

Norfolk Power Distribution Inc.
Response to Interrogatory from Vulnerable Energy Consumers Coalition

VECC IR# 1

References:

References: Exhibit 1 Page 5 and Indeco Report page 3-4 and Tables 1& 2

- a) When (year and date) did the OPA change its Input assumptions (unit savings and free ridership) for CFLs under the Every Kilowatt Counts Campaigns?
- b) What persistence factors have been applied to the LRAM for 2006 EKC programs and Measures, specifically CFLs?
- c) For SSM calculations what savings and lifetime estimates have been used for CFLs installed in 2006?
- d) If for example for 15w CFLs 104 kwh/yr and 4 years have been used, then recalculate the Residential and GS<50 kw SSM for all CFLs using 44 kwh and 8 years as the input assumptions.

Response:

a)

There are two sources of unit energy savings and free ridership for CFLs under the EKC programs:

- Published measures and assumptions values, beginning with the OEB's Total Resource Cost Guide, until the OPA's 2010 Prescriptive Measures and Assumptions report
- Reported program results for the EKC program, which included early [draft] estimates of savings distributed by the OPA in March 2007 until final results for 2006 through 2009 distributed in December 2010. These were only ever provided after the program was delivered, not before.

Both sources show different unit energy savings in each year, though in some cases they are not directly comparable since the EKC program results appear to be a mix of different types of bulbs (e.g. 11W, 13W, 15W, etc.). There are significant changes in the unit energy savings from 2006 (104 kWh/a) to 2007 (43-44 kWh/a) reflecting a drop in the number of hours the bulb is assumed to be used per day. In the EKC results for 2009, but not in the OPA *2010 Predictive Measures and Assumptions* report, unit savings are again lower (23-25 kWh/a). One would expect that bulbs would be replaced in high-use

applications first, so that the average use per bulb would decrease as more and more bulbs are replaced with CFLs.

For free riders, the OEB TRC Guide showed an assumed rate of 10% for CFLs. Free ridership is not provided for CFLs in the various versions of the OPA's Measures and Assumptions reports. The free rider rates for CFLs in the reported results for the EKC program are different in every year of the program and for different bulb types and are measured results (not assumptions).

b)

Persistence factors of 100% were applied to the 2006 EKC programs and measures, including CFLs. This is consistent with the program-specific persistence factors contained in the 2006-2009 Final OPA program results provided by the OPA.

c)

The savings and lifetime assumptions that were used for SSM calculations associated with CFLs installed in 2006 are provided in the table below.

The savings and measure life associated with the CFLs in the 2006 Energy Audits for Major Customers program are based on the difference in wattage between a 60 W incandescent and a 15 W CFL, as well as the measure life of a bulb (8000 hours) and the number of hours that the bulbs are on per day. The number of hours that the bulbs are on was determined through audit inspections performed in 2006, and verified by IndEco via a telephone survey in August 2010.

The savings and measure life associated with the CFLs in the 2006 EKC campaigns and giveaway are the input assumptions in place in the year immediately preceding the introduction of the programs, as provided by the OEB Total Resource Cost Guide revised October 2, 2006.

Program	Measure	Daily hours of operation	Energy (kWh/a)	Measure life
2006 Energy Audits for Major Customers	15W CFL	10	140	3
2006 Energy Audits for Major Customers	15W CFL	4	56	6
2006 Energy Audits for Major Customers	15W CFL	24	337	1
2006 Energy Audits for Major Customers	15W CFL	3	42	9
2006 Energy Audits for Major Customers	15W CFL	3	42	9
2006 Energy Audits for Major Customers	15W CFL	3	42	9
2006 Energy Audits for Major Customers	15W CFL	18	253	1
2006 Energy Audits for Major Customers	15W CFL	18	253	1
2006 Energy Audits for Major Customers	15W CFL	8	112	3
2006 Energy Audits for Major Customers	15W CFL	8	112	3
2006 Energy Audits for Major Customers	15W CFL	8	112	3
2006 Energy Audits for Major Customers	15W CFL	8	112	3
2006 Energy Audits for Major Customers	15W CFL	8	112	3
2006 CFL Education and Giveaway	15W CFL	6.4	104	4
2006 Every Kilowatt Counts - Fall	Energy Star® CFL	6.4	104	4
2006 Every Kilowatt Counts - Spring	Energy Star® CFL	6.4	104	4

d)

The SSM claim would be \$45,391 if 44 kWh and a measure life of 8 years for CFLs installed in the residential and GS<50kW classes in 2006 were the appropriate technology assumptions.

