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March 1, 2010

Delivered by Courier

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

Attention: Kirsten Walli
Board Secretary

Re: North Bay Hydro Distribution Limited (EB-2009-270)
2010 Electricity Distribution Rate (Cost of Service) Application
Responses to 2nd Round Supplemental Interrogatories

Dear Ms. Walli:

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

In accordance with Procedural Order No. 2, two hard copies of this submission will be sent via courier. An electronic copy of the submission in PDF format will be submitted through the Ontario Energy Board's Regulatory Electronic Submission System.

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

Energy Probe

- a) David MacIntosh, Energy Probe
- b) Randy Aiken, Aiken & Associates

Donald Rennick

- a) Donald Rennick, Independent Participants

School Energy Coalition

- a) John De Vellis, Shibley Righton LLP
- b) Wayne McNally, Ontario Education Services Corporation

Vulnerable Energy Consumers Coalition

- a) Michael Buonaguro, Public Interest Advocacy Centre
- b) William Harper, Econalysis Consulting Services Inc.

These responses are respectfully submitted for the Board's review and consideration.

Sincerely,

Original signed by

Cindy Tennant
Finance Manager
North Bay Hydro Distribution Limited
(705) 474-8100 (310)

**NORTH BAY HYDRO DISTRIBUTION LTD.
 2010 RATE APPLICATION
 EB-2009-0270
 BOARD STAFF INTERROGATORIES 2nd ROUND**

28. Affiliate Transactions

Ref: Board Staff Interrogatory Response # 14 (page 20 of 104)

The response modifies Table 4-19 ‘Summary of Affiliate Products and Services’, increasing NBHDL’s cost of labour to provide various services to its affiliate NBHS, increasing from \$180,304 to \$254,263. The Management Fee remains unchanged at \$39,349.

Please confirm that this change does not affect either NBHDL’s revenue requirement or its revenue offset, and therefore does not warrant an entry in the summary table provided in response to Board staff # 27.

Response:

North Bay Hydro confirms that this change does not affect either NBHDL’s revenue requirement or its revenue offset, and therefore does not warrant an entry in the summary table provided in response to Board staff #27. The error made was in compiling the summary table not in the calculation of the Management Fee. The table below demonstrates that with the original submission of \$188,368 for purchases and contract services that a Management Fee of \$39,349 would represent a 21% management fee not the required 15%. The table also demonstrates that with the revised \$252,327 of purchases and contract services the Management Fee of \$39,349 represents the correct 15%.

Table 4-19 Summary of Affiliated Products and Services

Product & Services Provided	Activity	Original Submission 2010 Test	2010 Test Year	Pricing Methodology
From To				
NBHDL NBHS	Loan Interest	-	-	5% on principle balance as per loan agreement
NBHDL NBHS	Purchases	8,064	8,064	Cost of materials/contractor fees
NBHDL NBHS	Contract Services	180,304	254,263	Cost of labour as per time sheets plus burdens, billing services, rent, Human Resources and IT services
Total		188,368	262,327	
NBHDL NBHS	Management Fee	39,349	39,349	15% of purchase and contract services
% of Total Services		21%	15%	

29. Revenue to Cost Ratios after

Ref: SEC Interrogatory Response # 25

NBHDL has responded that it intends to make further adjustments to the revenue to cost ratios in the period following 2010.

- a. Please confirm that NBHDL intends to propose revenue to cost ratios in 2012 that would be at least at the lower boundary of the Board's policy range, for the four classes GS 3000-5000 kW, Street Lighting, Sentinel Lighting, and USL.

Response:

NBHDL confirms that NBHDL intends to propose revenue to cost ratios in 2012 that would be at least at the lower boundary of the Board's policy range, for the three classes GS 3000-5000 kW, Street Lighting and Sentinel Lighting.

The proposed changes to the USL class as referenced in Board Staff question # 27 move the revenue to cost ratios to 100.03% - there will be no additional changes to the cost structure of this class.

- b. If the response to part (a) is affirmative, please provide a preliminary proposal for the revenue to cost ratios of the two classes GS<50 kW and GS>50 kW in 2012. (As a suggested approach, provide an adapted version of Table 7-2 '2010 Cost Allocation Study' such that the 2010 hypothetical revenue from the four classes would yield the lower boundary ratio, and then calculate hypothetical lower revenues from the two classes in the second-from-right column and show the resulting lower ratios in the right-most column.)

Response:

The preliminary proposal for the revenue to cost ratios of the two classes GS<50 kW and GS>50 kW in 2012 are 109.1% for each class.

30. Unmetered Scattered Load Rates

Ref: Board Staff Interrogatory Response # 17c (p. 25 of 104)

NBHDL has provided a calculation showing that the impact on its actual USL customers

- a. Why is the 2010 bills calculated using a volumetric rate of \$0.0165 per kWh whereas the proposed rate is \$0.0221 per kWh (ref: Exhibit 8, p. 7, Table 8-9)?

Response:

Upon further review of the impact table for USL connections, it has been determined that a more appropriate bill impact should compare 2009 current rates to 2010 proposed rates. In addition, this bill impact should reflect the revised submission of January 28, 2010.

The following comparisons provide both the change in fixed and variable rates as well as the total overall bill impact to the customer:

Unmetered Scattered - Monthly Bill Impact - Customer with Most Connections										
		2009 Bill-Customer			2010 Bill-Connection			Impact		
		Volume	RATE \$	CHARGE \$	Volume	RATE \$	CHARGE \$	\$	%	% of Total Bill
Consumption	Monthly Service Charge			21.75	56	7.3748	412.99	391.24	1,798.80%	14.82%
20,000 Avg. kWh (Mth.)	Distribution (kWh)	20,000	0.0139	278.00	20,000	0.0171	342.00	64.00	23.02%	12.27%
56 # of connections	LRAM & SSM Rider (kWh)	20,000	0.0000	0.00	20,000	0.0024	48.00	48.00		1.72%
	Regulatory Assets (kW)	20,000	0.0000	0.00	20,000	0.0003	5.20	5.20		0.19%
	Sub-Total - Distribution			299.75			808.19	508.44	169.62%	29.01%
	RT SR - Network	20,773	0.0048	99.71	20,960	0.0049	102.14	2.43	2.44%	3.67%
	RT SR - Connection	20,773	0.0042	87.25	20,960	0.0043	90.40	3.16	3.62%	3.24%
	Sub-Total - Delivery			486.71			1,000.73	514.02	105.61%	35.92%
	Wholesale Market Rate	20,773	0.0065	135.02	20,960	0.0065	136.24	1.22	0.90%	4.89%
	DRC	20,000	0.0070	140.00	20,000	0.0070	140.00	0.00	0.00%	5.02%
	Cost of Power Commodity (kWh)	750	0.0570	42.75	750	0.0570	42.75	0.00	0.00%	1.53%
	Cost of Power Commodity (kWh)	20,023	0.0660	1,321.52	20,210	0.0660	1,333.88	12.36	0.94%	47.87%
	Sub-Total - Other Charges			2,126.00			2,653.60	527.60	24.82%	95.24%
	GST		5.00%	106.30		5.00%	132.68	26.38	24.82%	4.76%
	TOTAL BILL			2,232.30			2,786.28	553.98	24.82%	100.00%

Unmetered Scattered - Monthly Bill Impact - Customer with Least Connections										
		2009 Bill-Customer			2010 Bill-Connection			Impact		
		Volume	RATE \$	CHARGE \$	Volume	RATE \$	CHARGE \$	\$	%	% of Total Bill
Consumption	Monthly Service Charge			21.75	1	7.3748	7.37	(14.38)	(66.09%)	14.47%
400 kWh	Distribution (kWh)	400	0.0139	5.56	400	0.0171	6.84	1.28	23.02%	13.42%
1 # of connections	LRAM & SSM Rider (kWh)	400	0.0024	0.96	400	0.0024	0.96	0.00	0.00%	1.88%
	Regulatory Assets (kW)	400	0.0003	0.10	400	0.0003	0.10	0.00	0.00%	0.20%
	Sub-Total - Distribution			28.37			15.28	(13.10)	(66.15%)	29.97%
	RT SR - Network	415	0.0049	2.02	419	0.0049	2.04	0.02	0.90%	4.01%
	RT SR - Connection	415	0.0043	1.79	419	0.0043	1.81	0.02	0.90%	3.55%
	Sub-Total - Delivery			32.19			19.13	(13.06)	(40.57%)	37.53%
	Wholesale Market Rate	415	0.0065	2.70	419	0.0065	2.72	0.02	0.90%	5.35%
	DRC	400	0.0070	2.80	400	0.0070	2.80	0.00	0.00%	5.49%
	Cost of Power Commodity (kWh)	415	0.0570	23.68	419	0.0570	23.89	0.21	0.90%	46.87%
	Cost of Power Commodity (kWh)	0	0.0660	0.00	0	0.0660	0.00	0.00	0.00%	0.00%
	Sub-Total - Other Charges			61.37			48.55	(12.82)	(20.89%)	95.24%
	GST		5.00%	3.07		5.00%	2.43	(0.64)	(20.89%)	4.76%
	TOTAL BILL			64.44			50.98	(13.46)	(20.89%)	100.00%

- b. Please confirm that the volumetric rate of \$0.0165 would maintain the existing fixed:variable ratio (consistent with Exhibit 8, p. 4, l. 20), whereas the rate of \$0.0221 would reduce the fixed:variable ratio compared to the status quo.

Response:

NBHDL confirms that the volumetric rate of \$0.0165 would maintain the existing fixed: variable ratio (consistent with Exhibit 8, p. 4, l. 20), whereas the rate of \$0.0221 would reduce the fixed: variable ratio compared to the status quo.

- c. Please clarify which volumetric rate NBHDL is applying for.

Response:

Based on the revised submission of January 28, 2010, NBHDL is requesting a volumetric rate of \$0.0171 and a fixed service rate of \$7.3748 per connection for the USL rate class.

31. Unmetered Scattered Load Bill Impacts

Ref: Board Staff Interrogatory Responses # 17c and # 27

NBHDL has provided a calculation in response to # 17 that shows that, if the monthly service charge were calculated per connection, the impact on its USL customer with 56 connections would be 16.54% higher than continuing the charge on a per customer basis.

- a. Please confirm that the impact of 16.54% provided in the interrogatory response is in addition to the impact on all USL customers of approximately 13% (*ref: Exhibit 8, p. 24*).

Response:

Based on the response to Question # 30, part a) above, the total bill impact on the customer with the most connections will be 24.82%. All other customers within this class will experience a total bill impact reduction of 20.89%.

- b. In its response to # 27, NBHDL includes a change to the per-connection monthly service charge. If the impact on this customer is approximately 29%, as posited in part a, does NBHDL intend to implement this change in 2010 or at some later time, say after the inter-class re-balancing has been completed?

Response:

As referenced in Question # 29, part a) changes to the USL class for connection vs. customer will put revenue to cost ratios at 100% thereby not requiring any inter-class re-balancing. NBHDL intends to implement this change in 2010; however, NBHDL will be taking proactive steps to review each connection in this class by undertaking a USL load study. NBHDL will be working directly with the customers to transfer this load over to existing or new meters where possible.

32. Low Voltage Cost

Ref: Board Staff Interrogatory Response # 19b, and Exhibit 9, p. 13

NBHDL’s response to interrogatory # 19b includes information on several variance and deferral accounts, which has no apparent relationship to NBHDL’s cost of Low Voltage service from Hydro One. Most but not all of the same accounts are included in the lists of accounts that will be disposed of by means of the LRAM/SSM rate rider in Exhibit 9.

- a. Please explain the purpose of including information on Regulatory Assets in the response to #19b.

Response:

NHBDL interpreted the Board Staff question to be a calculation of NBHDL’s annual LV cost consisting of Hydro One’s service charge, the ST Common Line rate, and the regulatory rate riders with the removal of Rate Rider #4.

- b. Please provide an estimate of NBHDL’s Low Voltage cost, continuing to exclude the Hydro One Rate Rider # 4, and also excluding the effect of the Regulatory Assets.

Response:

The table below provides an estimate of NBHDL’s Low Voltage cost, continuing to exclude the Hydro One Rate Rider #4, and also excluding the effect of the Regulatory Assets.

	kW	Rate (w/o rate riders)	Rate Rider #4	Rate Excluding Rate Rider #4	Annual Cost
Service Charge (3 points)		\$ 118.14	\$ (65.78)	\$ 183.92	\$ 6,621.12
Common Charge	36,475.21	\$ 0.35	\$ (0.20)	\$ 0.55	\$ 20,061.37
				Total	\$ 26,682.49

33. Low Voltage Rate Adder

Ref: Board staff Interrogatory Response # 19b, and Exhibit 8, Table 8-8

NBHDL states that it will seek approval of a rate adder to 5 decimals.

- a. Please confirm that the Low Voltage kWh rate adder would be the only five-decimal rate in NBHDL's tariff, and that the reason for seeking approval is five decimals is that the Low Voltage Rate Adder rounds down to 0.0000 with four decimals.

Response:

NBHDL confirms that the Low Voltage kWh rate adder would be the only five-decimal rate in NBHDL's tariff, and that the reason for seeking approval to five decimals is that the Low Voltage Rate Adder rounds down to \$0.0000 with four decimals.

- b. Please confirm that if Low Voltage cost were calculated using Hydro One ST rates without its Rate Rider # 4 (as is done in response to #19b), the four-decimal rate adder would round to \$0.0001 per kWh.

Response:

NBHDL confirms that if Low Voltage cost were calculated using Hydro One ST rates without its Rate Rider # 4, the four-decimal rate adder would round to \$0.0001 per kWh.

- c. Given that a Low Voltage revenue shortfall or surplus may be recorded in Variance Account 1550, and that Hydro One's Rate Rider # 4 will likely terminate before NBHDL's next rate re-basing, does NBHDL continue to propose a five-decimal rate adder rather than \$0.0001 per kWh?

Response:

If the Board is proposing removal of Rate Rider #4 then NBHDL would not continue to propose a five decimal rate adder.

