim for which THESL correctly used the 2007 OPA EKC Calculator Assumptions was the amount claimed for 2007 EKC CFL Campaigns (J4T4G).

55. It should be emphasized that CFLs are the single largest source of Residential kwh savings, and overestimation of the 2007 savings has a major impact on the LRAM (and SSM).

2007 SSM Claim

56. If the Board agrees with VECC on the threshold issue, then the Residential class 2007 LRAM claim should be recalculated as adjusted for lower CFL savings. However, the Board's directions in the Guidelines regarding the application of changed assumptions would lead to the conclusion that the 2007 SSM claim is not affected.

Carrying Charges

57. The carrying charges calculated by THESL in Table 9 of the Managers Summary should also be recalculated to reflect the lower Residential class LRAM amounts owing for 2007.

Summary

58. THESL has claimed the following amounts to be recovered from ratepayers

- LRAM from Third Tranche programs \$1,837,481 for
- 2005 and 2006 initiatives, and \$143,134 for 2007 initiatives.
- LRAM from OPA Programs \$923,196.
- Combined carrying charges of \$212,414.
- Total for 2007 calendar year \$3,702,235.
- SSM claim totaling \$586,011

59. Of the above LRAM amounts, the total to be recovered from the Residential rate class (Table 1, Managers summary) is \$2,079,213 plus carrying charges of \$152,087. In addition, THESL is seeking recovery of an SSM for the class of \$308,393.
60. VECC submits that the Residential Class LRAM claim is overestimated by approximately \$712,000 due to the use of the old OEB TRC Guide Assumptions for 2007 savings produced by CFLs, rather than the OPA 2007 Every Kilowatt Counts (EKC) assumptions that THESL used to report to the OPA on this program.
61. If the Board accepts VECC's position on the threshold issue regarding best available assumptions, then THESL should be directed to recalculate the Residential class 2007 LRAM claims using the OPA 2007 EKC Assumptions for all CFL savings in 2007.

APPENDIX A

Extract from Oshawa PUC Networks Evidence in support of its 2007 LRAM/SSM Claim

(OPA EKC Program calculator sample)

OPA TRC Values for 2007 Programs

For the OPA approved programs for 2007 new values for issued for calculation TRC. They are shown in the table below: "Spring and Summer/ Fall 2007 OPA Program Calculations".

Oshawa PUC Networks Inc.
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Spring and Summer/ Fall 2007 OPA Program Calculations

1. Program Cost

Category	\$
Total Program Cost	\$19,162,190
Spring Customer Incentive	\$5,203,636
Fall Customer Incentive	\$3,529,039

Campaign Input assumption

Product	Annual kWh Saving / Unit	Peak Demand Reductions KW / Unit	Total Coupons	Units / Coupon	Estimated Useful Life	Free Ridership
SPRING CAMPAIGN						
Energy Star CFL 15W	44.3	0.0017	493775	3.86	6	30%
Energy Star Ceiling Fan	102.4	0.004	19166	1	10	30%
Outdoor Motion Sensor	161.1	0	23474	1	10	30%
Dimmer Switch	23.7	0.001	19390	1	10	30%
Outdoor Solar Lights	9.8	0	596079	1	5	30%
Furnace / AC Filter	105.42	0.05	25742	1	1	30%
Electric Furnace	850.1	0			5%	
Natural Gas Furnace	60.6	0.089			57%	
Central AC	70	0			45%	
FALL CAMPAIGN						
Energy Star CFL 15W	44.3	0.0017	816903	3.86	6	30%
Seasonal LEDs (SLEDs)	13.7	0	614431	1	5	30%
T-8 Fixtures	37.2	0.0015	18140	1	16	30%
Energy Star Lighting Fixtures	124.9	0.004	8405	1	20	30%
Baseboard Programmable Thermostats	29.6	0	18580	1	15	30%
Lighting and Appliance Control Devices	86.6	0.002	97853	1	13	30%
Power Bar with Integrated Timer	72.4	0.0077	8486	1	10	30%

APPENDIX B

B1 Summary of the VECC Calculations of CFL Savings and LRAM using the OPA 2007 EKC Program Calculator assumptions for Savings

B2 VECC Excel Workbook to estimate the impact on LRAM of the OPA EKC Program Calculator assumptions for Savings

B1 Summary of the VECC Calculations of CFL Savings and LRAM using the OPA 2007 EKC Program Calculator assumptions for Savings