Rate class	SSM
Residential	\$31,628

General Service < 50 kW	\$253
General Service > 50 kW	\$13,510
Total	\$45,391

However, savings of 44 kWh and a measure life of 8 years is consistent with neither the actual, verified results of the 2006 program from the OPA evaluation, nor with the CDM Guidelines' instruction that input assumptions for SSM should be those available in the year immediately preceding the program. The savings estimates VECC requested be used in the recalculation were first made available in the OPA 2008 Measures and Assumptions list released in February 2008, and are therefore not relevant to the SSM calculation for the 2006 program. The SSM claim of \$52,336 as filed is the appropriate value.

VECC IR#2

References:

References: Tab 7 IndEco Report page 5 and Appendix A Table 12

Preamble:

IndEco finds that appropriate measure specifications were used to calculate program energy savings. For the calculation of LRAM claims, values provided by the 2010 OPA Measures and Assumptions list were used for prescriptive measures (OPA 2010a).

- a) For LRAM the OEB Guidelines and Policy Letter of January 27, 2009 Specify that

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...

Confirm/discuss how the claim is in conformity with this Guideline.

- b) Confirm the Input Assumptions used by IndEco for the following 3rd tranche CDM programs:

- Lighten Your Electricity Bill 2005 A/C Indoor Timer
- Residential EKC 2006 and 2007-- list of measures, # units and unit kwh savings, lifetime and free ridership for each of 2009-2010.
Note 2006-2007 EKC is listed as third tranche
- The Water Heater Replacement Program –replacement of 40 and 60-gallon electric water heaters

- c) For each of the above measures in the current claim, provide the comparable input values from the OPA 2010 Mass Market Measures and Assumptions List.
- d) For the Water Heater Replacement Program provide the comparable Enbridge Gas Distribution Board-approved gas and electricity savings estimates.
- e) Provide a comparison table for NPI and EGD estimates.
- f) Confirm the replacement units were all gas or indicate how many of the replacement units were gas and how many electric.
- g) Explain why gas water heater conversion is an eligible CDM measure and provide examples/precedents where this measure has been approved by the OEB.

Response:

a)

The claim is in conformity with this Guideline. It uses the best available input assumptions for each measure of each program. In some cases, input values for a particular measure 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
2. Information or results from a third-party evaluation of the specific program
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 a specific technology installation
5. Information from the OPA's most current measures and assumptions lists
6. Information from earlier OPA measures and assumptions lists
7. Information from the OEB's TRC guide list of measures and assumptions.

Where there is a program specific evaluation or results from a site-specific assessment, as there is for the programs evaluated by the OPA and for the 2005 and 2006 Energy Audits for Major Customers programs, respectively, that information provides more specific and appropriate input values than the generic ones in the measures and assumptions lists.

The OPA provided evaluated results for the OPA-funded programs, and for the 2006 and 2007 Every Kilowatt Counts programs that were offered by NPDI in partnership with the OPA. As noted by the OPA, the results are in accordance with OPA practices and policies for reporting progress against the provincial conservation goals. The use of these results in this way for LRAM calculations is appropriate and has been accepted by both

Board Staff in its submissions and the Board itself in several decisions, including that on Burlington Hydro (EB-2010-0067; Decision and Order, March 17, 2011) in which this use of the OPA results is explicitly addressed.

The 2005 and 2006 Energy Audits for Major Customers program LRAM inputs are those for custom measures not found on any OPA measures and assumptions lists, or are values (such as operating hours, equipment cost and energy savings) derived from audit inspections, customer-specific usage and a follow-up telephone survey of the participants conducted in August 2010.

b)

The input values used to calculate LRAM claims for the requested programs are found in the table below. The same values were used for both 2009 and 2010.

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Gross energy savings (kWh/a)
2005 Lighten Your Electricity Bill	Indoor Timer for AC	7	20	30%	109
2006 EKC	Energy Star® CFL	4,652	4	10%	104
2006 EKC	Electric Timers	130	20	10%	183
2006 EKC	PStats	57	15	10%	216
2006 EKC	Energy Star® Ceiling Fans	43	20	10%	141
2006 EKC	Energy Star® CFL	6,898	4	10%	104
2006 EKC	SLED	1,660	30	10%	31
2006 EKC	PStat	109	18	10%	522
2006 EKC	Dimmers	87	10	10%	139
2006 EKC	Indoor Motion Sensors	31	20	10%	209
2006 EKC	Baseboard PStats	7	18	10%	1,466
2007 EKC	15 W CFL	8,241	8	22%	43
2007 EKC	20 W+ CFLs	1,342	8	22%	62
2007 EKC	Project Porchlight CFLs	1,734	8	24%	43
2007 EKC	Energy Star Ceiling Fan	66	10	45%	90
2007 EKC	Furnace Filter	268	1	45%	38
2007 EKC	Solar Lights	1,058	5	87%	33
2007 EKC	Outdoor Motion Sensor	106	10	45%	160
2007 EKC	Dimmer Switch	67	10	45%	24

