

NON-CONFIDENTIAL

Request IR-1:

Please provide the total electric operating revenues for Nova Scotia Power Incorporated, for 2010 and 2011.

Response IR-1:

Electric operating revenue for 2010 was \$1,189,344,000. Electric operating revenue for 2011 was \$1,251,026,000.

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Request IR-2:

Please provide the number of retail customers served by Nova Scotia Power Incorporated in 2012, by rate class.

Response IR-2:

The number of customers served by rate class in 2012 is as follows:

	2012
Residential	448,337
Small General	23,681
General Demand	11,426
Large General	18
Small Industrial	2,233
Medium Industrial	197
Large Industrial	30
GRLF	3
LRT	1
Muni	6
Unmetered	9,405

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Request IR-3:

Please provide a forecast of the number of retail customers served by Nova Scotia Power Incorporated, by rate class, in each year from 2013 through 2022.

Response IR-3:

The table below shows projected customer numbers, as represented by active accounts, by rate class to the year 2015. Only the residential class numbers are projected for the long-term. For the other rate classes, load levels are not directly correlated to the number of customers.

Number of Customers by Rate Class

Rate Class	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Residential	448,377	452,558	456,991	461,716	465,634	468,747	471,859	474,971	478,082	481,184	484,127
Small General	23,681	23,894	24,109	24,326							
General	11,426	11,387	11,349	11,310							
Large General	18	18	19	19							
Small Ind.	2,233	2,227	2,221	2,215							
Medium Ind.	197	197	198	199							
Large Ind.	30	30	30	30							
GRLF	3	3	3	3							
LRT	1	1	1	1							
Municipal	6	6	6	6							
Unmetered	9,405	9,504	9,604	9,704							

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Request IR-4:

Please provide a forecast of electricity sales to Nova Scotia Power Incorporated retail customers, by rate class, in each year from 2013 through 2022.

Response IR-4:

The following table shows the 2011 base forecast prior to any adjustments for DSM or other conservation programs. The class level detail for 2022 and beyond has not been developed.

2011 Load forecast: Billed Sales by Rate Class, before adjustments for DSM and conservation programs

Class Sales (GWh)	2013	2014	2015	2016	2017	2018	2019	2020	2021
Residential	4,465	4,508	4,556	4,603	4,642	4,669	4,708	4,742	4,775
Small General	243	245	246	248	249	251	253	254	256
General Demand	2,685	2,719	2,751	2,780	2,805	2,825	2,846	2,864	2,879
Large General	424	429	434	436	439	444	449	454	460
Unmetered	122	123	124	126	127	128	129	130	130
Small Industrial	274	281	287	288	290	293	296	301	305
Medium Industrial	549	567	581	592	603	614	624	635	646
Lg. Industrial	956	964	972	980	988	996	1,004	1,012	1,021
Mersey System	368	368	368	369	368	368	368	369	368
GR&LF	19	19	19	19	19	19	19	19	19
Municipal	206	209	211	213	215	216	218	219	222
ELI 2P RTP	1904	1904	1904	1904	1904	1904	1904	1904	1904
Total Billed Sales	12,216	12,334	12,452	12,556	12,649	12,727	12,818	12,904	12,984
Losses & ΔUnbilled	861	874	882	891	899	904	912	919	926
Net System Requirement	13,077	13,208	13,334	13,447	13,547	13,631	13,730	13,823	13,909

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Request IR-5:

With regard to Figure 4.3 of the Evidence, please provide the average energy efficiency measure life associated with each efficiency program.

Response IR-5:

The following figure presents, with regard to Figure 4.3 of the Evidence, the average measure life for each program. The average measure life is a weighted average based on the aggregate energy savings for each energy efficiency measure over the total program energy savings.

2014	Average Measure Life
RESIDENTIAL DSM PROGRAMS	
Efficient Product Rebates	6.2
Existing Residential	15.3
New Residential	22.0
Energy Savings Actions	1.0
BUSINESS, NON-PROFIT AND INSTITUTIONAL DSM PROGRAMS	
Efficient Product Rebates	11.2
Custom Incentives	12.3
Direct Installation	11.5

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Request IR-6:

With regard to Figures 4.3, 4.4 and 4.5 of the Evidence, please provide the results for the TRC test in terms of costs, benefits, and net benefits in cumulative present value dollars for each year, for each program, for each sector and for the total portfolio of programs.