Hydro One's Rate Rider #4 was effective February 2009 and will terminate April 2011. Calculating Low Voltage Cost using Hydro One ST rates without its Rate Rider #4 also changes the rate adders for classes with the volumetric rate based on kW. Low Voltage costs would change from \$21,565 to

\$31,528; an increase of \$9,963. The following schedule shows the adjusted Low Voltage cost as well as the rates without Rate Rider #4

Customer Class	LV Adj. Allocated	Calculated kWh	Calculated kW	Volumetric Rate Type	LV/ Adj. Rates/kWh	LV Adj. Rates/ kW
Residential	12,317.49	214,191,103	0	kWh	0.0001	
GS < 50 kW	4,354.07	84,727,250	0	kWh	0.0001	
GS >50	12,962.12	220,909,973	636,802	kW		0.0204
General Service > 3000 to 4999 kW	1,733.07	40,318,944	77,038	kW		0.0225
0						
Sentinel Lights	22.67	516,493	1,411	kW		0.0161
Street Lighting	121.19	2,737,123	7,702	kW		0.0157
USL	17.36	337,792	0	kWh	0.0001	
0						
TOTALS	31,527.97	563,738,678	722,953			

34. Monthly Service Charges

Ref: Mr. Rennick *Interrogatory Response # 31*

The response to Mr. Rennick's interrogatory indicates that the service charge would vary depending on how many days have passed since the previous bill. Toronto Hydro's 2009 residential tariff reads in part as follows (emphasis added):

Service Charge	\$ 16.85	(per 30 days)
Smart Meter Rate Rider	\$ 0.68	(per 30 days)
Smart Meter Rate Rider 1 (effective until April 30, 2010)	\$ (0.09)	(per 30 days)
Smart Meter Rate Rider 2 (effective until April 30, 2010)	\$ 0.06	(per 30 days)

Would it be a more accurate reflection of NBHDL's practice if the format of its tariff were changed to resemble the Toronto Hydro example? If not, please explain.

Response:

It would be a more accurate reflection of NBHDL's practice if the format of its tariff were changed to resemble the Toronto Hydro example.

35. Regulatory Asset Recovery

Ref: Board Staff Interrogatory Responses #23b and # 24

The response provides the information that, within the GS 50-2999 kW class, the billing demand of non-RPP customers is 548,923 kW, compared to the total class billing demand of 636,802. Exhibit 9, Table 9-9 shows that the total amount of Deferral and Variance Accounts allocated to this class is \$287,402, and that the amount of the Global Adjustment Sub-account allocated to the class is \$311,394.

- a. Please confirm that the allocation to the GS 50-2999 kW class excluding the Global Adjustment would be \$(23,992), and that a rate rider based on excluding the Global Adjustment would be a rebate to all customers of approximately (\$0.0377) per kW.

Response:

NBHDL confirms that the allocation to the GS 50-2999 kW class excluding the Global Adjustment would be \$(23,992), and that a rate rider based on excluding the Global Adjustment would be a rebate to all customers of approximately (\$0.0377) per kW.

- b. Please confirm that a rate rider of approximately \$0.5296 to non-RPP customers, together with a rebate of \$0.0377 to RPP customers, would recover the total amount allocated to this class.

Response:

NBHDL confirms that a rate rider of approximately \$0.5296 to non-RPP customers, together with a rebate of \$0.0377 to RPP customers, would recover the total amount allocated to this class.

- c. The response to #24b states that NBHDL does not have the billing capacity to have two rate riders by class. Please provide an explanation of whether a manual adjustment to RPP customer bills would be a feasible means of recovery from the RPP and non-RPP customers that would effectively reflect different rate riders.

Response:

NBHDL is researching with our billing software service provider to determine feasibility of rate riders by class. At this point NBHDL is not able to confirm whether this is feasible or what the cost might be to make any necessary upgrades.

A manual adjustment to RPP customer bills would not be a feasible means of recovery from the RPP and non-RPP customers since NBHDL has approximately 20,500 RPP customers and billing is done on a monthly basis.

36. Calculation of Revenue Deficiency

Ref: Energy Probe Interrogatory Response # 11 (b) and (d)

The geometric mean growth rates in the revised versions of Tables 3-11 and 3.14 are all equal to or lower than the arithmetic means in the original tables of the Application. However, in the revised version of Table 6-1 'Calculation of Revenue Deficiency or Surplus' in the response to 11(d), the revenue from the existing rates X the load forecast amounts, @ \$9,991,868, is larger than the original amount or \$9,978,566.

Please explain whether some factor other than the growth rates calculated in part (b) of the interrogatory are responsible for the increase in revenue at existing rates.

Response:

An adjustment factor is included in the load forecast model that adjusts weather actual to weather normal. Based on the changes to geometric mean, the required adjustment for weather normalization for kWh was substantially lower resulting in increased kWh for the weather sensitive classes; residential, GS <50 kW and GS >50 kW. The increased consumption increased volumetric revenue at existing rates.

37. LRAM/SSM

Ref: Board Staff Interrogatory Response #26(a), Page 36 of 104

North Bay states in its response that the input assumptions found on the Board’s website are used wherever possible and where not, a suitable proxy is selected for the required inputs.

- a) Please show in a table a listing of the program measures where North Bay has relied on the most recent OPA Measures and Assumptions List. In the same table, include a listing of the program measures that have relied on the OEB-approved Inputs and Assumptions List (dated March 28, 2008) as well as program measures for custom programs where published measures were not available. The table below is an example of the format to be used:

Measures / Programs / Custom Projects	Source of Input Assumptions
<i>Measure</i>	
CFL – 15W	OPA Measures List
<i>Programs</i>	
(List Programs)	(List source)
<i>Custom Projects</i>	
(List Projects)	(List source)

Response:

The following Appendices respond to Board questions 37 and 38-100219.

Appendix A - OPA Residential Programs -Table 37A1

Appendix B - Third Tranche Residential - Table 37A-2

Appendix C - Third Tranche GS<50kW DR - Table 37A-3

Appendix D - Third Tranche GS>50kW DR - Table 37A-4

Each of the four Appendices is similar to the above example included with question 37(a) and includes references to the appropriate page in Appendix 10-C in Exhibit 10. Each of the four appendices is discussed briefly below:

Appendix A - OPA Residential Programs

The list of measures is the same as provided by the OPA and is the same as the response to the previous Board Question 26(b). For these measures we agree that the OPA Measures and Assumptions List (“OPA Measures”) may be more suitable than the OEB-approved Inputs and assumptions List (“OEB Tables”) as

these are truly “Mass Market Measures”. Only reference number 44 is labeled as a “Custom Project”; however NBHDL has labeled number 43 as a Custom Project as this measure doesn’t appear to be on the OPA Measures List.

Appendix B - Third Tranche Residential

The list of residential measures is the same as NBHDL provided to the “Board: in response to VECC Questions 33 and 34. In that response NBHDL recalculated energy savings based on the theoretical quantities in the OPA Measures. The portion of Residential that is labeled as Demand Reduction is the portion of a project that includes metered residences. This is further discussed in 37 (c) below.

The Custom Projects represent five measures for one project not included in the OEB Tables.

Appendix C - Third Tranche GS<50kW DR

The list of GS<50 kW measures is the same as NBHDL provided to the “Board” in response to VECC Questions 33 and 34. In that response NBHDL recalculated energy savings based on the theoretical quantities in the OPA Measures. This is further discussed in 37 (c) below.

Although this section is labeled as only GS<50kW, it includes the Unmetered Scattered load measures as they are the same for the unmetered Traffic Lights (references 150 through 157). The Custom Projects are normal applications covering photocell installations, connections or disconnections to photocells and air conditioning not included in the OEB Tables.

Appendix D - Third Tranche GS>50kW DR

The list of GS>50 kW measures differs from the above three as it shows the measures in separate columns for base case and efficient case. Demand Reduction is shown for Commercial and Institutional from reference numbers 1 through 483 and Industrial from 484 through 587. The Custom Projects cover a variety of normal applications that are not included on the OEB Tables as well as quite unique initiatives to increase and expand energy conservation knowledge and education resulting in significant energy savings.

- b) Please confirm that the input assumptions found on the Board's website are only used in those instances for measures not included on the OPA's Measures and Assumptions list.

Response:

The input assumptions found on the "Board's" website (dated March 28, 2008) were used for the 2008 Third Tranche Annual Report and the LRAM/SSM filing of October 28, 2009. As per our response to question 37 (a), NBHDL agreed in its response to Board Question 26(b) that the OPA Measures may be more suitable than the OEB Tables for the OPA Programs as these are truly "Mass Market Measures".

- c) If North Bay has relied on the input assumptions found on the Board's website in instances where the same measures are found on the OPA's Measures and Assumption list, please discuss the reason for doing so in light of the Horizon decision (EB-2009-0192).

Response:

NBHDL argues that the method and timing of delivery is most important to determine lost revenue for the period 2005 through 2008. NBHDL is not aware of the methodology used by Horizon to deliver its programs, but do know those delivered in North Bay were customer focused.

The OPA Measures look forward as opposed to backwards. Due to the lack of maturity and experience with energy efficiency by the residences and businesses of the City of North Bay as explained below and in question 38 (a), the installation of energy efficient equipment was at a very preliminary stage at the beginning of the Third Tranche programs. The OPA Measures were developed at a later date than the OEB Tables assuming the market was much further advanced than in North Bay during the Third Tranche period. To illustrate the following examples may help explain the point:

1. The OPA Measures show annual energy savings for a 20 year-old recycled refrigerator at 940 kWh whereas the OEB tables showed savings of 1200 kWh. The research in the OPA Measures shows the

usage declining from 1457 kWh in 1984 to 465 kWh in 2004. The technology life is 6 years in the OEB List and 9 years in the OPA Measures. Most of the refrigerators were removed during Third Tranche in 2005 and 2006 when the usage based on the OPA Measures would be closer to 1200 kWh than 940 kWh. NBHDL agrees that 20 year-old recycled refrigerators removed in 2009 would be closer to the 940 kWh. The lost revenue for LRAM should be based on the higher 1200 kWh as that is when the refrigerators using 1200 kWh per year were removed from service.

2. Water Heater Tank Wraps are not included in the OPA Measures. They are referenced for low income programs, but not recommended as they are better insulated after 1995. The OEB Tables show energy savings of 270 kWh which is adjusted for decreased base case. In addition our contractors did not install the tank wraps on new water heater heaters. As is the case with refrigerators, most of these water heaters were wrapped in 2005 and 2006 which would justify at least the 270 kWh for LRAM lost revenue calculations.
3. The calculation for CFL's includes a reduction of 3% in annual energy savings which assumes 3 out of 100 are replacements. Again this may be true looking forward after their four year life expired in 2009 after being installed in 2005 assuming 2320 hours operating hours under the Water Heater Tune-up program. This program installed CFL's in fixtures with the highest operating hours. Few CFL's were installed in North Bay until NBHDL began their programs on education on CFL's through various promotions.

As per tables 37A-3 and 37A-4 in response to question 37 (a) there are several measures that are not included in the OPA Measures. NBHDL used the best information available supplied by the customers and their contractors to make these calculations. NBHDL was quite successful in making accurate calculations for their customers and OEB reporting by using the best information available to calculate kWh savings as opposed to global values. These values were communicated to the customer to assist with calculating payback.

The OPA Measures (including the CEE Website) includes some kW values for various lights that are removed, replaced, retrofitted or new. In many cases there are installations that require calculations. The formula to calculate kWh savings for lighting is the same for both OPA Measures and OEB Tables, thus the same answer. NBHDL doesn't agree with using kW values in the OPA Measures when more accurate information can be provided by the customer. There are too many variables and changes in the industry to keep it up to date such as different types of ballasts, lamps and configurations. There are endless combinations and permutations of base case and efficient case measures (reference table's 37A-3 and 37A-4). NBHDL hosted a meeting of contractors to promote fixed incentives for certain lighting retrofits. NBHDL's proposal had about 25 measures; some attendees thought there should be at least 400 measures.

The operating hours for different types of buildings included in the OPA Measures may reflect the average for some buildings, but not in northern Ontario. Again NBHDL believes the best information is that provided by the customer. The customer is capable of providing operating hours by area which may vary from 100 to 8,760 hours per year. The OPA Measures only include an average for the entire building except for Multi-unit Residential Buildings (MURBS). The averages are unrealistic for northern Ontario and for many projects as only portions of a building are retrofitted. An example of the above would be a motel in North Bay where the average of 5500 hours contained in the OPA Measures is high as the common facilities such as corridors, lobby, dining rooms, recreational facilities, stores, meeting rooms and assembly areas are quite small or nonexistent compared to southern Ontario. The lighting in common areas accounted for 33,419 kWh annual energy savings while the savings in rooms accounted for 8,085 kWh for a total of 43,505 kWh annual savings. If the 5500 hours from the OPA Measures were used for the calculation as opposed to what the customer provided, then the total annual kWh saved would be 123,753, approximately three times higher. If the customer had chosen to retrofit only the common areas or the rooms, the rooms would increase from 8,085 kWh to 84,546 kWh saved and the common areas would increase from 33,419 to 39,207 annual kWh saved. Although this is only one example, increases for similar reasons are normal for commercial and institutional buildings, although most not as

dramatic as this NBHDL commercial example. In addition there are many buildings that are not included on the list where sizeable energy efficient installations were completed such as fire stations and a funeral home.

The focus of the NBHDL Demand Reduction programs was on commercial, institutional and industrial customers. For some commercial projects, the building owners of Multi-unit Residential Buildings (MURBS) wanted to retrofit part or all of the individual suites (MURB Apartments). Some of these MURBS were not metered and others metered and thus billed as residential customers. The agreement NBHDL had with the customer (building owner, not tenant) was the same whether metered or not. The building owner purchased the lights and installed the lights in the building including suites. The input assumption of 2100 hours for MURB Apartments is found in the Commercial and Institutional section of the OPA Measures for various lighting applications. During NBHDL visits to the suites both before and after the retrofit many of the lights were found on most of the time. This wasn't due to neglect, but necessity. These suites were nearly all quite dark because they had a living room and bedroom window only, many quite small with balconies sheltering the light from the window. The tenants were often seniors who were there much of the day and required more light for eyesight.

During Third Tranche NBHDL learned through discussions with building owners and tenants that the number of lights in suites for some projects impacted average operating hours. Where there were considerably more lights in these suites, the average operating hours was reduced from 2320 to 1095 hours assuming about half the lights were never used. This is an example where face to face discussion provides the best information available. Without this information for these MURB Apartment projects, the operating hours would be 2320 from the OEB Tables and 2100 hours from the OPA Measures. If one uses the OPA Measures for a MURB, the calculations would be based on 2100 hours for apartments, 5100 hours for common areas such as corridors and lobby and 8760 hours for a parking garage. Alternately 3150 hours can be used for the entire building. The latter is not possible for LRAM purposes for metered apartments because the kWh saved need to be separated by customer rate class.

In summary, it is not reasonable to use OPA Measures or OEB Tables when calculating kWh savings when much better information is available from customers and local knowledge and expertise can and should be leveraged. The North Bay energy efficiency market is very different than southern Ontario with a lack of allies with expertise, the more limited distribution channel and lower penetration rates for energy efficient technology, especially in the 2005/2006 period.