Determination of the number of CFLs to which the Changed Assumptions Apply

1. The challenge posed by THESL's refusal to answer VECC's IR regarding recalculation of the savings and LRAM and SSM claim using changed assumptions to reasonably estimate the kwh savings attributable to CFLs relates to the fact that the data THESL has filed on load impacts are aggregated at a program level not an individual measure level.
2. The most complete data relate to the Enbridge TAPs program (J4 E2) However, this is a relatively small portion in terms of CFLs distributed, compared to the Mass Market Program.
3. In order to provide an estimate of the savings associated with Mass Market CFL distribution VECC has used the 2005, 2006 and 2007 Annual Reports Filed by THESL with the Board. These provide information on the number of CFLs distributed in each year, and so the carry forward savings associated with these in 2007 can be estimated.
 - 2005 Annual Report- 495,106 CFL (assumed 14/15 W) bulbs were distributed along with instructions on their best use.
 - 2006 Annual Report- 70,956 2-packs CFL (Assumed 14/15 W) bulbs distributed in the CFL Giveaway events, representing 141,912 CFL bulbs.
4. Given 100% persistence for these 2005/06 measures the contribution to 2007 savings would be

$$2007 \text{ CFL savings (kwh)} = \#units * [gross \text{ unit kwh savings/year}] * [free \text{ ridership}\%]$$

5. In 2007 the CFL component of EKC mass market measures are shown in J4 G4 as 212,972 units. THESL has assumed 6 months (50%) partial effectiveness and a free ridership of 30%. THESL has estimated the 2007 net Savings as 3,301,066 kwh. VECC agrees with this estimate.
6. Appendix B Worksheet #2 shows VECCs calculation of the Savings from CFLs for 2007 from TAPS and carry forward of CFLs distributed under Mass Market Programs in 2005 and 2006 plus the 2007 EKC CFL distribution.

Input Assumptions for Prescriptive Measures under Residential Sector Programs

Modifications made by OPA in 2007 shown in RED and underlined

Measure Description	Gross Unit kWh	Net Unit kWh	Gross Unit kW	Net Unit kW	Free Ridership	Measure Life (Yrs)	Source of Estimates	Year Estimates Applied to			
								OEB 05	OEB 06	OEB 07	OPA 07
CFL 11 W	67	61	-	-	10%	3	Page 26	√	√		
CFL 15 W	104	94	-	-	10%	4	Page 26	√	√		√
CFL 23 W	177	159			10%	4		√	√		√
<u>CFL 15 W per OPA EKC</u>	<u>44</u>	<u>32</u>			<u>30%</u>	<u>6</u>	<u>EKC Calc</u>	<u>√</u>	<u>√</u>		<u>√</u>
Energy Star Room Air Conditioner	88	79	0.090	0.081	10%	12	Page 27	√	√		√
Efficient Showerhead	545	491	0.039	0.035	10%	12	Page 26	√	√	√	√
Pipe Wrap	76	68	0.005	0.005	10%	6	Page 26	√	√	√	√
Faucet Aerator	34	30	0.002	0.002	10%	12	Page 26	√	√	√	√
Programmable Thermostat	159	143	0.163	0.147	10%	18	Page 27	√	√	√	√
Refrigerator Recycle	1,200	1,080	0.272	0.245	10%	6	Page 26	√			√
Dimmer Switch	139	125	-	-	10%	10	Page 26		√		√
Motion Detector	209	188	-	-	10%	10	Page 26		√		
Energy Star Refrigerator	74	73	0.017	0.017	1%	19	Page 26		√	√	
Energy Star Stove	55	54	-	-	1%	18	Page 26		√	√	

Not included by THESL but part of TAPS

[per OPA 2007 EKC program Calculator Reproduced in Appendix A of VECC submission](#)

* Free Ridership is from OEB's Assumptions and Measures List except for CFLs and Energy Star Refrigerator and Stove (the last two measures from above table), which are 1% according to OEB decision on Sep. 11 of 2007 on THESL's first LRAM/SSM application.

** Source of estimates is the Assumptions and Measures List from OEB's TRC Guide dated Oct. 2 of 2006. Exception CFLs (in red) which are from OPA 2007 EKC Program Calculator

Appendix B2

Residential Programs 2007 CFL Savings Calculations based on 2007 OPA EKC Program Calculator