Response IR-6:

Figure 4.2

2013	Lifetime Benefits (\$ million)^a	TRC Lifetime Costs (\$ million)^b	TRC Lifetime Net Benefits (\$ million)^c	Total Resource Cost Test (TRC)^d
RESIDENTIAL DSM PRO GRAMS				
Efficient Product Rebates ^e	7.1	5.0	2.1	1.4
Existing Residential ^e	11.0	11.4	-0.4	1.0
New Residential	5.6	5.9	-0.3	1.0
Energy Savings Actions ^e	1.0	1.0	0.0	1.0
Residential Total	24.6	23.3	1.4	1.1
BUSINESS, NON-PROFIT AND INSTITUTIONAL DSM PRO GRAMS				
Efficient Product Rebates	20.9	11.5	9.4	1.8
Custom Incentives	34.7	17.1	17.6	2.0
Direct Installation	9.6	5.7	3.9	1.7
Business Total	65.2	34.3	30.9	1.9
ENABLING STRATEGIES				
Education and Outreach	-	2.5	-2.5	-
Development and Research	-	1.4	-1.4	-
Other Enabling Strategies	-	1.0	-1.0	-
Enabling Strategies Total	-	4.8	-4.8	-
Total	89.8	62.4	27.4	1.4

Currency is expressed in 2013 dollars. Columns may not add correctly due to rounding.

An avoided cost of \$135/MWh was provided by NSPI in February 2012 and includes the combined cost of energy and capacity.

^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy and capacity, over the life of the program measures.

^b Lifetime costs are expressed as the net present value of ENSC program administrative costs, ENSC measure incentive costs for free riders, and installed measure (technology) costs.

^c TRC is a benefit/cost ratio comparing lifetime benefits to the sum of ENSC's and participants' costs.

^d Lifetime net benefits is expressed as the present value of lifetime benefits less lifetime costs.

^e Includes participation by low income households.

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Figure 4.3

2014	Lifetime Benefits (\$ million)^a	TRC Lifetime Costs (\$ million)^b	TRC Lifetime Net Benefits (\$ million)^c	Total Resource Cost Test (TRC)^d
RESIDENTIAL DSM PROGRAMS				
Efficient Product Rebates ^e	8.2	5.1	3.0	1.6
Existing Residential ^e	14.5	14.3	0.2	1.0
New Residential	7.0	7.0	0.0	1.0
Energy Savings Actions ^e	1.0	1.0	0.0	1.0
Residential Total	30.6	27.5	3.2	1.1
BUSINESS, NON-PROFIT AND INSTITUTIONAL DSM PROGRAMS				
Efficient Product Rebates	23.8	11.1	12.7	2.1
Custom Incentives	36.6	16.1	20.5	2.3
Direct Installation	7.7	4.3	3.4	1.8
Business Total	68.1	31.4	36.7	2.2
ENABLING STRATEGIES				
Education and Outreach	-	2.7	-2.7	-
Development and Research	-	1.4	-1.4	-
Other Enabling Strategies	-	1.0	-1.0	-
Enabling Strategies Total	-	5.0	-5.0	-
Total	98.7	63.9	34.8	1.5

Currency is expressed in 2013 dollars. Columns may not add correctly due to rounding.

An avoided cost of \$135/MWh was provided by NSPI in February 2012 and includes the combined cost of energy and capacity.

^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy and capacity, over the life of the program measures.

^b Lifetime costs are expressed as the net present value of ENSC program administrative costs, ENSC measure incentive costs for free riders, and installed measure (technology) costs.

^c Lifetime net benefits is expressed as the present value of lifetime benefits less lifetime costs.

^d TRC is a benefit/cost ratio comparing lifetime benefits to the sum of ENSC's and participants' costs.

^e Includes participation by low income households.