Some of the issues NBHDL identified in this section 37 (c) will be discussed further in response to question 38 (a).

38. LRAM/SSM

Ref: Board Staff Interrogatory Response #26(b), Page 48 of 104

North Bay states in its response that it accepts that the input assumptions found on the OPA's Measures and Assumption list should be used to calculate the LRAM claim associated with OPA Residential Programs delivered in North Bay's franchise area in 2006 and 2007.

- a) Please discuss why North Bay has not also applied the input assumptions found on the OPA's Measures and Assumption list to all mass market programs.

Response:

Firstly NBHDL would like to comment on the term "Mass Market" related to the Residential Market. NBHDL considers the residential market as a "mass market" when programs are delivered in mass such as providing incentives and/or rebates through retail stores (coupons). NBHDL delivered residential programs to individual customer's personally providing education on the application of the energy efficient products whether they were such things as light bulbs, faucet aerators, water heater tank wraps, showerheads or insulating products.

As per the above paragraph NBHDL did not develop or deliver "mass market" programs like those developed by the OPA. NBHDL used delivery channels that engaged customers much more directly, often in a face-to-face environment, Given that NBHDL's market is remote and very different than southern Ontario, these types of techniques and delivery channels were required. Many programs and initiatives were targeted at the residential and small business markets. A "mass market" exists in southern Ontario communities in heavily urbanized areas does not exist in North Bay. NBHDL programs were designed to utilize customer visits to educate the public and install the energy efficient equipment. As a result CFL's, tank wraps, faucet aerators, shower heads and pipe wrap were installed by our contractors. Energy efficient equipment was installed where there was the most gain; for example; high use for lighting, high use for water, high use showers and older water heaters. At the same time other NBHDL programs such as Refrigerator Buy-back and EnerGuide for Houses as well as other energy efficient and environmental initiatives were discussed with

customers to encourage further initiatives. The visit for Water Heater Tune-up often resulted in a Refrigerator Buy-back or the installation of a Programmable Thermostat. An energy efficient and environmental package was left with customers. The face to face visit resulted in installations that would not have occurred otherwise as it was totally paid for by NBHDL. Although free ridership of 10% or 5% was used for these initiatives, 0% would have been more appropriate due to the delivery methodology.

When NBHDL started its Third Tranche programs very few customers had compact fluorescents in fixtures with long operating hours. The limited delivery channel resulted in very expensive products. Many businesses used T12 (many 40 watts as opposed to the more standard 34 watt) lighting and had no intent or motivation to move to something more efficient. The ally network promoted entirely new fixtures rather than retrofit. This approach meant that paybacks were very long and customers kept existing inefficient technology.

The North Bay energy market is completely different than southern Ontario and NBHDL feels that one needs to live and work in this energy market to truly appreciate the differences. The market does not have the ally network to the extent that is enjoyed in southern Ontario communities. For example there are very few engineering consultants that are well versed in latest technologies and applications. New products are often not available or promoted by distributors due to the relative small size of the market. Many customers were and continue to be suspicious about new energy efficient products as they have not been promoted or well supported. Major retailers like Home Depot located in North Bay after the beginning of Third Tranche and customers are just beginning to take advantage of their product lines. The ally network is developing slowly and this has resulted in NBHDL developing different programs and approaches that stressed education and awareness to overcome barriers. As acceptance grows customers and building owners began installing their first energy efficient equipment during the past two or three years.

NBHDL had to take on a very direct and hands on role to ensure more efficient technologies were accepted. This approach has resulted in NBHDL becoming very familiar with the programs, customers and installations.

NBHDL staff and resources have very extensive CDM experience and are in a position to make effective and accurate assessments of the impact of measures.

As a result of NBHDL extensive efforts to work very closely with the allies and customers as per the above and holding breakfast meetings and large customer meetings, many out of the ordinary projects were presented by these allies and customers to NBHDL for consideration. Some of these out of the ordinary initiatives became “Custom Projects” as discussed in response to question 38 (b).

- b) Please discuss the program elements that distinguish North Bay’s Third Tranche CDM Programs as custom programs and therefore eligible to have custom input assumptions included in the LRAM calculation.

Response:

As per the response to question 38 (a), NBHDL worked directly with customers and allies to investigate, develop and implement unique energy efficiency measures. The OEB Tables did not provide any details to assist with the calculation of energy savings. Since some measures were not included in the OEB Tables and reasonable proxies were not available in the OEB Tables the measures were considered “Custom Projects” as per the definition in section 7.2.3 of the Guidelines. Some of the measures were fairly normal energy efficient technologies as they did not involve customized design and engineering. These were normally quite small such as adding a light to a photocell, installing a photocell or installing manual switches. The larger initiatives such as the installation of a Honeywell EBI R300.1 enterprise building system to control large loads in several buildings, the replacement of three large motors with six smaller high efficient motors with a much more flexible operation to provide a process with the correct amount of dissolved oxygen and the installation of “Wattstopper” zone controllers are examples of some of the larger projects. These three projects represent 875,420 kWh of a total of 1,522,603 gross kWh saved for all Custom Projects listed in the four worksheets of question 37 (a). The

Custom Projects represented about 13% of the gross savings for Third Tranche.

Since NBHDL staff and resources were intimately involved in developing and implementing measures due to the weak ally network and lack of education and awareness, NBHDL is a more accurate source of information than tables that do not reflect the local market and operating conditions. These Custom Projects are included in Appendix 10-C of Exhibit 10.

APPENDIX A

Table 37A-1 -- OPA Delivered Programs		
Conservation Results for 2006 and 2007		
Response to Board Question 37(a)		
Reference Number	Measure	Source of Input Assumptions -- As per Response to Board Question 26 (b)
	2006	
1	Energy Star® Compact Fluorescent Light Bulb	OPA Measures List
2	Electric Timers	OPA Measures List
3	Programmable Thermostats	OPA Measures List
4	Energy Star® Ceiling Fans	OPA Measures List
5	Energy Star® Air Conditioner	OPA Measures List
6	Programmable Thermostats	OPA Measures List
7	Air Conditioner Tune-Up	OPA Measures List
8	Refrigerator Retirement	OPA Measures List
9	Freezer Retirement	OPA Measures List
10	Energy Star® Compact Fluorescent Light Bulb	OPA Measures List
11	Seasonal Light Emitting Diode Light String	OPA Measures List
12	Programmable Thermostats	OPA Measures List
13	Dimmers	OPA Measures List
14	Indoor Motion Sensors	OPA Measures List
15	Programmable Baseboard Thermostats	OPA Measures List
16	2007	
17	Refrigerator	OPA Measures List
18	Freezer	OPA Measures List
19	Small Refrigerator	OPA Measures List
20	Small Freezer	OPA Measures List
21	Window Air Conditioner	OPA Measures List
22	ENERGY STAR® Central Air Conditioner	OPA Measures List
23	Programmable Thermostat	OPA Measures List
24	Furnace with Electronically Commutated Motor	OPA Measures List
25	Central Air Conditioning Tune Up	OPA Measures List
26	15 W CFL	OPA Measures List
27	20 W+ CFLs	OPA Measures List
28	Project Porchlight CFLs	OPA Measures List
29	Energy Star Ceiling Fan	OPA Measures List
30	Furnace Filter	OPA Measures List
31	Solar Lights	OPA Measures List
32	Outdoor Motion Sensor	OPA Measures List
33	Dimmer Switch	OPA Measures List
34	Energy Star Light Fixtures	OPA Measures List
35	SLEDs	OPA Measures List
36	T8	OPA Measures List
37	Programmable Thermostat	OPA Measures List
38	Power Bar with Timer	OPA Measures List
39	Lighting Control Devices	OPA Measures List
40	Energy Star Clotheswasher	OPA Measures List
41	Energy Star Refrigerator	OPA Measures List
42	High Pressure Sodium	OPA Measures List
43	Photo Sensors	Custom Projects
44	Custom Retrofit Projects	Custom Projects

Table 37A-1 -- OPA Delivered Programs		
Conservation Results for 2006 and 2007		
Response to Board Question 37(a)		
Reference Number	Programs	Source of Input Assumptions -- As per Response to Board Question 26 (b)
45	2006 Every Kilowatt Counts (spring)	OPA Measures List
46	2006 Cool Savings Rebate Program	OPA Measures List
47	2006 Secondary Fridge Retirement Pilot	OPA Measures List
48	2006 Every Kilowatt Counts (fall)	OPA Measures List
49	2007 Great Refrigerator Roundup	OPA Measures List
50	2007 Cool Savings Rebate	OPA Measures List
51	2007 Every Kilowatt Counts	OPA Measures List
52	2007 Affordable Housing -- Pilot	OPA Measures List
53	2007 Affordable Housing -- Pilot	Custom Projects
54	2007 Social Housing -- Pilot	Custom Projects

Table 37A-1 -- OPA Delivered Programs		
Conservation Results for 2006 and 2007		
Response to Board Question 37(a)		
Reference Number	Custom Projects	Source of Input Assumptions -- As per Response to Board Question 26 (b)
43	Photo Sensors	OPA Conservation Results
44	Custom Retrofit Projects	OPA Conservation Results

APPENDIX B

Table 37A-2 -- NBH Delivered Programs		
Residential -- Third Tranche 2005 Through 2008		
Response to Board Question 37(a)		
Reference Number	Measure	Source of Input Assumptions -- As a note only, these measures were recalculated using OPA measures in response to VECC interrogatories dated December 22, 2009
45	Water Heater Tune-up	
46	Tank Wrap	OEB Approvec
47	Faucet Aerator	OEB Approvec
48	Showerhead	OEB Approvec
49	Pipe Wrap	OEB Approvec
50	CFL25 (Inc. 100W to 25W CFL)	OEB Approvec
51	CFL25 (Inc. 60W to 15W CFL)	OEB Approvec
52	Outlet Insulator	OEB Approvec
	Fridge Buy-back	
53	Fridge Buy-back	OEB Approvec
	EnerGuide for Houses	
54	Caulking Products	OEB Approvec
55	Weatherstripping	OEB Approvec
56	Attic Insulation (R-11 to R-38)	OEB Approvec
57	Fuel Substitutor	OEB Approvec
58	Basement Insulator	OEB Approvec
59	B-audits	OEB Approvec
60	Furnace Fans	OEB Approvec
	Information Based	
61	Inc. 60W to 15W CFL Giveaways	OEB Approvec
62	Inc. 60W to 15W CFL Project Porchlight	OEB Approvec
63	Inc. 60W to 15W CFL Various promotions	OEB Approvec
64	Inc (125W) to LED (3.5W)	OEB Approvec
	Demand Reduction	
65	100W Inc to 23 W CFL -- MURBS	OEB Approvec
66	60W Inc to 15 W CFL MURBS	OEB Approvec
67	60W Inc to 13 W CFL MURBS	OEB Approvec
68	40W Inc to 9 W CFL MURBS	OEB Approvec
69	Motion Sensors controls 432W MURBS	OEB Approvec
70	2 - T12 34W (86W) to 2- T8 28W (55W) MURBS	OEB Approvec
71	Thermal Envelope	Custom Project
72	Programmable Thermostat H & C	Custom Project
73	Energy Star Air Source Heat Pump	Custom Project
74	High Pressure Sodium -- Photocell	Custom Project
75	High Efficiency Clothes Washer/Dryer	Custom Project
Table 37A-2 -- NBH Delivered Programs		
Residential -- Third Tranche 2005 Through 2008		
Response to Board Question 37(a)		
Reference Number	Programs	Source of Input Assumptions -- As a note only, these measures were recalculated using OPA measures in response to VECC interrogatories dated December 22, 2009
76	Water Heater Tune-up	OEB Approvec
77	Fridge Buy-back	OEB Approvec
78	EnerGuide for Houses	OEB Approvec
79	Information Basec	OEB Approvec
80	Demand Reductior	OEB Approvec
Table 37A-2 -- NBH Delivered Programs		
Residential -- Third Tranche 2005 Through 2008		
Response to Board Question 37(a)		
Reference Number	Custom Projects	Custom Project Reference Included in Exhibit 10
71	Building Design Eng Calculations -- Thermal Envelope	Custom Project Reference Appendix 10-C Input Assumptions Page 22 of 25
72	Building Design Eng Calculations -- Programmable Thermostat H & C	Custom Project Reference Appendix 10-C Input Assumptions Page 24 of 25
73	Building Design Eng Calculations -- Energy Star Air Source Heat Pump	Custom Project Reference Appendix 10-C Input Assumptions Page 23 of 25
74	High Pressure Sodium -- Photocell	Custom Project Reference Appendix 10-C Input Assumptions Page 2 of 25
75	High Efficiency Clothes Washer/Dryer	Custom Project Reference Appendix 10-C Input Assumptions Page 25 of 25