Program	Year	#units	Gross		2007 Partial Effectiveness	Net 2007 Unit kwh	Savings KWH load	Compare THESL Kwh	Distn Rate 2007	ADJUSTED \$ LRAM	*Compare THESL \$LRAM	Difference (reduction)	Source
			Unit kwh	Free Rider									
Enbridge TAPS	2006	33,718	44.3	0.30	12	32.2	1,086,583	3,620,670	0.0155	\$16,842.03	\$56,120.39	-\$39,278.36	J4C3
	2007	10,802	44.3	0.30	6	16.1	174,050	518,755	0.0155	\$2,697.78	\$8,040.70	-\$5,342.92	J4E2
		13,596	44.3	0.30	7	18.8	255,581	761,757	0.0155	\$3,961.51	\$11,807.23	-\$7,845.73	J4E2
		700	44.3	0.30	8	21.5	15,039	448,282	0.0155	\$233.10	\$6,948.37	-\$6,715.27	J4E2
		15,720	44.3	0.30	5	13.4	211,078	629,114	0.0155	\$3,271.70	\$9,751.27	-\$6,479.56	J4E2
		11,740	44.3	0.30	8	21.5	252,219	751,736	0.0155	\$3,909.39	\$11,651.91	-\$7,742.51	J4E2
		4,728	44.3	0.30	10	26.9	126,969	378,429	0.0155	\$1,968.02	\$5,865.65	-\$3,897.63	J4E2
		15,744	44.3	0.30	9	24.2	380,520	1,134,135	0.0155	\$5,898.06	\$17,579.09	-\$11,681.04	J4E2
		284	44.3	0.30	12	32.2	9,152	27,248	0.0155	\$141.86	\$422.34	-\$280.49	J4E2
		60	44.3	0.30	6	16.1	967	2,881	0.0155	\$14.98	\$44.66	-\$29.67	J4E2
		18,804	44.3	0.30	4	10.7	201,990	42,659	0.0155	\$3,130.85	\$661.21	\$2,469.63	J4E2
		41,674	44.3	0.30	3	8.1	335,742	35,130	0.0155	\$5,204.01	\$544.52	\$4,659.49	J4E2
		192	44.3	0.30	2	5.4	1,031	3,074	0.0155	\$15.98	\$47.65	-\$31.66	J4E2
		714	44.3	0.30	3	8.1	5,752	17,145	0.0155	\$89.16	\$265.75	-\$176.59	J4E2
		Sub Total TAPS		168,476					3,056,673	8,371,015	0.0155	\$47,378.43	\$129,750.73
Mass Market													
Lighting Retrofit	2005	495,106	44.3	30%	12	32.2	15,955,084	47,530,176	0.0155	\$247,303.80	\$736,717.73	-\$489,413.93	THESL 2005 Annual Report
CFL Giveaway Events	2006	141,912	44.3	30%	12	32.2	4,573,198	13,623,552	0.0155	\$70,884.57	\$211,165.06	-\$140,280.48	THESL 2006 Annual Report
EKC 2007 Campaign	2007	212,972	44.3	30%	6	16.1	3,431,574	3,023,215	0.0155	\$53,189.40	\$53,189.40	\$0.00	THESL EKC Estimate Tab 3 of this Workbook
Sub Total Mass Market		849,990					23,959,857	64,176,943		\$371,377.78	\$1,001,072.19	-\$629,694.41	
TOTAL		1,018,466					27,016,529	72,547,958		\$418,756.20	\$1,130,822.92	-\$712,066.72	

*For TAPs values are from THESL Worksheet reproduced at TAB 4 of this Workbook.

For Mass Market values are based on Units Distributed as reported in the 2005 and 2006 Annual Reports
Mass Market CFL Savings in Column I lines 20 and 21 are calculated based on 96 kwh/yr per bulb

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Every Kilowatt Counts kWh SAVINGS CALCULATION

Completion Month	Completion Year	Project/Location	Freeridership %	Annual kWh Savings as per OEB (net)	Annual kWh Savings as per OPA EKC Calculator (net)	# of Participants	Total # of Completion Months to the End of 2007	Total kWh Savings to the End of 2007	Total kWh Savings to the End of 2007	kWh Savings Associated with 2006 Rates	kWh Savings Associated with 2007 Rates	kWh Savings Associated with 2007 Rates	Total kWh Savings to the End of 2007 (Gross of Freeriders)
6	2007	Ceiling Fans	30%	72	72	2,336	6	84,096		-	84,096		120,137
6	2007	CFL's	30%	31		212,972	6	3,301,066		-	3,301,066		4,715,809
6	2007	Dimmer Switch	30%	17		3,406	6	28,951		-	28,951		41,359
6	2007	Furnace Filters	30%	74		3,170	6	117,290		-	117,290		167,557
6	2007	Outdoor Motion Sensors	30%	113		3,146	6	177,749		-	177,749		253,927
6	2007	Outdoor Solar Lights	30%	7		43,414	6	151,949		-	151,949		217,070
Total									3,861,101	-	3,861,101		5,515,859