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Figure 4.4

2015	Lifetime Benefits (\$ million)^a	TRC Lifetime Costs (\$ million)^b	TRC Lifetime Net Benefits (\$ million)^c	Total Resource Cost Test (TRC)^d
RESIDENTIAL DSM PROGRAMS				
Efficient Product Rebates ^e	10.9	7.0	3.9	1.6
Existing Residential ^e	17.5	16.5	0.9	1.1
New Residential	8.9	8.5	0.4	1.0
Energy Savings Actions ^e	1.6	1.0	0.6	1.6
Residential Total	38.8	33.1	5.8	1.2
BUSINESS, NON-PROFIT AND INSTITUTIONAL DSM PROGRAMS				
Efficient Product Rebates	22.7	10.5	12.2	2.2
Custom Incentives	37.1	16.3	20.8	2.3
Direct Installation	6.7	3.6	3.0	1.8
Business Total	66.5	30.5	36.0	2.2
ENABLING STRATEGIES				
Education and Outreach	-	2.9	-2.9	-
Development and Research	-	1.4	-1.4	-
Other Enabling Strategies	-	0.9	-0.9	-
Enabling Strategies Total	-	5.2	-5.2	-
Portfolio Total	105.3	68.7	36.6	1.5

Currency is expressed in 2013 dollars. Columns may not add correctly due to rounding.

An avoided cost of \$135/MWh was provided by NSPI in February 2012 and includes the combined cost of energy and capacity.

^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy and capacity, over the life of the program measures.

^b Lifetime costs are expressed as the net present value of ENSC program administrative costs, ENSC measure incentive costs for free riders, and installed measure (technology) costs.

^c Lifetime net benefits is expressed as the present value of lifetime benefits less lifetime costs.

^d TRC is a benefit/cost ratio comparing lifetime benefits to the sum of ENSC's and participants' costs.

^e Includes participation by low income households.

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Request IR-7:

With regard to Figures 4.3, 4.4 and 4.5 of the Evidence, please provide the results for the PAC test in terms of costs, benefits, and net benefits in cumulative present value dollars for each year, for each program, for each sector and for the total portfolio of programs.

Response IR-7:

Figure 4.2

2013	Lifetime Benefits (\$ million)^a	PAC Lifetime Costs (\$ million)^b	PAC Lifetime Net Benefits (\$ million)^c	Program Administrator Cost Test (PAC)^d
RESIDENTIAL DSM PROGRAMS				
Efficient Product Rebates ^e	7.1	3.9	3.2	1.8
Existing Residential ^e	11.0	7.4	3.6	1.5
New Residential	5.6	4.1	1.4	1.3
Energy Savings Actions ^e	1.0	1.0	0.0	1.0
Residential Total	24.6	16.4	8.2	1.5
BUSINESS, NON-PROFIT AND INSTITUTIONAL DSM PROGRAMS				
Efficient Product Rebates	20.9	7.2	13.7	2.9
Custom Incentives	34.7	9.2	25.5	3.8
Direct Installation	9.6	4.6	5.0	2.1
Business Total	65.2	21.0	44.2	3.1
ENABLING STRATEGIES				
Education and Outreach	-	2.5	-2.5	-
Development and Research	-	1.4	-1.4	-
Other Enabling Strategies	-	1.0	-1.0	-
Enabling Strategies Total	-	4.8	-4.8	-
Total	89.8	42.3	47.5	2.1

Currency is expressed in 2013 dollars. Columns may not add correctly due to rounding.

An avoided cost of \$135/MWh was provided by NSPI in February 2012 and includes the combined cost of energy and capacity.

^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy and capacity, over the life of the program measures.

^b Lifetime costs are expressed as the net present value of ENSC program administrative costs and ENSC measure incentive costs.

^c Lifetime net benefits are expressed as the net present value of lifetime benefits less lifetime costs.

^d PAC is a benefit/cost ratio comparing lifetime benefits to ENSC's costs.

^e Includes participation by low income households.

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Figure 4.3

2014	Lifetime Benefits (\$ million)^a	PAC Lifetime Costs (\$ million)^b	PAC Lifetime Net Benefits (\$ million)^c	Program Administrator Cost Test (PAC)^d
RESIDENTIAL DSM PROGRAMS				
Efficient Product Rebates ^e	8.2	4.0	4.1	2.0
Existing Residential ^e	14.5	8.6	5.9	1.7
New Residential	7.0	5.0	2.0	1.4
Energy Savings Actions ^e	1.0	1.0	0.0	1.0
Residential Total	30.6	18.6	12.0	1.6
BUSINESS, NON-PROFIT AND INSTITUTIONAL DSM PROGRAMS				
Efficient Product Rebates	23.8	7.2	16.6	3.3
Custom Incentives	36.6	8.8	27.8	4.2
Direct Installation	7.7	3.5	4.2	2.2
Business Total	68.1	19.5	48.6	3.5
ENABLING STRATEGIES				
Education and Outreach	-	2.7	-2.7	-
Development and Research	-	1.4	-1.4	-
Other Enabling Strategies	-	1.0	-1.0	-
Enabling Strategies Total	-	5.0	-5.0	-
Total	98.7	43.1	55.6	2.3

Currency is expressed in 2013 dollars. Columns may not add correctly due to rounding.