APPENDIX C

Table 37A-3 -- NBH Delivered Programs

General Service < 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure	Source of Input Assumptions -- As a note only, these measures were recalculated using OPA measures in response to VECC interrogatories dated December 22, 2009
	Demand Reduction	
1	4-T12's TO 3-T8, 3X28W (90W)	OEB Approved
2	4-T12's TO 2-T5's 2X28W (58W)	OEB Approved
3	2 - T12 (72W) TO 1-T5 (28W) (30W)	OEB Approved
4	2 - T12 (72W) TO 2-T5 (28W) (59W)	OEB Approved
5	1 - T12 (40W) TO 1-T8 (28W) (32W)	OEB Approved
6	2 - T12 8ft (180W) TO 4-T8 (28W) (111W)	OEB Approved
7	1-Halogen (90W) TO 1-CFL (23W)	OEB Approved
8	1-Halogen (45W) TO 1-CFL (23W)	OEB Approved
9	2-T5's 2X28W (58W) --NEW	OEB Approved
10	2 - T12 8ft (180W) -- Removed	OEB Approved
11	2 - T12 (75W) TO 2-T8 (28W) (60W)	OEB Approved
12	1-T8s (28W) (32W) --NEW	OEB Approved
13	Incandescent Floods (150W) --Remova	OEB Approved
14	2-T12 (110W) to 1-T8 (32W)	OEB Approved
15	Inc 30W Exit to 3Watt LED	OEB Approved
16	Inc 100W TO 23 Watt CFL	OEB Approved
17	MVR 1000 Watt High Bay -- Remova	OEB Approved
18	Manual TO Sensor Laundry (420W	OEB Approved
19	T8 (32 Watt with Photo)	Custom Project
20	4 - T12 (153W) to 3- T5 (88W)	OEB Approved
21	LED Exit Lights -- Single Sidec	OEB Approved
22	LED Exit Lights -- Double Sidec	OEB Approved
23	2 - T12 34W (86W) to 2- T8 28W (55W)	OEB Approved
24	T12-4X4 (164W) to T8-2x4 (28W) (45W)	OEB Approved
25	T12-2X4 (82W) to T8-2x4 (28W) (45W)	OEB Approved
26	T12-2X4 (82W) Removed/Replacemen	OEB Approved
27	T12-4X4 (164W) Removed/Replacemen	OEB Approved
28	T12-2X8 (160W) to T8-2x4 (28W) (45W)	OEB Approved
29	T8-2x4 (28W) (45W) New/Replacemen	OEB Approved
30	T12-2X4 (82W) to T8-2x4 (28W) (45W)	OEB Approved
31	T12-4X4 (164W) to T8-2x4 (28W) (45W)	OEB Approved
32	T12-2X4 (82W) to T8-2x4 (28W) (45W)	OEB Approved
33	T12-2X4 (82W) Removed/Replacemen	OEB Approved
34	T12-4X4 (164W) to T8-2x4 (28W) (45W)	OEB Approved
35	T12-2X4 (82W) to T8-2x4 (28W) (45W)	OEB Approved
36	F20T12CW (26W) to F20T8 (18W)	OEB Approved
37	Inc 30W Exit TO 2W LED	OEB Approved
38	Inc 60W to 13W CFL	OEB Approved
39	Inc 40W to 13W CFL	OEB Approved
40	Motion Sensors (3) controlling 495 Watt	OEB Approved
41	4x4 - T12 (164W) TO 4X-T8 28W (98W)	OEB Approved
42	2x4 - T12 (82W) TO 2-T8 28W (49W)	OEB Approved
43	Inc. 100 W TO 26 Watt CFL Wash	OEB Approved
44	T12-2x4 (34W) (82W) to T8-25w (40W)	OEB Approved
45	T12-2x4 (40W) (96W) to T8-25w (40W)	OEB Approved
46	T12-2x4 (40W) (96W) Removed	OEB Approved
47	T12-4x4 40W (186W) Removed Permanentl	OEB Approved
48	T12-2X8 HO (186W) Removed Garage	OEB Approved
49	HPS (70) (91) MH Garage Replacemen	OEB Approved
50	T12-2x4 (40W) (96W) to T8-25w (40W)	OEB Approved
51	Inc 75Watt to 9 Watt CFL's	OEB Approved
52	1-65W Inc to 13 W CFL	OEB Approved
53	T12-2lamp (82W) to T8-2 lamp (25W) (37W)	OEB Approved
54	Inc 75W Spot to 15W CFL Spot	OEB Approved
55	Inc 75W to 14W CFL	OEB Approved
56	Inc 30 Watt to LED 1.6 Watt Exit	OEB Approved
57	Inc 7 Watt Decorative to LED 2W Watt Decorative	OEB Approved
58	Inc 75W to 28W CFL	OEB Approved
59	4X8 - T12 (316W) to 2X4 Tandem 4bulbs T8(32W) (98W)	OEB Approved
60	2X8 - T12 (158W) to 2X4 Tandem 4bulbs T8 (98W) (32W)	OEB Approved
61	2 - T12 (40W) (86W) to 2- T8 (51W)	OEB Approved
62	1X8 - T12 (74W) to 1X4X4 T8 (98W)	OEB Approved

Table 37A-3 -- NBH Delivered Programs

General Service < 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure	Source of Input Assumptions -- As a note only, these measures were recalculated using OPA measures in response to VECC interrogatories dated December 22, 2009
63	1X8 T12 (74W) Remova	OEB Approved
64	2X8 - T12 (158W) to 2X4 T8 (51W) (25W)	OEB Approved
65	T12-1x4 (44W) to T8-1x4 (25W) (23W)	OEB Approved
66	4X8 - T12 (316W) to 2X4 Tandem 4bulbs T8(32W) (98W)	OEB Approved
67	2 - T12 34W (86W) to 2- T8 28W (55W)	OEB Approved
68	Replace SEER 9.5 with SEER 13.45 Roof Top	Custom Project
69	T8-1x4 (32W) (30W) to T8-1x4 (25W) (23W)	OEB Approved
70	T8-2x4 (32W) (51W) to T8-2x4 (25W) (40W)	OEB Approved
71	T12-2Utube (40W) (96W) to T8-2X4 (25W) (40W)	OEB Approved
72	T12-2X4 (32W) (82W) to T8-2x4 (25W) (40W)	OEB Approved
73	Inc 75W to 20W	OEB Approved
74	Programmable Thermostat Heating/Coolin	OEB Approved
75	2 - T12 34W (86W) to 2- T8 28W (55W)	OEB Approved
76	2X8-T12 FIXTURE TO 4X4 T8(25W) (84W)	OEB Approved
77	2X8-T12 FIXTURE Removal	OEB Approved
78	2X4-T12 FIXTURE TO 2-F028T8/841XPSS-ECO	OEB Approved
79	2 - T12 (34W) (86W) to 2- T8 (28W) (51W)	OEB Approved
80	2 - T12 (34W)(86W) Removal	OEB Approved
81	2 - T12 (34W)(86W) to 1- T8 (28W) (29W)	OEB Approved
82	40 W Inc. to 7 W CFL	OEB Approved
83	40 W Inc. to 9 W CFL	OEB Approved
84	Hal 50W to 35W Hal Corner spots	OEB Approved
85	T12-2x4 (82W) to T8-2x4 (25W)(40W)	OEB Approved
86	T12-2x8 (160W) to T8-2x4 (25W) (40W)	OEB Approved
87	Inc 100W to 13W CFL	OEB Approved
88	Inc 65W Flood to 15W CFL	OEB Approved
89	Inc 7 Watt to LED .8 Watt Exit	OEB Approved
90	2 - T12 34W (86W) to 2- T8 25W (47W)	OEB Approved
91	4 - T12 34W (156W) to 4- T8 28W (95W)	OEB Approved
92	Motion Sensors 600 Watts each	OEB Approved
93	Timer 100 watts	OEB Approved
94	2-T12 34W (86W) to 2-T8 28W (55W)	OEB Approved
95	1-60W Inc to 15 W CFL	OEB Approved
96	4-T12 34W (156W) to 4-T8 28W (95W)	OEB Approved
97	2-T12 34W (86W) to 2-T8 28W (55W)	OEB Approved
98	1-T12 34W (42W) to 1-T8 25W (20W)	OEB Approved
99	4-T12 34W (156W) to 4-T8 32W (108W)	OEB Approved
100	2-T12 34W (86W) to 2-T8 25W (49W)	OEB Approved
101	2 - T12 (40W)(86W) to 2- T8 (28W) (42W)	OEB Approved
102	4 - T12 (40W)(172W) to 4- T8 (28W) (84W)	OEB Approved
103	1X4- T12 (34W)(43W) to 1X4- T8(28W)(26W)	OEB Approved
104	1X3- T12 (34W)(40W) to 1X3- T8(28W)(24W)	OEB Approved
105	1X2- T12 (34W)(36W) to 1X2- T8(28W)(22W)	OEB Approved
106	2X4- T12 (34W)(86W) to 2X4- T8(28W)(48W)	OEB Approved
107	4X4- T12 (34W)(164W) to 4X4- T8(28W)(94W)	OEB Approved
108	60 W Inc. to 23 W CFL	OEB Approved
109	100 W Inc. to 16 W EL/ARB30 CFL	OEB Approved
110	75 W Inc. to 16 W EL/ARB30 CFL	OEB Approved
111	100 W Inc. to 42 W CF40EL -- Photocell	Custom Project
112	100 W Inc. to 70 W HPS (100W) -- Removal -- Photocel	Custom Project
113	T12-2x4 (34W)(86W) to T8-2x4 (32 W) (55W)	OEB Approved
114	5 Ton SEER 13 Air Conditioner -- Summe	Custom Project
115	5 Ton SEER 13 Air Conditioner -- Winte	Custom Project
116	T12-4X4 (164W) to T8-4x4 (32W) (112W)	OEB Approved
117	T12-4X4 (164W) Remova	OEB Approved
118	T12-2X4 (82W) to T8-4x4 (32W) (112W)	OEB Approved
119	T12-2X4 (82W) Removec	OEB Approved
120	T12-4X4 (164W) to T8-2x4 (32W) (59W)	OEB Approved
121	Additional to T8-2x4 (32W) (59W)	OEB Approved
122	Inc 100W to 24W CFL	OEB Approved
123	Inc 75W Flood to 15W CFL	OEB Approved
124	Halogen 75W to 24W CFL	OEB Approved
125	Inc 200W to 24W CFL	OEB Approved

Table 37A-3 -- NBH Delivered Programs

General Service < 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure	Source of Input Assumptions -- As a note only, these measures were recalculated using OPA measures in response to VECC interrogatories dated December 22, 2009
126	Halogen 75W to 24W CFL	OEB Approved
127	Inc 60W to 11W CFL	OEB Approved
128	2X8- T12 (158W) to 2X8- T8(25W)(87W)	OEB Approved
129	2X4 T12 (72W) to 2X4 T8(25W)(46W)	OEB Approved
130	1X4- T12 (43W) Removec	OEB Approved
131	1X4- T12 (43W) to 4X4- T8(25W)(87W)	OEB Approved
132	T12-1X4 (43W) to T8-1x4 (25W) (26W)	OEB Approved
133	T12-4X8 (316W) to T8-2x8 Tandem (25W) (87W)	OEB Approved
134	100 W Inc. to 157016EL/AR20 (14W) CFL	OEB Approved
135	150 W Inc. to 157016EL/AR20 (14W) CFL	OEB Approved
136	50 W Inc.Flood to 15 EL/BR30 (15W) CFL	OEB Approved
137	2X4 - T12 (86) to 2X4 T8 (28W) (42W)	OEB Approved
138	4X4 - T12 (172W) to 4X4 T8 (28W) (84W)	OEB Approved
139	1 - T12 (45W) to 1- T8 (22W)	OEB Approved
140	4X4 - T8 (114W) to 4X4 T8 (28W) (84W)	OEB Approved
141	1-75W PAR30 to CFL 23W	OEB Approved
142	2 - T12 (86W) to 2- T8 (28W) (42W)	OEB Approved
143	4 - T12 (172W) to 4- T8 (28W) (84W)	OEB Approved
144	50W Par 20 Inc. to 9 W CFL Par 20	OEB Approved
145	75 BR 30 Inc. to 23 W CFL	OEB Approved
146	Hal 75W Par38 to CFL 23W	OEB Approved
147	130 W Inc to 10.5 W LED 12" Lens -- Traffic Lights	OEB Approved
148	69 W to 7.5 W LED 8" Lens -- Traffic Lights	OEB Approved
149	100 W to 8 W LED Pedestrian 8" Lens -- Traffic Lights	OEB Approved
150	130W Inc. to RED 7.5 W LED 12" Lens -- Traffic Lights	OEB Approved
151	130W Inc. To AMBER 7.5 W LED 12" Lens -- Traffic Lights	OEB Approved
152	130W Inc.to GREEN 7.5 W LED 12" Lens -- Traffic Lights	OEB Approved
153	69W Inc. To RED 5.5 W LED 8" Lens -- Traffic Lights	OEB Approved
154	69W Inc. To AMBER 5.5 W LED 8" Lens -- Traffic Lights	OEB Approved
155	69W Inc. To GREEN 5.5 W LED 8" Lens -- Traffic Lights	OEB Approved
156	130W Inc. To Arrow 7.5 W LED 12" Lens -- Traffic Lights	OEB Approved
157	130W Inc. To Pedestrian 8 W LED 12" Lens -- Traffic Lights	OEB Approved

Table 37A-3 -- NBH Delivered Programs		
General Service < 50 kW -- Third Tranche 2005 Through 2008		
Response to Board Question 37(a)		
Reference Number	Measure	Source of Input Assumptions -- As a note only, these measures were recalculated using OPA measures in response to VECC interrogatories dated December 22, 2009
Table 37A-3 -- NBH Delivered Programs		
General Service < 50 kW -- Third Tranche 2005 Through 2008		
Response to Board Question 37(a)		
Reference Number	Programs	Source of Input Assumptions -- As a note only, these measures were recalculated using OPA measures in response to VECC interrogatories dated December 22, 2009
158	Demand Reductior	OEB Approved
159	Demand Reduction -- Traffic Lights	OEB Approved Proxy
Table 37A-3 -- NBH Delivered Programs		
General Service < 50 kW -- Third Tranche 2005 Through 2008		
Response to Board Question 37(a)		
Reference Number	Custom Projects	Custom Project Reference Included in Exhibit 10
19	T8 (32 Watt with Photo)	Custom Project Reference Appendix 10-C Input Assumptions Page 2 of 25
68	Replace SEER 9.5 with SEER 13.45 Roof Top	Custom Project Reference Appendix 10-C Input Assumptions Page 9 of 25
111	100 W Inc. to 42 W CF40EL -- Photocell	Custom Project Reference Appendix 10-C Input Assumptions Page 3 of 25
112	100 W Inc. to 70 W HPS (100W) -- Removal -- Photocell	Custom Project Reference Appendix 10-C Input Assumptions Page 3 of 25
114	5 Ton SEER 13 Air Conditioner -- Summer	Custom Project Reference Appendix 10-C Input Assumptions Page 1 of 25
115	5 Ton SEER 13 Air Conditioner -- Winter	Custom Project Reference Appendix 10-C Input Assumptions Page 1 of 25

APPENDIX D

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)

