

**Q. References: Section 2, Customer Expectations/Conservation Plan  
Vol. 2, Tab 6, Customer, Energy and Demand Forecast**

- (a) Please provide a detailed explanation of the methodology used to include the impact of conservation and demand management (CDM) in the energy sales forecast.**
- (b) Please provide the impact on energy and demand of CDM in the energy sales forecast for 2009 and 2010 with details by customer class showing GWh/MW and percentage impacts.**
- (c) Please provide a table showing actual weather adjusted use per customer by customer class for the years 1999 through 2008 (actual) as well as the forecast weather adjusted use per customer for 2009 and 2010. Include pre-CDM GWh and MW, post-CDM GWh and MW and the difference (CDM impact).**
- (d) For 2009 and 2010, please provide details by customer class of the customer savings in terms of reduced purchased power costs due to CDM (details corresponding to GWh and MW reductions shown in part (b) above) and costs recovered in rates (i.e., breakdown by customer class the conservation costs of \$2.451 million in 2009 and \$2.977 million in 2010 identified in Table 2-7).**
- (e) Please provide details of customer benefits associated with the CDM costs incurred in 2009 and 2010 that are expected to be realized in future years as per the TRC and RIM tests referred to in footnote 16 at page 2-5, showing customer benefits by program for all future years. Also, provide updated forecasts of the benefits of conservation programs.**

**Please provide detailed information on the processes NP is using or plans to use for verifying the results of the customer energy conservation programs implemented as part of the Conservation Plan.**

- A. (a) The impacts of the customer energy conservation programs identified in the *Five-Year Conservation Plan 2009 - 2013* (the “Plan”) are included in the Company’s energy sales forecast. The adjustments to the energy sales forecast were calculated based on the estimated energy savings contained in the 2009 Conservation Cost Deferral Application, as shown in Table 1.

**Table 1**  
**Customer Program Portfolio**  
**Energy Reduction Estimates: 2009-2013**  
**by Sector**  
**(MWh)**

	2009	2010	2011	2012	2013
<b>Residential</b>					
Insulation Program	2,472	5,191	8,181	11,170	14,160
Thermostat Program	292	677	1,103	1,622	2,181
ENERGY STAR Windows Program	346	730	1,154	1,653	2,207
<b>Commercial</b>					
Lighting Rebate Program	722	1,720	2,988	4,518	6,333
<b>Industrial</b>					
Custom Retrofit Project Rebate Program	-	-	20,000	45,000	45,000
<b>Total</b>	<b>3,832</b>	<b>8,318</b>	<b>33,426</b>	<b>63,963</b>	<b>69,881</b>

The adjustments to the energy sales forecast for the impact of the customer energy conservation programs were revised from the energy reduction estimates provided in Table 1 to reflect the following changes in assumptions.

- (i) The energy sales forecast assumes that 80% of the savings from the Residential and Commercial programs are related to Newfoundland Power’s service area, and that none of the savings from the Industrial programs apply.<sup>1</sup> Table 1 presents the energy reduction estimates for the full province.
- (ii) The energy sales forecast assumes a mid-year 2009 implementation of the programs with energy savings accruing based on customer participation gradually over the year. Table 1 effectively assumes a full year of energy savings in each year.

<sup>1</sup> The Industrial programs apply to Newfoundland & Labrador Hydro (“Hydro”) customers only.

- (b) Table 2 provides the estimated impact of customer energy conservation programs on the Company's energy sales forecast by customer class for 2009 and 2010.

**Table 2**  
**Impact of Customer Energy Conservation Programs**  
**on Energy Sales (MWh) and Demand (KW): 2009 - 2010**  
**by Customer Class**

Customer Rate Class	2009F	2009F Impact %	2010F	2010F Impact %
Rate 1.1 (MWh)	362	0.01	2,637	0.08
Rate 2.1 (MWh)	10	0.01	76	0.08
Rate 2.2 (MWh)	74	0.01	558	0.08
Total Energy (MWh)	446	0.01	3271	0.06
Peak Demand (kW)	107	0.01	784	0.06

Peak demand savings are calculated assuming system losses on energy sales of 5.7% (equivalent to 5.4% on produced and purchased) and a 15-year average system load factor of 50.36%.