An avoided cost of \$135/MWh was provided by NSPI in February 2012 and includes the combined cost of energy and capacity.

^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy and capacity, over the life of the program measures.

^b Lifetime costs are expressed as the net present value of ENSC program administrative costs and ENSC measure incentive costs.

^c Lifetime net benefits are expressed as the net present value of lifetime benefits less lifetime costs.

^d PAC is a benefit/cost ratio comparing lifetime benefits to ENSC's costs.

^e Includes participation by low income households.

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Figure 4.4

2015	Lifetime Benefits (\$ million)^a	PAC Lifetime Costs (\$ million)^b	PAC Lifetime Net Benefits (\$ million)^c	Program Administrator Cost Test (PAC)^d
RESIDENTIAL DSM PROGRAMS				
Efficient Product Rebates ^e	10.9	4.8	6.1	2.3
Existing Residential ^e	17.5	9.4	8.1	1.9
New Residential	8.9	6.0	2.8	1.5
Energy Savings Actions ^e	1.6	1.0	0.6	1.6
Residential DSM Total	38.8	21.3	17.5	1.8
BUSINESS, NON-PROFIT AND INSTITUTIONAL DSM PROGRAMS				
Efficient Product Rebates	22.7	6.8	15.9	3.3
Custom Incentives	37.1	8.9	28.2	4.2
Direct Installation	6.7	3.0	3.7	2.3
Business Total	66.5	18.6	47.8	3.6
ENABLING STRATEGIES				
Education and Outreach	-	2.9	-2.9	-
Development and Research	-	1.4	-1.4	-
Other Enabling Strategies	-	0.9	-0.9	-
Enabling Strategies Total	-	5.2	-5.2	-
Total	105.3	45.1	60.2	2.3

Currency is expressed in 2013 dollars. Columns may not add correctly due to rounding.

An avoided cost of \$135/MWh was provided by NSPI in February 2012 and includes the combined cost of energy and capacity.

^a Lifetime benefits are expressed as the net present value of the avoided costs, including energy and capacity, over the life of the program measures.

^b Lifetime costs are expressed as the net present value of ENSC program administrative costs and ENSC measure incentive costs.

^c Lifetime net benefits are expressed as the net present value of lifetime benefits less lifetime costs.

^d PAC is a benefit/cost ratio comparing lifetime benefits to ENSC's costs.

^e Includes participation by low income households.

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Request IR-8:

With regard to Figures 4.3, 4.4 and 4.5 of the Evidence, please provide the inflation rate and the discount rate used in the analysis.

Response IR-8:

In Figures 4.2, 4.3 and 4.4, a discount rate of 6.81% was used for 2013, 2014 and 2015. An annual inflation rate of 2.01%, 1.99% and 2.26% was used for 2013, 2014, and 2015, respectively.

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1 **Request IR-9:**

2
3 **With regard to Figures 4.3, 4.4 and 4.5 of the Evidence, please provide the expected**
4 **number of customers that will participate in each program in each year. For each program**
5 **please describe what unit is used to determine a participant (e.g., housing unit, business,**
6 **customer account, light bulb, etc.).**

7
8 **Response IR-9:**

9
10 Please refer to Avon IR-3b.

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Request IR-10:

With regard to Figures 4.3, 4.4 and 4.5 of the Evidence, please provide the expected total number of customers eligible to participate in each program, for each year and for each rate class.

Response IR-10:

Please refer to Avon IR-3(b) for the expected total number of customers eligible to participate in each program for each year.

The expected total number of eligible customers per rate class is provided below:

Rate Class	2013	2014	2015
Residential	452,558	456,991	461,716
Small General	23,894	24,109	24,326
General Demand	11,387	11,349	11,310
Large General	18	19	19
Small Industrial	2,227	2,221	2,215
Medium Industrial	197	198	199
Large Industrial	30	30	30
GRLF	3	3	3
ELI/LRT	1	1	1
Municipal	6	6	6
Unmetered	9,504	9,604	9,704

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Request IR-11:

For each year 2008, 2009, 2010, 2011 and 2012, please provide the number of customers that have participated in each of the energy efficiency programs offered by either Nova Scotia Power Incorporated or ENSC.