General Service > 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
	Demand Reduction (Commercial and institutional)		
1	2 - T12 34W (78W) 4' lamps pendant mount, 1 EM ballast	1- T8 32W (38W) w/EL HBF ballast	OEB Approved
2	Incorrect Plumbing Configuration	Change Configuration to Correct Operation	Custom Project
3	Stairwell Heating (Buildings)	Stairwell Heating Turned Off	Custom Project
4	Cafeteria Heating -- electric	Resequenced to gas	Custom Project
5	2 - T12 40W (100W) 4' lamps w/magnetic ballast	2 - T8 32W (58 W) reflectorized w/EL ballast	OEB Approved
6	2 - T12 40W (100W) 4' lamps w/magnetic ballast	2 - T8 32W (58 W) reflectorized w/EL ballast	OEB Approved
7	4 - T12 (144W) Surface Wraps	3-T8, 3X28W (90W), 2X4' Surface Wraps	OEB Approved
8	4 - T12 (144W) Recessed Troughers	T5, 2RT5 2X4 Recessed Troughers, 2 - 28W Lamps	OEB Approved
9	T12, 2 Lamp 1x4' Recessed Troughers	T5, RT15, 1'X4' Recessed Troughers, 1 - 28W Lamp	OEB Approved
10	T12, 2 Lamp 1x4' Surface Wraps	T8, 2 - 28W Lamps, 1X4' Surface Wraps	OEB Approved
11	T12, 1 Lamp 4' Strip Light	T8, 1 - 28W Lamp 4' Strip Light	OEB Approved
12	T12, 2 - 8' Lamps, 8' Industrial Strip Light	T8, 4 - 28W 4' Lamps, 8' Industrial Tandem Strip Light	OEB Approved
13	Par 38, 90W Halogen Flood	Par 38, 23W Compact Fluorescent Flood	OEB Approved
14	Par 38, 45W Halogen Flood	Par 38, 23W Compact Fluorescent Flood	OEB Approved
15		T5, 2RT5 2X4 Recessed Troughers, 2 - 28W Lamps	OEB Approved
16	T12, 2 - 8' Lamps, 8' Industrial Strip Light		OEB Approved
17	T12, 2 Lamps, 4' Strip Light	T8, 2 - 28W Lamps, 4' Strip Light	OEB Approved
18		T8, 1 - 28W Lamp, 4' Strip Light	OEB Approved
19	Incandescent Floods		OEB Approved
20	100W Incandescent	23W CFL fixture w/EM ballast	OEB Approved
21	1000W Mercury Vapour	Nil	OEB Approved
22	T12, 2 Lamp 4' H.O Strip Light	T8, 1 - 28W 4' Strip Light c/w Photo Cell (No Dusk till Dawn)	OEB Approved
23	4 - T12 (153W) 2X4' Troffers	3 - T5 (88W) 2X4 Troffers	OEB Approved
24	4 - T12 (153W) 2X4' Troffers	3 - T5 (88W) 2X4 Troffers	OEB Approved
25	2 - T12 34W (86W) 4' lamps w/magnetic ballast	2 - T8 28W (55W) 4' lamps w/electronic ballast	OEB Approved
26	40W Incandescent	11W Screw-In CFL	OEB Approved
27	60W Incandescent	15W Screw-In CFL	OEB Approved
28	2 - T12 (96W) 2X4' Lamps	2 - T8 25W (40W) 1X4 lamps	OEB Approved
29	1 - T12 (50W) 1X4' lamps	1 - T8 (20W) 1X4' lamps	OEB Approved
30	60W Incandescent	13W CFL fixture w/EM ballast	OEB Approved
31	175W Incandescent Flood	40W CFL fixture w/EM ballast	OEB Approved
32	T12-4x4 (164W)	T8-2x4 28 (45W)	OEB Approved
33	T12-4x4 (164W)	T8-2x4 28 (45W)	OEB Approved
34	T12-2x4 (82W)	T8-2x4 28W (45W)	OEB Approved
35	T12-2x4 (82W)	Removed/Replacement	OEB Approved
36	T12-4x4 (164W)	Removed/Replacement	OEB Approved
37	T12-2x4 (160W)	T8-2x4 28W (45W)	OEB Approved
38		T8-2x4 28W (45W) New	OEB Approved
39	T12-2x4 (82W)	T8-2x4 28W (45W)	OEB Approved
40	T12-4x4 (164W)	T8-2x4 28 (45W)	OEB Approved
41	T12-2x4 (82W)	T8-2x4 28W (45W)	OEB Approved
42	T12-2x4 (82W)	Removed/Replacement	OEB Approved
43	T12-4x4 (164W)	T8-2x4 28 (45W)	OEB Approved
44	T12-2x4 (82W)	T8-2x4 28W (45W)	OEB Approved
45	T12-4x4 (164W)	T8-2x4 28 (45W)	OEB Approved
46	F20T12CW (26W)	F20T8 (18W)	OEB Approved
47	T12-4x4 (164W)	T8-2x4 28 (45W)	OEB Approved
48	60W Incandescent Range Hood	13W CFL fixture w/EM ballast	OEB Approved
49	60W Incandescent LR Table Lamps	13W CFL fixture w/EM ballast	OEB Approved
50	40W Incandescent Washroom	13W CFL fixture w/EM ballast	OEB Approved
51	2 - 15W (30W) Incandescent EXIT Sign	2W LED EXIT sign	OEB Approved
52	2 - 15W (30W) Incandescent EXIT Sign	2W LED EXIT sign	OEB Approved
53	1 - 15W (15W) Incandescent EXIT Sign-Single Sided	2W LED EXIT sign-Single Sided	OEB Approved
54	2 - 15W (30W) Incandescent EXIT Sign -- Double	4W LED EXIT sign	OEB Approved
55	30W Incandescent EXIT Sign	2W LED EXIT sign	OEB Approved
56	2 - 15W (30W) Incandescent EXIT Sign	2W LED EXIT sign	OEB Approved
57	On/Off Switch Control	Occupancy Sensor Control (Laundry - 420 W controlled)	OEB Approved
58	T8, 1 - 28W 4' Strip Light c/w Photo Cell (No Dusk till Dawn)	T8, 1 - 28W 4' Strip Light c/w Photo Cell (Dusk till Dawn)	OEB Approved
59	On/Off Switch Control	Occupancy Sensor Controls (3) (11X2-28Watt or 495W))	OEB Approved
60	Single Compressor Chiller	Dual Compressor Chiller	Custom Project
61	500W PAR Halogen	200 W (258W) Ceramic Pulse Start	OEB Approved
62	400W Metal Halide Lamp	360W Super Metal Halide Lamp	OEB Approved
63	4X4 T12 (164W)	4X4 T8 28W (98W)	OEB Approved
64	2 - T12 4 foot (82W)	2T8 28W (49W)	OEB Approved
65	4X4 T12 (164W)	4X4 T8 28W (98W)	OEB Approved
66	2 - T12 4 foot (82W)	2T8 28W (49W)	OEB Approved
67	100W Incandescent	26W CFL fixture w/EM ballast	OEB Approved
68	4X4 T12 (164W)	4X4 T8 28W (98W)	OEB Approved
69	2 - T12 4 foot (82W)	2T8 28W (49W)	OEB Approved
70	4X4 T12 (164W)	4X4 T8 28W (98W)	OEB Approved
71	2 - T12 4 foot (82W)	2T8 28W (49W)	OEB Approved
72	100W Incandescent	26W CFL fixture w/EM ballast	OEB Approved
73	Compressor (12.3 kW) Cooling Only with No Economizer	Compressor with Outside Economizer(7.1 kW)	Custom Project
74	Electric Heaters (19.5 kW)	Fuel Switching - Gas Heating	Custom Project
75	Electric Heaters (30 kW + 15 kW) -- No Timer	Electric Heaters (30 kW + 15 kW) -- Timer	Custom Project
76	2 - T12 (82W) 2X4'	2 - T8 (40W) 2X4'	OEB Approved
77	2 - T12 (96W) 2X4'	2 - T8 (40W) 2X4'	OEB Approved

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)

General Service > 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
78	2 - T12 (96W) 2X4'	Removed	OEB Approved
79	4 - T12 40W (186W) 4' lamps w/magnetic ballast	Removed	OEB Approved
80	2 - T12 75W (184W) 8' HO Lamps w/1 magnetic ballast	Removed Garage	OEB Approved
81	Replacement	TLC Series (70) (91) MH	OEB Approved
82	2 - T12 (96W) 2X4'	2 - T8 (40W) 2X4	OEB Approved
83	2 - T12 (96W) 2X4'	2 - T8 (40W) 2X4	OEB Approved
84	Inc. 75 Watt Flood	9 Watt CFL's	OEB Approved
85	200W Incandescent	2- T8 (72W)	OEB Approved
86	65W Incandescent	13W Screw-In CFL	OEB Approved
87	T12-2x4 (82W)	T8-2x4 25W (37W) 24hr	OEB Approved
88	T12-2x4 (82W)	T8-2 lamp 25W (37W)	OEB Approved
89	75W Incandescent	14W CFL fixture w/EM ballast 24hr	OEB Approved
90	75W Incandescent Spot	14W CFL Spot fixture w/EM ballast 24hr	OEB Approved
91	75W Incandescent Spot	14W CFL Spot fixture w/EM ballast 14hr	OEB Approved
92	75W Incandescent	14W CFL fixture w/EM ballast	OEB Approved
93	75W Incandescent	14W CFL fixture w/EM ballast	OEB Approved
94	75W Flood Incandescent	14W CFL fixture w/EM ballast	OEB Approved
95	75W Flood Incandescent	2X14W CFL fixture w/EM ballast	OEB Approved
96	4X8 - T12 (316W) 2X8'	2X8 - T8 (98W)	OEB Approved
97	2 - T12 (158W) 2X8'	2X8 - T8 (98W)	OEB Approved
98	2 - T12 (86W) 2X4'	2X4 - T8 (51W)	OEB Approved
99	2 - T12 (74W) 1X8'	1X4 - T8 (98W) one ballast for 4 lamps (3 fixtures)	OEB Approved
100	2 - T12 (74W) 1X8'	Nil	OEB Approved
101	2 - T12 (158W) 2X8'	2X4 - T8 (51W)	OEB Approved
102	1 - T12 (44W) 1X4'	1X4 - T8 (23W)	OEB Approved
103	1 - T12 (44W) 1X4'	1X4 - T8 (23W)	OEB Approved
104	1 - T12 (316W) 4X8'	4X4 - T8 (98W)	OEB Approved
105	2 - T12 34W (86W) 4' lamps w/magnetic ballast	2 - T8 28W (55W) 4' lamps	OEB Approved
106	60W Incandescent	15W Screw-In CFL	OEB Approved
107	30W Incandescent Exit Light	2.8W LED Exit Light	OEB Approved
108	7W Incandescent Decorative Light	2W LED Decorative Light	OEB Approved
109	2 - 15W (30W) Incandescent EXIT Sign	3W LED EXIT sign	OEB Approved
110	SEER 13.45 Roof Top 12 hours per day	Seer 9.5 Roof Top (Assume 10.0 for Efficiency)	Custom Project
111	T12-2x4 (82W)	T8-2x4 32W (40W) 24hr	OEB Approved
112	T12-1x4 (42W)	T8-1x4 32W (20W) 24hr	OEB Approved
113	T12-2 lamp (82W)	T8-2x4 32W (40W)	OEB Approved
114	4 - T12 (82W) 2X4'	2 - T8 (49W) 2X4	OEB Approved
115	150W Incandescent	Reflector 20W EL/AR40	OEB Approved
116	150W Incandescent	Reflector 20W EL/AR40	OEB Approved
117	150W Incandescent	Reflector 20W EL/AR40	OEB Approved
118	150W Incandescent	Reflector 20W EL/AR40	OEB Approved
119	T8-1x4 32 watt (30W)	T8-1x4 25W (23W)	OEB Approved
120	T8-2x4 32 watt (51W)	T8-2x4 25W (40W)	OEB Approved
121	T8-2x4 32 watt (51W)	T8-2x4 25W (40W)	OEB Approved
122	T8-1x4 32 watt (30W)	T8-1x4 25W (23W)	OEB Approved
123	2-T12 Utube (96W)	T8-2x4 25W (40W)	OEB Approved
124	2-T12 Utube (96W)	T8-2x4 25W (40W)	OEB Approved
125	T8-4x4 32 watt (104W)	T8-4x4 25 (75W)	OEB Approved
126	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
127	2-T12 Utube (96W)	T8-2x4 25W (40W)	OEB Approved
128	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
129	T12-4x4 (164W)	T8-4x4 25W (75W)	OEB Approved
130	100W Incandescent	26W CFL fixture w/EM ballast	OEB Approved
131	60W Incandescent	13W CFL fixture w/EM ballast	OEB Approved
132	60W Incandescent	13W CFL fixture w/EM ballast	OEB Approved
133	60W Incandescent	13W CFL fixture w/EM ballast	OEB Approved
134	60W Incandescent	13W CFL fixture w/EM ballast	OEB Approved
135	T12-2x4 (82W)	T8-2x4 28 (45W)	OEB Approved
136	T12-1x4 (42W)	T8-1x4 28 (26W)	OEB Approved
137	T12-4x4 (164W)	T8-4x4 28W (90W)	OEB Approved
138	T12-2x3 (42W)	T8-2x3 25W (26W)	OEB Approved
139	T12-1X2 (30W)	T8-1X2 (18W)	OEB Approved
140	T12-U-Tube (96W)	T8-U-Tube (51W)	OEB Approved
141	MV 100 Watt (120W)	Removed	OEB Approved
142	100W Incandescent	12W CFL R20	OEB Approved
143	65W Incandescent	20W Par 38 CFL	OEB Approved
144	65W Incandescent	12W G25 CFL	OEB Approved
145	65W Incandescent	16W BR CFL	OEB Approved
146	65W Incandescent	15W CFL fixture w/EM ballast	OEB Approved
147	60W Incandescent	15W CFL fixture w/EM ballast	OEB Approved
148	50W Incandescent	15W CFL fixture w/EM ballast	OEB Approved
149	4X4 T12 (164W)	4X4 T8 28W (98W)	OEB Approved
150	4X4 T12 (164W)	2X4T8 28W (49W)	OEB Approved
151	2X4 T12 (84W)	2X4T8 28W (49W)	OEB Approved
152	2X4 T12 (84W) Removed	Removed	OEB Approved
153	2 - T12 4 foot (84W)	2T8 28W (49W)	OEB Approved
154	100W Incandescent	26W CFL fixture w/EM ballast	OEB Approved
155	75W Incandescent	26W CFL fixture w/EM ballast	OEB Approved

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)