TAPS kWh SAVINGS CALCULATION

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Completion Month	Completion Year	Measure	Free Ridership %	Annual kWh Savings as per OEB (net)	# of Measures	Total # of Completion Months to the End of 2007	Total kWh Savings to the End of 2007	kWh Savings Associated with 2006 Rates	kWh Savings Associated with 2007 Rates	Total kWh Savings to the End of 2007 (Gross of Freeriders)	Additional kWh Savings Associated with 2006 Rates
11	2006	Efficient Showerheads	10%	491	157	12	77,087	25,696	51,391	85,652	6,424
11	2006	Pipewrap	10%	68	149	12	10,132	3,377	6,755	11,258	844
11	2006	Programable Thermostats	10%	1,320	32	12	42,240	14,080	28,160	46,933	3,520
11	2006	CFLs - 14 watt	10%	96	13,556	12	1,302,027	434,009	868,018	1,446,696	108,502
11	2006	CFLs - 23 watt	10%	161	120	12	19,293	6,431	12,862	21,437	1,608
11	2006	CFLs - 14 watt	10%	96	13,556	12	1,302,027	434,009	868,018	1,446,696	108,502
11	2006	CFLs - 23 watt	10%	161	120	12	19,293	6,431	12,862	21,437	1,608
11	2006	Aerators	10%	30	322	12	9,660	3,220	6,440	10,733	805
4	2006	Efficient Showerheads	10%	491	1	12	491	164	327	546	327
5	2006	Efficient Showerheads	10%	491	2	12	982	327	655	1,091	573
6	2006	Efficient Showerheads	10%	491	1	12	491	164	327	546	246
7	2006	Efficient Showerheads	10%	491	2	12	982	327	655	1,091	409
8	2006	Efficient Showerheads	10%	491	6	12	2,946	982	1,964	3,273	982
9	2006	Efficient Showerheads	10%	491	23	12	11,293	3,764	7,529	12,548	2,823
4	2006	CFLs - 14 watt	10%	96	4	12	384	128	256	427	256
6	2006	CFLs - 14 watt	10%	96	2	12	192	64	128	213	96
6	2006	CFLs - 23 watt	10%	161	2	12	322	107	214	357	161
4	2006	Pipewrap	10%	68	1	12	68	23	45	76	45
5	2006	Pipewrap	10%	68	2	12	136	45	91	151	79
6	2006	Pipewrap	10%	68	1	12	68	23	45	76	34
7	2006	Pipewrap	10%	68	2	12	136	45	91	151	57
8	2006	Pipewrap	10%	68	6	12	408	136	272	453	136
9	2006	Pipewrap	10%	68	14	12	952	317	635	1,058	238
4	2006	Aerators	10%	30	4	12	120	40	80	133	80
5	2006	Aerators	10%	30	4	12	120	40	80	133	70
6	2006	Aerators	10%	30	2	12	60	20	40	67	30
7	2006	Aerators	10%	30	4	12	120	40	80	133	50
8	2006	Aerators	10%	30	12	12	360	120	240	400	120
9	2006	Aerators	10%	38	34	12	1,292	431	861	1,436	323
4	2006	CFLs - 14 watt	10%	(96)	336	12	(32,272)	(10,757)	(21,515)	(35,858)	(21,515)
4	2006	CFLs - 14 watt	10%	(96)	336	12	(32,272)	(10,757)	(21,515)	(35,858)	(21,515)
4	2006	Efficient Showerheads	10%	(491)	15	12	(7,365)	(2,455)	(4,910)	(8,183)	(4,910)
4	2006	Pipewrap	10%	(68)	16	12	(1,088)	(363)	(725)	(1,209)	(725)
4	2006	Aerators	10%	(30)	32	12	(960)	(320)	(640)	(1,067)	(640)
12	2006	Efficient Showerheads	10%	491	269	12	132,079	44,026	88,053	146,754	-
12	2006	Pipewrap	10%	68	240	12	16,320	5,440	10,880	18,133	-
12	2006	Programable Thermostats	10%	1,320	9	12	11,880	3,960	7,920	13,200	-
12	2006	CFLs - 14 watt	10%	96	20,162	12	1,936,520	645,507	1,291,013	2,151,689	-
12	2006	CFLs - 23 watt	10%	161	426	12	68,491	22,830	45,660	76,101	-
12	2006	CFLs - 14 watt	10%	96	20,162	12	1,936,520	645,507	1,291,013	2,151,689	-
12	2006	CFLs - 23 watt	10%	161	426	12	68,491	22,830	45,660	76,101	-
12	2006	Aerators	10%	30	488	12	14,640	4,880	9,760	16,267	-

Total		6,914,664	2,304,888	4,609,776	7,682,960	189,644
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