- (c) Table 3 provides estimated actual weather adjusted average use per customer by customer class for the years 1999 through 2008.

**Table 3**  
**Weather Adjusted Use Per Customer**  
**1999 – 2008**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Rate 1.1	14,588	14,673	14,927	15,144	15,322	15,443	15,309	15,117	15,241	15,456
Rate 2.1	8,073	8,145	8,226	8,279	8,250	8,207	8,118	7,835	7,654	7,468
Rate 2.2	72,082	73,350	74,401	75,210	75,644	76,089	75,919	75,537	75,164	74,931
Rate 2.3	840,936	869,546	870,720	852,144	850,248	856,392	844,596	837,880	841,804	833,116
Rate 2.4	7,059,842	7,413,144	7,494,486	7,145,325	7,406,650	7,357,681	6,970,455	6,622,460	6,690,258	6,844,116

Table 4 provides forecast weather adjusted average use per customer by customer class for 2009 and 2010 pre-Plan and post-Plan, based on proposed rates.

**Table 4**  
**Forecast Weather Adjusted Use Per Customer (kWh)**  
**2009 - 2010**

	<b>Pre-Plan</b>		<b>Post-Plan</b>		<b>Plan Impact</b>	
	<b>2009</b>	<b>2010</b>	<b>2009</b>	<b>2010</b>	<b>2009</b>	<b>2010</b>
Rate 1.1	15,600	15,582	15,598	15,569	-2	-13
Rate 2.1	7,470	7,376	7,470	7,369	-	-7
Rate 2.2	74,275	73,839	74,266	73,776	-9	-63
Rate 2.3	825,643	832,285	825,643	832,285	-	-
Rate 2.4	6,338,225	6,487,179	6,338,225	6,487,179	-	-

(d) The forecast purchased power cost savings arising from the customer energy conservation programs identified in the Plan are \$47,000 and \$342,000 in 2009 and 2010, respectively. The 2010 savings have contributed to reducing the Company's overall revenue requirement for 2010 by about 0.06%.

The forecast operating costs related to the Plan to be recovered in rates in 2009 total \$0.935 million, and the forecast operating costs related to the Plan to be recovered in proposed rates for 2010 total \$3.356 million.<sup>2</sup> The cost increase of \$2.421 million from 2009 to 2010 translates to an overall revenue requirement increase of 0.5%.

These forecast costs and savings are not explicitly assigned by each customer class in determining the revenue to be recovered by each class. The proposed rates are set to recover the Company's 2010 revenue requirement based on the Company's overall required increase in revenue from rates and the use of revenue to cost ratios as determined in the Cost of Service Study.<sup>3</sup> The current level of operating costs and purchase power cost savings related to the Plan are not anticipated to impact revenue to cost ratios that would require modification to the Company's rate design proposals.

<sup>2</sup> The forecast 2009 conservation operating costs to be recovered in rates include costs of \$2.451 million less the \$1.516 million forecast cost deferral. The forecast 2010 conservation operating costs to be recovered in proposed rates is \$2.977 million plus the amortization of \$0.379 million from the 2009 cost deferral.

<sup>3</sup> The Cost of Service Study is based on an allocation of 2008 actual costs, and does not reflect any change in sales and costs associated with the 2009 and 2010 customer energy conservation programs. For further information, please refer to Section 5.3.2 on page 5-8 of the Evidence.

1 The estimated customer benefits from the residential and commercial programs  
2 identified in the Plan are provided in Attachments A and B, respectively. These  
3 benefits reflect the Plan and include the estimated combined impacts on  
4 Newfoundland Power and Hydro.

5  
6 The Company has not completed an updated forecast of the benefits of the energy  
7 conservation programs.

8  
9 (e) The savings will be verified through a range of verification processes that  
10 conform to good utility practice. A combination of the following verification  
11 process alternatives will be applied based on the characteristics of the programs.

- 12  
13
  - Gathering information from participants through the application process;
  - 14 • Reporting from suppliers;
  - 15 • Performing random audits to verify participation and gather other pertinent  
16 information;
  - 17 • Surveying to obtain information such as market penetration;
  - 18 • Reviewing participants electricity use;
  - 19 • Using building modelling to determine electricity savings; and
  - 20 • Analyzing information shared through the Energy Conservation and  
21 Efficiency Partnership and the Federal Department of Natural Resources.