General Service > 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
156	500W PAR Halogen	200 W (258W) Ceramic Pulse Start	OEB Approved
157	400W Metal Halide Lamp	360W Super Metal Halide Lamp	OEB Approved
158	30W Incandescent Exit Light	1.6W LED Exit Light	OEB Approved
159	2 - 15W (30W) Incandescent EXIT Sign	2W LED EXIT sign	OEB Approved
160	No Control, previous times were by-passed	Intelligent Parking Lot Controllers	Custom Project
161	Replace old control and manual systems	New intake damper, thermostat and controls. Relocate thermostat, install interlock.	Custom Project
162	On/Off Switch Control	Occupancy Sensor Controls (13) Average 240W -- 3120W controlled)	OEB Approved
163	No Photocell Control HPS 70 Watt (86W)	Photocell Control HPS 70 Watt (86W)	Custom Project
164	Average existing stock	Programmable Thermostat (space heating and cooling)	OEB Approved
165	Normal Motors 200, 150, and 50HP	High Efficiency Motors 6-40 HP, Operating and less HP	Custom Project
166	2X8 - T12 (172W) 2X8'2	New Tandem	OEB Approved
167	4 - T12 (172W) 2X4'	4X4 - T8 (84W)	OEB Approved
168	1 - T12 (47W) 1X4'	1X4 - T8 (22W)	OEB Approved
169	2 - T12 (86W) 2X4'	2X4 - T8 (42W)	OEB Approved
170	100W Incandescent	23W CFL fixture screw-in	OEB Approved
171	T8 (32W) (29)	T8 (25W) (23W)	OEB Approved
172	T8 (32W) (29)	T8 (25W) (23W)	OEB Approved
173	T12-2x4 (25W) (51W)	T8-2x4 25W (40W)	OEB Approved
174	T8-2x4 32 watt (51W)	T8-2x4 25W (40W)	OEB Approved
175	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
176	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
177	T8 (25W) (23W)	T8 (32W) (29W)	OEB Approved
178	T12-2x4 (82W)	T8-1x4 25W (23W)	OEB Approved
179	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
180	50W Mini Halogen	35W Mini Halogen	OEB Approved
181	400W Metal Halide Lamp	360W Super Metal Halide Lamp	OEB Approved
182	2X4 - T12 (82W)	2X4 - T8 (51W)	OEB Approved
183	2X4 - T12 (82W)	Removal	OEB Approved
184	2X4 - T12 (82W)	1X4 - T8 (29W)	OEB Approved
185	40W Incandescent	7W CFL fixture	OEB Approved
186	40W Incandescent	9W CFL fixture	OEB Approved
187	50 W Halogen	35 W Halogen Corner Spots	OEB Approved
188	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
189	T12-2 lamp (82W)	T8-2 lamp 25W (40W)	OEB Approved
190	T12-2x8 (160W)	T8-2x4 25 (40W)	OEB Approved
191	60W Incandescent	13W CFL fixture	OEB Approved
192	60W Incandescent	13W CFL fixture	OEB Approved
193	100W Incandescent	13W CFL fixture	OEB Approved
194	65W Flood Incandescent	15W CFL fixture	OEB Approved
195	60W Incandescent	13W CFL fixture	OEB Approved
196	2 - T12 34W (86W) 4' lamps w/magnetic ballast	2 - T8 25W (47W) 4' lamps w/electronic ballast	OEB Approved
197	4 - T12 34W (156W) 4' lamps w/magnetic ballast	4 - T8 28W (95W) 4' lamps w/electronic ballast	OEB Approved
198	60W Incandescent	15W Screw-In CFL	OEB Approved
199	4 - T12 (164W)	4-T8, 4X25W (75W)	OEB Approved
200	T12U, 2x4' (86)	T8, 2 - 30W (45W)	OEB Approved
201	T12U, 2x4' (86)	T8, 2 - 32W (39W)	OEB Approved
202	T12U, 2x4' (86)	T8, 2 - 32W (42W)	OEB Approved
203	4 - T12 (164W)	T8, 2 - 30W (45W)	OEB Approved
204	2 - T12 34W (86W) 4' lamps w/magnetic ballast	2 - T8 28W (55W) 4' lamps	OEB Approved
205	4 - T12 34W (156W) 4' lamps w/magnetic ballast	4 - T8 28W (95W) 4' lamps w/electronic ballast	OEB Approved
206	60W Incandescent	15W Screw-In CFL	OEB Approved
207	2 - T12 34W (86W) 4' lamps w/magnetic ballast	2 - T8 28W (55W) 4' lamps	OEB Approved
208	4 - T12 34W (156W) 4' lamps w/magnetic ballast	4 - T8 28W (95W) 4' lamps	OEB Approved
209	60W Incandescent	15W Screw-In CFL	OEB Approved
210	100W Incandescent	26W CFL Screw-in	OEB Approved
211	2 - T12 34W (86W) 4' lamps w/magnetic ballast	2 - T8 28W (55W) 4' lamps	OEB Approved
212	60W Incandescent	15W Screw-In CFL	OEB Approved
213	4 - T12 34W (156W) 4' lamps w/magnetic ballast	4 - T8 32W (108W) 4' lamps Assumption	OEB Approved
214	1 - T12 34W (42W) 4' lamps w/magnetic ballast	1 - T8 25W (20W) 4' lamps w/electronic ballast	OEB Approved
215	100W Incandescent	26W CFL Screw-in	OEB Approved
216	60W Incandescent	15W Screw-In CFL	OEB Approved
217	100W Incandescent	26W CFL Screw-in	OEB Approved
218	2 - T12 34W (86W) 4' lamps w/magnetic ballast	2 - T8 25W (49W) 4' lamps w/electronic ballast	OEB Approved
219	60W Incandescent	15W Screw-In CFL	OEB Approved
220	2 - T12 34W (86W) 4' lamps w/magnetic ballast	2 - T8 28W (55W) 4' lamps	OEB Approved
221	60W Incandescent	15W Screw-In CFL	OEB Approved
222	60W Incandescent	15W Screw-In CFL	OEB Approved
223	2 - T12 (86W) 2X4'	2X4 - T8 (42W)	OEB Approved
224	4 - T12 (172W)	4X4 - T8 (84W)	OEB Approved
225	1X4 - T12(34W) (43W)	1X4 - T8(28W) (26W)	OEB Approved
226	1X3 - T12(40W)	1X3 - T8(24W)	OEB Approved
227	1X2 - T12 (36W)	1X2 - T8(22W)	OEB Approved
228	2X4 - T12 (86W)	2X4 - T8(48W)	OEB Approved
229	4X4 - T12 (164W)	4X4 - T8(94W)	OEB Approved
230	60W Incandescent	13W CFL screw-in	OEB Approved
231	60W Incandescent	13W CFL screw-in	OEB Approved
232	60W Incandescent	23W CFL screw-in	OEB Approved
233	100W Incandescent	16W CFL EL/ARb30	OEB Approved

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)

General Service > 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
234	75W Incandescent	16W CFL EL/ARb30	OEB Approved
235	1 - T12 (45W) 2X4' Lamps	1 - T8 28W (22W) 1X4 lamps	OEB Approved
236	2 - T12 (86W) 2X4' Lamps	2 - T8 28W (42W) 1X4 lamps	OEB Approved
237	40W Incandescent	7W CFL Chandelier	OEB Approved
238	40W Incandescent	13W Screw-In CFL	OEB Approved
239	100W Incandescent	15W Screw-In CFL	OEB Approved
240	65W Incandescent	15W Screw-In CFL	OEB Approved
241	1X4 - T12(40W) (51W)	1X4 - T8(28W) (29W)	OEB Approved
242	2X4 - T12(86W)	2X4 - T8(58W)	OEB Approved
243	1X4 - T12 (51W)	1X4 - T8(29W)	OEB Approved
244	1X4 - T12 (51W)	1X4 - T8(29W)	OEB Approved
245	1X4 - T12 (51W)	1X4 - T8(29W)	OEB Approved
246	60W Incandescent	15W Screw-In CFL	OEB Approved
247	100W Incandescent	23W CFL screw-in	OEB Approved
248	60W Incandescent	15W Screw-In CFL	OEB Approved
249	T12-2x4 (86W)	T8-2x4 (32 W) (51W)	OEB Approved
250	T12-2x4 (86W)	T8-2x4 (32 W) (51W)	OEB Approved
251	40W Incandescent	13W CFL	OEB Approved
252	60W Incandescent	13W CFL	OEB Approved
253	60W Incandescent	13W CFL	OEB Approved
254	T12-4x4 (164W)	T8-4x4 32 (112W)	OEB Approved
255	T12-4x4 (164W)		OEB Approved
256	T12-2x4 (82W)	T8-4x4 32 (112W)	OEB Approved
257	T12-2x4 (82W)		OEB Approved
258	T12-4x4 (164W)	T8-2x4 32 (59W)	OEB Approved
259		T8-2x4 32 (59W)	OEB Approved
260	100W Incandescent Entrance	24W CFL screw-in	OEB Approved
261	75W Flood Incandescent Entrance	15W Screw-in CFL	OEB Approved
262	100W Incandescent Office	24W CFL screw-in	OEB Approved
263	75W Flood Incandescent Office	15W Screw-in CFL	OEB Approved
264	75W Par 30 Halogen Office	24W CFL screw-in	OEB Approved
265	75W Flood Incandescent Chapel	15W Screw-in CFL	OEB Approved
266	200W Incandescent Floor Lamp Lounge	24W CFL screw-in	OEB Approved
267	60W Incandescent Table (12) Other (8) Lounge	13W Screw-in CFL	OEB Approved
268	75W Flood Incandescent Lounge	15W Screw-in CFL	OEB Approved
269	75W Par 30 Halogen Show Room	24W CFL screw-in	OEB Approved
270	75W Flood Incandescent Show Room	15W Screw-in CFL	OEB Approved
271	60W Incandescent Show Room	11W Screw-in CFL	OEB Approved
272	2X8 - T12(158W)	2X8 - T8(25W) (87W)	OEB Approved
273	2X4 - T12(72W)	2X4 - T8(46W)	OEB Approved
274	1X4 - T12 (43W)	Replaced	OEB Approved
275	1X4 - T12 (43W)	4X4 - T8(87W) 4 lamps with one ballast	OEB Approved
276	1X4 - T12 (43W)	1X4 - T8(26W)	OEB Approved
277	T12-4x8 (316W)	T8-2x8 25 (87W)	OEB Approved
278	150W Incandescent	14W CFL AL/AR20	OEB Approved
279	100W Incandescent	14W CFL AL/AR20	OEB Approved
280	50W Incandescent Flood	15W CFL EL/BR30	OEB Approved
281	MH (400W)(455W)	T5 HO (250W)	OEB Approved
282	MH (400W)(455W)	Removed 2	OEB Approved
283	T12-2X4 (316W) Tandem	T8-2x4 (28 W) (94W) Tandem	OEB Approved
284	T12-2x4 (86W)	Removal	OEB Approved
285	T12-2x8 (164W)	T8-2x4 (28 W) (94W) Tandem	OEB Approved
286	T12-2x4 (86W)	T8-2x4 (28 W) (48W)	OEB Approved
287	30W Incandescent Exit Light	2.8W LED Exit Light	OEB Approved
288	30W Incandescent EXIT	1.6W LED EXIT Sign	OEB Approved
289	7W Incandescent Exit Light	0.8W LED Exit Light	OEB Approved
290	30W Incandescent EXIT	1.6W LED EXIT Sign	OEB Approved
291	30W Incandescent EXIT	1.8W LED EXIT Sign	OEB Approved
292	2 - 15W (30W) Incandescent EXIT Sign	2W LED EXIT sign	OEB Approved
293	2 - 15W (30W) Incandescent EXIT Sign	1.6W LED EXIT sign	OEB Approved
294	On/Off Switch Control	Occupancy Sensor Control (8T8's (32W) (54W) = 432W)	OEB Approved
295	On/Off Switch Control	Occupancy Sensor Control (private office - 600 W controlled)	OEB Approved
296	On/Off Switch Control - Outdoor light	Timer Control - Outdoor light (100 W controlled)	OEB Approved
297	100W Incandescent -- Photocell	CFL 42W	Custom Project
298	100W Incandescent -- Photocell	Removed	Custom Project
299	75W Incandescent -- Photocell	TCP 16W PAR 38 FL	Custom Project
300	On/Off Switch Control	Motion Sensor (4) Controls (12 fixtures - 5,047 W controlled)	OEB Approved
301	On/Off Switch Control	Motion Sensor (1) Controls (2 fixtures - 196 W controlled)	OEB Approved
302	On/Off Switch Control	Occupancy Sensor Controls (6 fixtures Limited Use - 276 W controlled)	OEB Approved
303	Seer 10 Single Speed -- Summer	SEER 13 Central Air Conditioner Single Speed -- Two Speed installed	Custom Project
304	Seer 10 Single Speed -- Winter	SEER 13 Central Air Conditioner Single Speed -- Two Speed installed	Custom Project
305	4X4- T12 (178W)	4X4T8 (28W)(104W)	OEB Approved
306	2X4- T12 (82W)	2X4T8 (28W)(52W)	OEB Approved
307	1X8- T12 (80W)	1X8T8 (28W)(57W)	OEB Approved
308	150W Incandescent	15W BR30	OEB Approved
309	100W Incandescent	15W BR30	OEB Approved
310	60W Incandescent	13W CFL	OEB Approved
311	400W Mercury Vapour Lamp Ice Surface	320W Super Metal Halide Lamp	OEB Approved

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)