Response IR-11:

Please refer to Avon IR-3(d).

Please note that participants may be defined differently for each program, and does not always refer to individuals. For some programs, a more appropriate reflection of participation is the number of units or the number of facilities because individual customers may be involved in multiple installations or activities. For these programs, participation is tracked at the unit (Efficient Products, Prescriptive Rebates) or facility (Custom and Small Business Direct Install) level.

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Request IR-12:

With regard to the discussion of DSM targets on pages 23-26 of the Evidence, please provide your best estimate of what the total DSM budgets would have to be in 2013, 2014 and 2015 in order to meet the savings goals for those years in the 2009 IRP Update.

Response IR-12:

Although extrapolation of costs would suggest that the 2013, 2014 and 2015 savings targets identified in the 2009 IRP Update could be achieved by investing \$90 million annually, ENSC's view is that this is unrealistic given the current stage of DSM development in Nova Scotia. Further to its discussion on pages 27-28 of Evidence, continued growth in cost effective energy savings is more dependent on building customer demand for energy efficiency services and the capacity to deliver these services than on increasing budgets.

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Request IR-13:

With regard to the discussion of DSM targets on pages 23-26 of the Evidence, please provide your best estimate of the energy savings that could be achieved, and how close they would come to the savings goals of the 2009 IRP Update, if the total DSM budgets were equal to five percent of NSPI's annual electric operating revenues.

Response IR-13:

If the total DSM budgets were \$62 million (approximately five percent of NSPI's annual revenues), a mathematical extrapolation suggests that the energy savings from programs achieved for 2013, 2014 and 2015 would be in the order of 200 GWh annually. ENSC's view is that the current market for DSM services in Nova Scotia and the corresponding energy efficiency service capacity and trade ally network is still under development and is not at the stage for ENSC to cost effectively move to a \$62 million annual investment level.

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Request IR-14:**With regard to Figure 1.1 of Appendix A:**

- a) Please provide a detailed description of how the avoided cost of \$135 per MWh was calculated by Nova Scotia Power Incorporated. Please provide all relevant workpapers and calculations.
- b) Please provide separate estimates of avoided energy costs and avoided capacity costs, for each year 2012 through 2032.
- c) Please provide a table presenting the Nova Scotia Power Incorporated loads and resources that were used to estimate the avoided energy costs and avoided capacity costs, for each year 2012 through 2032.
- d) Please explain whether and to what extent the avoided costs account for avoided transmission and distribution costs.
- e) Please explain whether and to what extent the avoided costs account for the avoided costs of complying with current future greenhouse gas regulations in Nova Scotia.

Response IR-14:

- a) Please refer to Confidential Attachment 1. The avoided cost calculation compares the annual costs of a plan that does not include DSM (the “No DSM” plan) with the annual costs of a plan which includes the DSM profile. The difference in costs each year are divided by the annual DSM energy savings to give the estimated annual avoided costs (combined energy and capacity) on a \$ per MWh basis. The levelized value over the period 2012 to 2032 is \$135/MWh. Please refer to Multeese IR-6c for the long term

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generation plans for the No DSM and With DSM cases which include Bowater and Port Hawkesbury Paper Mill PM2 load.

b) Please refer to Confidential Attachment 2.

c) Please refer to Confidential Attachment 3. The loads and firm capacity (resources) correspond to the With DSM and No DSM Plans shown in Multeese IR-6c.

d) Transmission avoided costs are included to the extent that transmission upgrade costs required for new generation resources are incorporated in the modeling. Full avoided transmission and distribution avoided costs are considered relatively minor at this time as compared to the estimated avoided energy and capacity costs. DSM programs are generally not geographically directed in a manner that would deliver results at the distribution level in specific areas of high load growth. It is unlikely that physical plant upgrades required for load alone could be avoided or significantly postponed. This may change in the future as T&D expansion plans are updated and reviewed.

e) The avoided costs of DSM account for the greenhouse gas regulations in Nova Scotia. Both the No DSM and With DSM generation plans were developed with the same input assumptions for environmental and system constraints and both plans include the costs associated with meeting those constraints. Any differences in those costs between the No DSM and the With DSM plan are reflected in the avoided costs.

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- 1 Attachments 1, 2, and 3 are filed Confidentially, and must be accessed through the UARB
- 2 Confidential Repository.