22  
23 Examples of expected verification processes are provided below:

- 24  
25 (i) The Company will conduct field visits on a random sample of 10% of 2009  
26 program participants to verify product installation. Based on the first year's  
27 audit results, this sample size may be revised for the following year.  
28 (ii) Participants' energy usage history will be analyzed after the next heating  
29 season. This approach will provide an indicator of actual energy savings  
30 achieved, however, analysis of this nature is subject to a number of other  
31 variables, including weather and changes in household members'  
32 demographics or energy use behaviours.  
33 (iii) Participants who concurrently complete an *ecoENERGY* audit will be asked  
34 to release the *ecoENERGY* pre and post audit data for analysis by the  
35 Company.

**Utility Avoided Cost Benefits  
Residential Programs**

Five-Year Energy Conservation Plan  
Utility Avoided Cost Benefits  
Residential Programs  
(\$000s)

Program:	<u>Insulation</u>			<u>Thermostat</u>			<u>Windows</u>	<u>Total</u>
	Basement	Attic		Electronic	Programmable			
<u>Year</u>	<u>Component</u>	<u>Component</u>	<u>Sub Total</u>	<u>Component</u>	<u>Component</u>	<u>Sub Total</u>		
2009	324	56	380	18	27	45	53	479
2010	712	123	835	46	62	109	117	1,061
2011	1083	188	1,271	79	92	171	179	1,621
2012	1488	258	1,746	123	131	254	258	2,257
2013	1975	342	2,317	181	176	357	361	3,035
2014	2010	348	2,359	184	179	363	368	3,090
2015	2045	354	2,399	187	182	370	374	3,143
2016	2077	360	2,437	190	185	375	380	3,193
2017	2111	366	2,477	193	188	382	386	3,244
2018	2157	374	2,531	198	192	390	394	3,315
2019	2203	382	2,585	202	196	398	403	3,386
2020	2246	389	2,635	206	200	406	411	3,452
2021	2283	396	2,679	209	204	413	417	3,509
2022	2493	432	2,926	228	222	451	456	3,832
2023	2599	451	3,049	238	232	470	475	3,994
2024	2765	479	3,244	253	247	500	506	4,250
2025	2983	517	3,500	273	266	539	545	4,585
2026	3180	551	3,731	291	284	575	581	4,887
2027	3381	586	3,967	277	252	529	618	5,115
2028	3442	597	4,039	233	196	429	629	5,097
2029	3504	607	4,111	173	140	313	641	5,065
2030	3567	618	4,185	95	71	165	652	5,002
2031	3631	629	4,260	0	0	0	664	4,924
2032	3696	641	4,337	0	0	0	676	5,012
2033	3762	652	4,415	0	0	0	688	5,102
2034	3161	548	3,709	0	0	0	590	4,300
2035	2469	428	2,898	0	0	0	477	3,375
2036	1676	291	1,966	0	0	0	346	2,312
2037	853	148	1,001	0	0	0	185	1,186

**Utility Avoided Cost Benefits  
Commercial Lighting Program**



Five-Year Energy Conservation Plan  
Utility Avoided Cost Benefits  
Commercial Lighting Program  
(\$000s)

<u>Year</u>	<u>High Efficiency T8 Lighting</u>			<u>LED Exit Signs</u>	<u>Occupancy Sensors</u>	<u>Total</u>
	<u>Fixture</u>	<u>Lamp</u>	<u>Ballast</u>			
2009	16	54	28	9	5	112
2010	53	130	66	19	11	279
2011	103	212	108	28	16	468
2012	173	317	162	38	23	713
2013	280	456	233	49	30	1,048
2014	285	464	237	50	31	1,067
2015	289	472	241	51	31	1,085
2016	294	419	245	52	32	1,041
2017	298	346	249	52	32	977
2018	305	253	254	54	33	899
2019	312	138	260	44	28	781
2020	318	-	265	33	22	638
2021	323	-	269	23	15	630
2022	358	-	299	12	8	677
2023	375	-	313	-	-	688
2024	403	-	336	-	-	739
2025	413	-	320	-	-	733
2026	382	-	280	-	-	662
2027	310	-	215	-	-	525
2028	181	-	116	-	-	297