General Service > 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
312	400W Mercury Vapour Lamp Ice Surface	Removed plus wiring changes	OEB Approved
313	4X4- T12 (164W)	4X4T8 (28W)(104W)	OEB Approved
314	2X4- T12 (82W)	2X4T8 (28W)(52W)	OEB Approved
315	1X4- T12 (42W)	1X4T8 (28W)(26W)	OEB Approved
316	2X8- T12 (160W)	2X4T8 Dual (28W)(104W)	OEB Approved
317	100W Incandescent	15W BR30	OEB Approved
318	150W Incandescent	26W CFL	OEB Approved
319	1000W Metal Halide Lamp Ice Surface	750W Super Metal Halide Lamp	OEB Approved
320	4X4- T12 (178W)	4X4T8 (28W)(104W)	OEB Approved
321	2X4- T12 (82W)	2X4T8 (28W)(52W)	OEB Approved
322	2X4- T12 (82W)	2X4T8 (32W)(59W)	OEB Approved
323	1X4- T12 (42W)	1X4T8 (28W)(26W)	OEB Approved
324	4X8- T12 (320W)	3X4T8 (28W)(156W)	OEB Approved
325	2X8- T12 (160W)	2X4T8 Dual (28W)(104W)	OEB Approved
326	1X8- T12 (84W)	1X4T8 Dual (28W)(52W)	OEB Approved
327	1X6- T12 (63W)	1X4T8 (28W)(26W)	OEB Approved
328	150W Incandescent	15W BR30	OEB Approved
329	100W Incandescent	15W BR30	OEB Approved
330	75W Incandescent	15W BR30	OEB Approved
331	1000W Metal Halide Lamp Ice Surface	750W Super Metal Halide Lamp	OEB Approved
332	1000W Metal Halide Lamp Other Areas	750W Super Metal Halide Lamp	OEB Approved
333	T12-4x4 (160W) (4 lamps)	T8-4x4 (75W)	OEB Approved
334	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
335	T12-1x4 (42W)	T8-1x4 32 (29W)	OEB Approved
336	T12-2u (82W)	T8-2x4 25W (40W)	OEB Approved
337	T12-4x4 (160W)	T8-4x4 25 (75W)	OEB Approved
338	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
339	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
340	100W Incandescent	26W CFL	OEB Approved
341	60W Incandescent	13W CFL	OEB Approved
342	100W Incandescent	26W CFL	OEB Approved
343	4 - T12 34W (156W) 4' lamps w/magnetic ballast	4 - T8 32W (108W) 4' lamps	OEB Approved
344	T12-4x4 (164W)	T8-4x4 (98W) 8760	OEB Approved
345	T12-2x4 (82W) 8760	T8-2x4 (49W) 8760	OEB Approved
346	T12-1X4 (42W)	T8-1X4 (25W) 8760	OEB Approved
347	T12-4x4 (164W)	T8-4x4 (98W) 4160	OEB Approved
348	T12-2X4 (82W)	T8-2X4 (49W) 4160	OEB Approved
349	T12-2X4 (82W)	T8-2X4 (49W) 2600	OEB Approved
350	T12-1X4 (42W)	T8-1X4 (25W) 2600	OEB Approved
351	T12-4x4 (164W)	T8-4x4 (98W) 1000	OEB Approved
352	T12-2X4 (82W)	T8-2X4 (49W) 1000	OEB Approved
353	3050W Incandescent	1330W CFL 8760	OEB Approved
354	2280W Incandescent	598W CFL 2600	OEB Approved
355	4690W Incandescent	1235W CFL 100	OEB Approved
356	100W (120W)Mercury Vapour	13W Screw-in CFL	OEB Approved
357	60W Incandescent Washrooms	13W Screw-in CFL	OEB Approved
358	T8-4x4 32 watt (98W)	T8-4x4 25 (75W)	OEB Approved
359	T8-2x4 32 watt (51W)	T8-2x4 25W (40W)	OEB Approved
360	T8-1x4 32 watt (30W)	T8-1x4 25W (23W)	OEB Approved
361	T8-2x4 32 watt (51W)	T8-2x4 25W (40W)	OEB Approved
362	T8-4x4 32 watt (98W)	T8-4x4 25 (75W)	OEB Approved
363	T8-2x4 32 watt (51W)	T8-2x4 25W (40W)	OEB Approved
364	T8-1x4 32 watt (30W)	T8-1x4 25W (23W)	OEB Approved
365	2-T12 Utube (82W)	T8-2x4 25W (40W)	OEB Approved
366	T8-4x4 32 watt (98W)	T8-4x4 25 (75W)	OEB Approved
367	T8-2x4 32 watt (51W)	T8-2x4 25W (40W)	OEB Approved
368	T8-1x4 32 watt (30W)	T8-1x4 25W (23W)	OEB Approved
369	T8-2x4 32 watt (51W)	T8-2x4 25W (40W)	OEB Approved
370	T12-2x4 (82W)	T8-2x4 25W (40W)	OEB Approved
371	T12-4x4 (164W)	T8-4x4 25W (75W)	OEB Approved
372	T8-1x4 32 watt (30W)	T8-1x4 25W (23W)	OEB Approved
373	60W Incandescent	7W Screw-in CFL	OEB Approved
374	100W Incandescent	26W CFL	OEB Approved
375	40W Incandescent	13W Screw-in CFL	OEB Approved
376	60W Incandescent	13W Screw-in CFL	OEB Approved
377	60W Incandescent	13W Screw-in CFL	OEB Approved
378	40W Incandescent	13W Screw-in CFL	OEB Approved
379	100W Incandescent	26W CFL	OEB Approved
380	75W Incandescent Flood	15W CFL	OEB Approved
381	T12's 1930 Class rooms	T8 and T5 HO Lamps Blackboard Fixtures	OEB Approved
382	T12's 1930 Offices	T8 Troffers	OEB Approved
383	T12's 1930 remaining	T8 Troffers, Pl, downlights, etc.	OEB Approved
384	T12's 1972 Class Rooms	T8 and T5 HO Lamps Blackboard Fixtures	OEB Approved
385	T12's 1972 Offices	T8 Troffers	OEB Approved
386	T12's 1972 Computer Rooms	T5 Volumetric Fixtures	OEB Approved
387	T12's 1972 Big Gym		OEB Approved
388		T5-HO High Bay	OEB Approved
389	T12's Library	T8 Troffers	OEB Approved

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)

General Service > 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
390	T12's 1972 remaining	T8 Troffers, Pl, downlights, etc.	OEB Approved
391	T12-2x4 (86W)	T8-2x4 (28) (42W)	OEB Approved
392	T12-2x4 (86W)	T8-2x4 (30) (45W)	OEB Approved
393	T12-2x4 (86W)	Removed	OEB Approved
394	T12-4x4 (172W)	T8-4x4 28W (84W)	OEB Approved
395	T12-2x8 (172W)	T8-4x4 28W (84W) Tandem	OEB Approved
396	2-T12-Utube (86W)	T8-2x4 (30) (45W)	OEB Approved
397	T12-1X4 (45W)	T8-1X4 (22W)	OEB Approved
398	T12-2X2 (60W)	T8-2X2 (26W)	OEB Approved
399	T12-1X2 (31W)	T8-1X2(17W)	OEB Approved
400	T12-1X2 (31W)	Removed	OEB Approved
401	60W Incandescent	13W CFL	OEB Approved
402	25 Watt Candelabra	7W CFL's	OEB Approved
403	60 W G25 Incandescent	14W CFL	OEB Approved
404	25W Incandescent	5W CFL Candelabra	OEB Approved
405	2 - T12 (86W) 2X4'	2X4 - T8 (42W)	OEB Approved
406	2 - T12 (86W) 2X4'	2X4 - T8 (42W) Controlled	OEB Approved
407	100W Incandescent	23W CFL	OEB Approved
408	40W Incandescent	9W CFL	OEB Approved
409	40W Incandescent	9W CFL	OEB Approved
410	2X4 - T12 (86W)	2X4 - T8 (42W)	OEB Approved
411	4 - T12 (172W)	4X4 - T8 (84W)	OEB Approved
412	1 - T12 (45W)	1X4 - T8 (28W)(22W)	OEB Approved
413	4X4 - T8 (114W)	4X4 - T8 (84W)	OEB Approved
414	75W PAR	23W CFL	OEB Approved
415	2 - T12 (86W) 2X4'	2X4 - T8 (42W)	OEB Approved
416	4 - T12 (172W) 2X4'	4X4 - T8 (84W)	OEB Approved
417	50W Incandescent Par 20	9W CFL Par 20	OEB Approved
418	75BR30 W Incandescent	23W CFL	OEB Approved
419	100W Incandescent	23W CFL Pot	OEB Approved
420	Hal 75W Par 38	23W CFL	OEB Approved
421	T12-2x4 32 watt (82W)	T8-4x4 32 (112W)	OEB Approved
422	T12-2x4 32 watt (82W)	T8-2x4 32W (58W)	OEB Approved
423	T12-2x4 32 watt (82W)	Removal	OEB Approved
424	T12-1x4 32 watt (42W)	T8-1x4 32W (31W) MS	OEB Approved
425	T12-2x2 32 watt (60W)	T8-2x2 32 (33W)	OEB Approved
426	T12-2x2 32 watt (60W)	T8-2x2 32 (66W)	OEB Approved
427	T12-2x2 32 watt (60W)	Removal	OEB Approved
428	T12-4x4 32 watt (164)	T8-4x4 32 (112W)	OEB Approved
429	T12-2x4 32 watt (82W)	T8-2x4 32W (58W)	OEB Approved
430	T12-2x4 32 watt (82W)	Replacement	OEB Approved
431	Replacement	T8-2x4 32W (58W)	OEB Approved
432	T12-2x4 32 watt (82W)	Removal	OEB Approved
433	Replacement	T8-4x4 32 (112W)	OEB Approved
434	T12-2x2 32 watt (60W)	T8-2x2 32 (33W)	OEB Approved
435	T12-2x2 32 watt (60W)	Removal	OEB Approved
436	T12-2x4 32 watt (82W)	T8-2x4 32W (58W)	OEB Approved
437	T12-2x4 32 watt (82W)	T8-4x4 32 (112W)	OEB Approved
438	T12-2x4 32 watt (82W)	Removal	OEB Approved
439	T12-2x4 48 watt (120W)	T8-2x4 32W (58W)	OEB Approved
440	T12-2x4 32 watt (82W)	T8-2x4 32W (58W)	OEB Approved
441	T12-2x4 32 watt (82W)	T8-4x4 32W (112W)	OEB Approved
442	T12-2x4 32 watt (82W)	Removal	OEB Approved
443	T12-2x4 48 watt (120W)	T8-2x4 32W (58W)	OEB Approved
444	T12-2x4 48 watt (120W)	Removal	OEB Approved
445	50W Incandescent signs	23W CFL screw-in	OEB Approved
446	150W Incandescent	16W CFL	OEB Approved
447	150W Incandescent	removal	OEB Approved
448	100W Incandescent	removal	OEB Approved
449	150W Incandescent	23W CFL screw-in	OEB Approved
450	150W Incandescent	42W CFL	OEB Approved
451	150W Incandescent	removal	OEB Approved
452	(2X48W) 120W Incandescent	removal	OEB Approved
453	150W Incandescent	23W CFL screw-in	OEB Approved
454	150W Incandescent	23W CFL screw-in	OEB Approved
455	150W Incandescent	42W CFL	OEB Approved
456	300W Incandescent	42W CFL	OEB Approved
457	300W Incandescent	23W CFL screw-in	OEB Approved
458	75W Incandescent	removal	OEB Approved
459	400W (452W)Metal Halide Lamp, PS	360W (410W)Metal Halide Lamp, PS	OEB Approved
460	100W Incandescent	70W (100W) High Pressure Sodium	OEB Approved
461	150W Incandescent	70W (100W) High Pressure Sodium	OEB Approved
462	500W Quartz Halogen	70W (100W) High Pressure Sodium	OEB Approved
463	500W Quartz Halogen	Removal	OEB Approved
464	75W Incandescent	70W (100W) High Pressure Sodium	OEB Approved
465	2 - T12 (82W) 2X4' Lamps	2 - T8 25W (42W) 2X4 lamps	OEB Approved
466	2 - T12 (82W) 2X4' Lamps	2 - T8 25W (42W) 2X4 lamps	OEB Approved
467	2 - T12 (82W) 2X4' Lamps	2 - T8 25W (42W) 2X4 lamps	OEB Approved

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)