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Gross energy savings (kWh/a)
2007 EKC	Energy Star Light Fixtures	32	16	45%	123
2007 EKC	SLEDs	2,183	5	51%	14
2007 EKC	T8	63	18	23%	37
2007 EKC	PStat	65	15	45%	75
2007 EKC	Power Bar with Timer	29	10	23%	72
2007 EKC	Lighting Control Devices	339	10	45%	72
2005 Water Heater Replacement Program	40 Gallon Efficient Tanks	104	13	0%	219
2005 Water Heater Replacement Program	60 Gallon Efficient Tanks	24	13	0%	210
2005 Water Heater Replacement Program	40 Gallon Efficient Tanks	84	13	0%	219
2005 Water Heater Replacement Program	60 Gallon Efficient Tanks	19	13	0%	210

c)

The table below shows a list of input values for the requested measures taken from the OPA 2010 Prescriptive Measures and Assumptions report. The 2010 OPA Prescriptive Measures and Assumptions report does not provide free-rider rates.

The final OPA results of the evaluations of the 2006 and 2007 EKC program provide little or no information on the measures found within these programs. Consequently, for some measures, particularly programmable thermostats, it is difficult to respond to VECC's IR #2c to compare the inputs used with the values in the OPA 2010 Prescriptive Measures and Assumptions report. Assumptions had to be made on the basis of the limited information provided in the OPA results for the program, and the measures found in the Measures and Assumptions report. We do not have confidence in considering the input values listed below as being comparable to the inputs used in the claim, and consider the values from the OPA evaluation used in the claim to be more meaningful than the assumed values from the Measures and Assumptions report.

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Gross energy savings (kWh/a)
2005 Lighten Your Electricity Bill	Indoor Timer for AC	7	NA	NA	NA
2006 EKC	Energy Star® CFL	4,652	8	NA	44

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Gross energy savings (kWh/a)
2006 EKC	Electric Timers	130	10	NA	144
2006 EKC	PStats*	57	11	NA	203
2006 EKC	Energy Star® Ceiling Fans	43	10	NA	123
2006 EKC	Energy Star® CFL	6,898	8	NA	44
2006 EKC	SLED	1,660	5	NA	14
2006 EKC	PStat*	109	11	NA	2,151
2006 EKC	Dimmers	87	10	NA	24
2006 EKC	Indoor Motion Sensors	31	10	NA	64
2006 EKC	Baseboard PStats*	7	11	NA	63
2007 EKC	15 W CFL	8,241	8	NA	44
2007 EKC	20 W+ CFLs	1,342	8	NA	63
2007 EKC	Project Porchlight CFLs	1,734	8	NA	44
2007 EKC	Energy Star Ceiling Fan	66	10	NA	123
2007 EKC	Furnace Filter	268	1	NA	34
2007 EKC	Solar Lights	1,058	5	NA	5
2007 EKC	Outdoor Motion Sensor	106	10	NA	159
2007 EKC	Dimmer Switch	67	10	NA	24
2007 EKC	Energy Star Light Fixtures	32	16	NA	166
2007 EKC	SLEDs	2,183	5	NA	14
2007 EKC	T8	63	18	NA	28
2007 EKC	PStat*	65	11	NA	63
2007 EKC	Power Bar with Timer	29	10	NA	53
2007 EKC	Lighting Control Devices	339	10	NA	107
2005 Water Heater Replacement Program	40 Gallon Efficient Tanks	104	NA	NA	NA
2005 Water Heater Replacement Program	60 Gallon Efficient Tanks	24	NA	NA	NA
2005 Water Heater Replacement Program	40 Gallon Efficient Tanks	84	NA	NA	NA

Program	Energy Efficient Measure	Units	Measure life	LRAM Free Ridership	Gross energy savings (kWh/a)
2005 Water Heater Replacement Program	60 Gallon Efficient Tanks	19	NA	NA	NA

* Note: as discussed above, it is not clear that the values from the OPA 2010 Prescriptive Measures and Assumptions report correspond to the technologies reported on in the OPA results for the Every Kilowatt Counts program.

d)

Enbridge Gas does not have board-approved electricity and gas savings for a comparable program to the water heater replacement program. The water heater replacement program replaced older residential electric hot water heaters with new, more efficient electric models. It was not a program that replaced electric hot water heaters with gas hot water heaters.

Enbridge Gas also does not have board-approved electricity and gas savings for a gas water heater conversion program since this type of program would be considered load building for Enbridge, and not DSM.

e)

As Enbridge does not have board-approved electricity and gas savings for a comparable program to the water heater replacement program, a comparison table cannot be prepared.

f)

All the replacement units were newer, more efficient electric hot water heaters. None of the replacement heaters were gas-fired.

g)

Fuel switching was identified by the Minister of Energy in his letter to LDCs of May 31, 2004 as an appropriate component of CDM. However, since the program was not a gas water heater conversion program, VECC IR question #2 g is not applicable to Norfolk Power.