General Service > 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
468	1 - T12 (42W) 1X4' lamps	1 - T8 (22W) 1X4' lamps	OEB Approved
469	1 - T12 (42W) 1X4' lamps	Removed	OEB Approved
470	2 - 15W (30W) Incandescent EXIT Sign	1.6W LED EXIT sign	OEB Approved
471	2 - 15W (30W) Incandescent EXIT Sign	2-1.6W LED EXIT sign	OEB Approved
472	2 - 15W (30W) Incandescent EXIT Sign	1.8W LED EXIT sign	OEB Approved
473	1 - 50W Incandescent EXIT Sign	1.8W LED EXIT sign	OEB Approved
474	XL 5000 Control System	New Honeywell EBI System (30_04_08)	Custom Project
475	No Individual Control	Use of Breakers for Perimeter Lighting (118)	Custom Project
476	No Individual Control	Installation of Switches for Washrooms (49)	Custom Project
477	On/Off Switch Control	Occupancy Sensor Control (controlling 773 Fixtures -- 44,834 Watts)	OEB Approved
478	On/Off Switch Control	Occupancy Sensor Controls (16) (33X2-28Watt or 1386W)	OEB Approved
479	On/Off Switch Control	Occupancy Sensor Controls (1) (9 fixtures - 279 W controlled)	OEB Approved
480	On/Off Switch Control	Occupancy Sensor Controls (1) 20 fixtures - 660 W controlled)	OEB Approved
481	No Control for 70 Watt HPS (100)	Photo Cell Control 70 HPS (100)	Custom Project
482	Existing 3000 KVA Transformer	New Energy Efficient 5000 KVA Transformer	Custom Project
483	No Solar Panels	Solar Panels	Custom Project
	Demand Reduction (Industrial)		
484	2 - T12 8 foot (160W) security light	2T8 (85W) 2 Lamp Dual	OEB Approved
485	2 - T12 8 foot (160W) 24hr	2T8 (85W) 2 Lamp Dual	OEB Approved
486	2 - T12 2 Lamp (82W)	2T8 (45W) 2 Lamp	OEB Approved
487	2T8 32W (51W) 20 hr	2T8 32W (51W) 2 Lamp	OEB Approved
488	2 - T12 8 foot (160W) 16hr	2T8 (85W) 2 Lamp Dual	OEB Approved
489	2T8 32W (51W) 16 hr	2T8 32W (51W) 2 Lamp	OEB Approved
490	4 - T12 (144W) 2x4' Troughers	2RT5 (58W) 2 Lamp, 2'X4" Troughers	OEB Approved
491	2 - T12 "U" Lamp (72W) 2x2' Troughers	2RT5 (32.5W) 2 Lamp, 2'X4" Troughers	OEB Approved
492	2 - T12 2 Lamp (72W) 1x4' Surface Wraps	2 - T8 28W (59W) 1X4' lamps Surface Wrap	OEB Approved
493	Pot Lights, 75 Watt, R40	Pot Lights, (20W) CFL	OEB Approved
494	Track Lights, 50 Watt Halogen	11W Track bulbs - CFL	OEB Approved
495	4 - T12 (144W) 2x4' Troughers	2RT5 (32.5W) 2 Lamp, 2'X4" Troughers	OEB Approved
496	4 - T12 (144W) 2x4' Troughers	Nil 25 Removed	OEB Approved
497	2 - T12 2 Lamp (72W) 1x4' Surface Wraps	Nil 3 Removed	OEB Approved
498	4 - T12 34W (164W) 4' lamps w/2 magnetic ballasts	3 - T8 28W (63W) 4' lamps with reflectors	OEB Approved
499	4 - T12 34W (164W) 4' lamps w/magnetic ballast	2 - T8 28W (42W) 4' lamps w/electronic ballast	OEB Approved
500	4 - T12 34W (164W) 4' lamps w/magnetic ballast	Removed	OEB Approved
501	2 - T12 34W (82W) 4' lamps w/magnetic ballast	1 - T8 28W (22.5W) 4' lamps w/electronic ballast	OEB Approved
502	2 - T12 34W (82W) 4' lamps w/magnetic ballast	Removed	OEB Approved
503	400W Metal Halide Lamp Shop Security	360W Super Metal Halide Lamp	OEB Approved
504	400W Metal Halide Lamp Shop	360W Super Metal Halide Lamp	OEB Approved
505	2 - 15W (30W) Incandescent EXIT Sign	2W LED EXIT sign	OEB Approved
506	2 - 20W (40W) Incandescent EXIT Sign	2W LED EXIT sign	OEB Approved
507	2 - 15W (30W) Incandescent EXIT Sign	2W LED EXIT sign	OEB Approved
508	Fifty Fixtures with no Motion Sensors	Occupancy Sensors (6) controlling 50 fixtures -- 2000 W Controlled	OEB Approved
509	Pot Lights, (50X6W=300W) -- No Dimmer Switch	Dimmer Switch	OEB Approved
510	On/Off Switch Control	8 Occupancy Sensor Controls 30 fixtures (1,260 W controlled)	OEB Approved
511	No Individual Control	Installation of Switches for Area Task Lighting (item 101)	Custom Project
512	Timer for Limited Period Zones 4, 5, 6 and 7	Zone control for Shipping, Receiving, Drill Division -- 15,150 Watt MH	Custom Project
513	Timer for Limited Period	Zone 8 control for Phosphate -- 2,050 Watt MH	Custom Project
514	Timer for Limited Period -- Zones 1, 2 and 3	Zone control for Rod Division -- 15,580 Watt MH	Custom Project
515	T12-2X8 (158W)	Dual T8-2x4 (28 W) (95W)	OEB Approved
516	T12-2X8 (158W)	Dual T8-2x4 (28 W) (95W) with motion sensors	OEB Approved
517	T12-4x4 (164W)	T8-4x4 (25 W) (46W)	OEB Approved
518	T12-2x4 (86W)	T8-2x4 (25 W) (49W)	OEB Approved
519	T12-2x4 (86W)	T8-2x4 (25 W) (49W) with motion sensors	OEB Approved
520	T12-2x4 (82W)	T8-2x4 (25 W) (46W)	OEB Approved
521	T12-2x4 (82W)	T8-2x4 (25 W) (46W) with motion sensors	OEB Approved
522	100W Incandescent	27W CFL fixture w/EM ballast	OEB Approved
523	2 - T12 4 foot (86W)	2T8 25W (46W)	OEB Approved
524	2 - T12 4 foot (86W)	2T8 25W (46W)	OEB Approved
525	60W Incandescent	15W Screw-In CFL	OEB Approved
526	4 - T12 4 foot (186)	T8 2X4 25W (48W)	OEB Approved
527	4 - T12 4 foot (186)	T8 2X4 25W (48W) MS	OEB Approved
528	2 - T12 4 foot (86W)	2T8 25W (48W) 16+23	OEB Approved
529	2 - T12 4 foot (86W)	2T8 25W (48W) MS 16+23	OEB Approved
530	2 - T12 2X8 foot (158W)	T8 New Tandem 4X25W (98W)	OEB Approved
531	2 - T12 2X8 foot (158W)	T8 New Tandem 4X25W (98W) MS	OEB Approved
532	60W Incandescent	15W CFL fixture w/EM ballast	OEB Approved
533	400W Mercury Vapor (452W)	4 - T5 HO Lamps in new High Bay fixture (248W)	OEB Approved
534	2 - T12 4 foot (86W)	2T8 25W (48W)	OEB Approved
535	2 - T12 4 foot (86W)	2T8 25W (48W) no motion sensors	OEB Approved
536	2 - T12 4 foot (86W)	Nil Removed	OEB Approved
537	Nil	T8 Tandem 4X25W (87W) Replaced 108	OEB Approved
538	60W Incandescent	15W CFL fixture w/EM ballast	OEB Approved
539	2 - T12 4 foot (86W)	2T8 25W (46W) not controlled	OEB Approved
540	2 - T12 4 foot (86W)	2T8 25W (46W) controlled	OEB Approved
541	2 - T12 4 foot (86W)	2T8 25W (48W)	OEB Approved
542	2 - T12 8 foot (160W)	2T8 25W Tandem (98W)	OEB Approved
543	4 - T12 4 foot (186W)	2X8T8 25W (98W)	OEB Approved
544	2 - T12 4 foot (86W)	2T8 25W (48W)	OEB Approved

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)

General Service > 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
545	400W Mercury Vapor	T5 HO (248W)	OEB Approved
546	400W Mercury Vapor	Removed	OEB Approved
547	3 - T12 4 foot (112W)	2T8 25W (40W)	OEB Approved
548	4 - T12 4 foot (186W)	2T8 25W (48W)	OEB Approved
549	4 - T12 4 foot (186W)	2T8 25W (48W)	OEB Approved
550	2 - T12 4 foot (86W)	2T8 25W (48W)	OEB Approved
551	2 - T12 8 foot (158W)	2X8T8 25W (97W)	OEB Approved
552	2 - T12 8 foot (158W)	2X8T8 25W (97W)	OEB Approved
553	2 - T12 (160W) 2X8'	4 - T8 Lamps (75W)	OEB Approved
554	2 - T12 (160W) 2X8'	4 - T8 Lamps (75W) with motion sensors	OEB Approved
555	1 - T12 (34W)(74W) 1X8'	1X4 - T8 Dual(40W)	OEB Approved
556	2 - T12 34W (78W) 4' lamps	2 - T8 25W (40W)	OEB Approved
557	400W Metal Halide (452W)	4 - T8 Lamps (75W)	OEB Approved
558	Additional	4 - T8 Lamps (75W)	OEB Approved
559	400W Metal Halide (452W) Base Case	4 - T8 Lamps (75W)	OEB Approved
560	Additional	4 - T8 Lamps (75W)	OEB Approved
561	30W Incandescent EXIT	1.6W LED EXIT Sign	OEB Approved
562	On/Off Switch Control	Motion Sensor (10) Controls (103 fixtures - 5,047 W controlled)	OEB Approved
563	On/Off Switch Control	Motion Sensor (33) Controls (107 fixtures - 4922 W controlled)	OEB Approved
564	Fifty two Fixtures with no Motion Sensors	Motion Sensors (6) controlling 52 fixtures -- 2392 W Controlled	OEB Approved
565	Six Fixtures with no Motion Sensors	Motion Sensors (1) controlling 6 fixtures -- 90 W Controlled	OEB Approved
566	Forty Fixtures with no Motion Sensors	Motion Sensors (10) controlling 40 fixtures -- 1920 W Controlled	OEB Approved
567	One Fixture with no Motion Sensors	Motion Sensors (1) controlling 1 fixture -- 98 W Controlled	OEB Approved
568	Forty Six fixtures with no Motion Sensors	Motion Sensors (8) controlling 46 fixtures -- 2034 W Controlled	OEB Approved
569	Sixty five Fixtures with no Motion Sensors	Motion Sensors (17) controlling 65 fixtures -- 2990 W Controlled	OEB Approved
570	Thirty nine Fixtures with no Motion Sensors	Motion Sensors (7) controlling 39 fixtures -- 3772 W Controlled	OEB Approved
571	Nine Fixtures with no Motion Sensors	Motion Sensors (5) controlling 9 fixtures -- 432 W Controlled	OEB Approved
572	On/Off Switch Control	Motion Sensors (4) -- controlling 26 fixtures -- 1875 watts	OEB Approved
573	2 - T12 34W (86W) 4' lamps w/magnetic ballast	2 - T8 28W (55W) 4' lamps	OEB Approved
574	T12-2x4 (86W)	T8-2x4 25W (46W)	OEB Approved
575	T12-2x4 (86W)	T8-2x4 25W (46W)	OEB Approved
576	T12-4x4 (172W)	T8-4x4 25W (87W)	OEB Approved
577	T12-2x4 (86W)	T8-2x4 25W (46W)	OEB Approved
578	T12-2x4 (86W)	Removed	OEB Approved
579	T12-2x8 (160W)	T8-2x8 25W (87W)	OEB Approved
580	T12-2x8 (160W)	T8-2x4 25W (46W)	OEB Approved
581	T12-2x8 (160W)	Removed	OEB Approved
582	T12-4x4 (172W)	T8-4x4 25W (87W)	OEB Approved
583	400W Metal Halide PS High Bay	4 - T5 HO Lamps in new High Bay fixture (248W)	OEB Approved
584	2 - 15W (30W) Incandescent EXIT Sign	1.6W LED EXIT sign	OEB Approved
585	On/Off Switch Control	Occupancy Sensor Controls (2) (4x87 + 3x46 Watt or 486W))	OEB Approved
586	Operating 3-10 HP Refrigeration Plants plus other motors	Use Outside Air for Free Cooling Using 3-1/3 HP	Custom Project
587	Current standard electrical water heater	Remove Water Heater	OEB Approved

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)			
General Service > 50 kW -- Third Tranche 2005 Through 2008			
Response to Board Question 37(a)			
Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
Table 37A-4 -- NBH Delivered Programs (Commercial and Institutional)			
General Service > 50 kW -- Third Tranche 2005 Through 2008			
Response to Board Question 37(a)			
Reference Number	Programs		Source of Input Assumptions
588	Demand Reduction -- Commercial		OEB Approved
589	Demand Reduction -- Institutional		OEB Approved
590	Demand Reduction -- Industrial		OEB Approved
Table 37A-4 -- NBH Delivered Programs (Commercial and Institutional)			
General Service > 50 kW -- Third Tranche 2005 Through 2008			
Response to Board Question 37(a)			
Reference Number	Custom Projects Base Case	Custom Projects Efficient Case	Custom Project Reference Included in Exhibit 10
2	Incorrect Plumbing Configuration	Change Configuration to Correct Operation	Custom Project Reference Appendix 10-C Input Assumptions Page 15 of 25
3	Stairwell Heating (Buildings)	Stairwell Heating Turned Off	Custom Project Reference Appendix 10-C Input Assumptions Page 13 of 25
4	Cafeteria Heating -- electric	Resequenced to gas	Custom Project Reference Appendix 10-C Input Assumptions Page 14 of 25
60	Single Compressor Chiller	Dual Compressor Chiller	Custom Project Reference Appendix 10-C Input Assumptions Page 16 of 25
73	Compressor (12.3 kW) Cooling Only with No Economizer	Compressor with Outside Economizer(7.1 kW)	Custom Project Reference Appendix 10-C Input Assumptions Page 19 of 25
74	Electric Heaters (19.5 kW)	Fuel Switching - Gas Heating	Custom Project Reference Appendix 10-C Input Assumptions Page 20 of 25 (Title is incorrect in Exhibit 10)
75	Electric Heaters (30 kW + 15 kW) -- No Timer	Electric Heaters (30 kW + 15 kW) -- Timer	Custom Project Reference Appendix 10-C Input Assumptions Page 21 of 25
110	SEER 13.45 Roof Top 12 hours per day	Seer 9.5 Roof Top (Assume 10.0 for Efficiency)	Similar to Custom Project Reference Appendix 10-C Input Assumptions Page 1 of 25
160	No Control, previous times were by-passed	Intelligent Parking Lot Controllers	Custom Project Reference Appendix 10-C Input Assumptions Page 12 of 25
161	Replace old control and manual systems	New intake damper, thermostat and controls. Relocate thermostat, install interlock.	Custom Project Reference Appendix 10-C Input Assumptions Page 11 of 25
163	No Photocell Control HPS 70 Watt (86W)	Photocell Control HPS 70 Watt (86W)	Similar to Custom Project Reference Appendix 10-C Input Assumptions Page 2 of 25
165	Normal Motors 200, 150, and 50HP	High Efficiency Motors 6-40 HP, Operating and less HP	Custom Project Reference Appendix 10-C Input Assumptions Page 10 of 25
297	100W Incandescent -- Photocell	CFL 42W	Similar to Custom Project Reference Appendix 10-C Input Assumptions Page 3 of 25
298	100W Incandescent -- Photocell	Removed	Similar to Custom Project Reference Appendix 10-C Input Assumptions Page 3 of 25
299	75W Incandescent -- Photocell	TCP 16W PAR 38 FL	Similar to Custom Project Reference Appendix 10-C Input Assumptions Page 3 of 25
303	Seer 10 Single Speed -- Summer	SEER 13 Central Air Conditioner Single Speed -- Two Speed in	Similar to Custom Project Reference Appendix 10-C Input Assumptions Page 1 of 25
304	Seer 10 Single Speed -- Winter	SEER 13 Central Air Conditioner Single Speed -- Two Speed in	Similar to Custom Project Reference Appendix 10-C Input Assumptions Page 1 of 25
474	XL 5000 Control System	New Honeywell EBI System (30_04_08)	Custom Project Reference Appendix 10-C Input Assumptions Page 7 of 25
475	No Individual Control	Use of Breakers for Perimeter Lighting (118)	Custom Project Reference Appendix 10-C Input Assumptions Page 5 of 25
476	No Individual Control	Installation of Switches for Washrooms (49)	Custom Project Reference Appendix 10-C Input Assumptions Page 5 of 25
481	No Control for 70 Watt HPS (100)	Photo Cell Control 70 HPS (100)	Similar to Custom Project Reference Appendix 10-C Input Assumptions Page 2 of 25

Table 37A-4 -- NBH Delivered Programs (Commercial, Institutional and Industrial)

General Service > 50 kW -- Third Tranche 2005 Through 2008

Response to Board Question 37(a)

Reference Number	Measure Base Case	Measure Efficient Case	Source of Input Assumptions
482	Existing 3000 KVA Transformer	New Energy Efficient 5000 KVA Transformer	Custom Project Reference Appendix 10-C Input Assumptions Page 6 of 25
483	Solar Panels	No Solar Panels	Custom Project Reference Appendix 10-C Input Assumptions Page 8 of 25
511	No Individual Control	Installation of Switches for Area Task Lighting (item 101)	Custom Project Reference Appendix 10-C Input Assumptions Page 17 of 25
512	Timer for Limited Period Zones 4, 5, 6 and 7	Zone control for Shipping, Receiving, Drill Division -- 15,150 Wa	Custom Project Reference Appendix 10-C Input Assumptions Page 18 of 25
513	Timer for Limited Period	Zone 8 control for Phosphate -- 2,050 Watt MH	Custom Project Reference Appendix 10-C Input Assumptions Page 18 of 25
514	Timer for Limited Period -- Zones 1, 2 and 3	Zone control for Rod Division -- 15,580 Watt MH	Custom Project Reference Appendix 10-C Input Assumptions Page 18 of 25
586	Operating 3-10 HP Refrigeration Plants plus other motors	Use Outside Air for Free Cooling Using 3-1/3 HP	Custom Project Reference Appendix 10-C Input Assumptions Page 4 of 25