

NON-CONFIDENTIAL

1 **Request IR-1:**

2

3 **Port Hawkesbury Biomass facility**

4 **A. What is the total construction cost of the biomass facility in Port Hawkesbury?**

5 **B. When will the Port Hawkesbury biomass facility be fully operational?**

6 **C. What will be the total installed generating capacity of the Port Hawkesbury biomass**
7 **facility when it is fully operational?**

8

9 **Response IR-1:**

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11 (a) Total construction cost is forecast to be \$208.9 million.

12

13 (b) The project is anticipated to be fully operational in Q2 2013.

14

15 (c) Total installed, name plate generating capacity will be 60 MW.

2013 General Rate Application (NSUARB P-893)
 NSPI Responses to Progressive Conservative Caucus Information Requests

NON-CONFIDENTIAL

1 **Request IR-2:**

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3 **What is the projected installed generating capacity (MW) and (% of total) by energy**
 4 **source in Nova Scotia?**

5 **2009 2011 2015 2020**
 6 **MW % MW % MW % MW %**

7 **Coal**

8 **Natural gas**

9 **Wind**

10 **Biomass**

11 **Hydro**

12 **Tidal**

13 **Muskrat Falls**

14 **Total**

15

16 Response IR-2:

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18 The values displayed are generation installed capacity, as requested. NS Power does not
 19 ordinarily account for generation in terms of installed capacity, and as such these figures may not
 20 be comparable to other published figures.

21

	2009		2011		2015		2020	
	MW	%	MW	%	MW	%	MW	%
Coal	1225	52	1225	48	1075	39	925	32
Natural Gas	419	18	419	16	566	20	566	20
Wind ¹	84	4	277	11	461 ²	17	528 ²	18
Biomass	25	1	25	1	88	3	88	3
Hydro	376	16	376	15	376	13	380	13
Tidal	20	1	20	1	20	1	20	1

2013 General Rate Application (NSUARB P-893)
 NSPI Responses to Progressive Conservative Caucus Information Requests

NON-CONFIDENTIAL

	2009		2011		2015		2020	
	MW	%	MW	%	MW	%	MW	%
Muskrat Falls	0	0	0	0	0	0	154 ³	5
Diesel	204	9	204	8	204	7	204	7
Total	2353	100	2546	100	2790	100	2865	100

- 1 Notes:
- 2 ¹Nameplate Wind Generation installed or projected for the requested years.
- 3 ²Includes projected Community Feed-In Tariff (COMFIT) wind projects.
- 4 ³154 MW is forecast nominal firm import on the Maritime Link originating from Muskrat Falls.

2013 General Rate Application (NSUARB P-893)
 NSPI Responses to Progressive Conservative Caucus Information Requests

NON-CONFIDENTIAL

1 **Request IR-3:**

2

3 **What is the projected growth in capital expenditure (\$) by energy source in Nova Scotia?**

4 **2009** **2011** **2015** **2020**

5 **Coal**

6 **Natural gas**

7 **Wind**

8 **Biomass**

9 **Hydro**

10 **Tidal**

11 **Muskrat Falls**

12 **Total**

13

14 Response IR-3:

15

16 NS Power capital forecasting details are not available for the year 2020. There are no
 17 investments included in the capital forecast related to Muskrat Falls.

18

19

Annual Capital Spend*

\$M	2009	2010	2011	2012	2013	2014	2015	2020
Coal	73.2	57.0	49.8	44.3	34.4	34.5	36.5	Not Available
Natural Gas	44.8	53.0	14.3	8.5	12.5	26.0	27.5	Not Available
Wind	31.7	169.7	1.7	0.5	0.1	28.1	190.0	Not Available
Biomass	0.0	86.3	62.8	56.1	3.3	0.0	0.0	Not Available
Hydro	10.4	21.1	22.1	33.6	34.9	36.0	46.2	Not Available
Tidal	4.9	(2.1)	1.0	(0.6)	0.0	0.0	0.0	Not Available
Muskrat Falls	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Not Available
Total	\$165.0	\$385.0	\$151.6	\$142.4	\$85.2	\$124.6	\$300.2	

20 *This table does not include the retirement of assets, or depreciation.

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1 **Request IR-4:**

2

3 **What is the projected growth in power rates kWh and %, in Nova Scotia?**

	Residential		Commercial		Industrial	
	kWh	%	kWh	%	kWh	%

6 **2009**

7 **2011**

8 **2015**

9 **2020**

10

11 Response IR-4:

12

13 Please refer to Attachment 1 which provides the rates for Residential, Commercial and Industrial
14 classes for 2009-2011 inclusive of FAM charges. NS Power has not prepared an analysis of
15 forecast 2015 and 2020 rates for the Residential, Commercial and Industrial classes.

	2009	2010	2011	2012	Y-O-Y Increase		
					2010	2011	2012
<u>Residential</u>							
Energy Charge with FAM	11.796	11.612	12.074	13.336	-1.56%	3.98%	10.45%
<u>Small General</u>							
Energy Charge 1st Block - with FAM	13.066	12.869	13.362	14.095	-1.51%	3.83%	5.49%
Energy Charge 2nd Block - with FAM	11.495	11.298	11.791	12.487	-1.71%	4.36%	5.90%
<u>General</u>							
Energy Charge 1st Block - with FAM	9.603	9.393	9.895	10.66	-2.19%	5.34%	7.73%
Energy Charge 2nd Block - with FAM	6.781	6.571	7.073	7.762	-3.10%	7.64%	9.74%
<u>Large General</u>							
Energy Charge with FAM	6.539	6.338	6.821	7.742	-3.07%	7.62%	13.50%
<u>Small Industrial</u>							
Energy Charge 1st Block - with FAM	8.389	8.187	8.666	9.629	-2.41%	5.85%	11.11%
Energy Charge 2nd Block - with FAM	6.399	6.197	6.676	7.512	-3.16%	7.73%	12.52%
<u>Medium Industrial</u>							
Energy Charge with FAM	5.972	5.751	6.241	7.028	-3.70%	8.52%	12.61%
<u>Large Industrial</u>							
Firm - Energy Charge with FAM	5.995	5.793	6.247	7.015	-3.37%	7.84%	12.29%
Interruptible - Energy Charge with FAM	5.924	5.722	6.176	7.015	-3.41%	7.93%	13.58%

(1) Note these rates are the energy charge only and do not include Customer charges or Demand charges

(2) These rates do not include DSM

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1 **Request IR-5:**

2

3 **What is the projected growth in number of wind turbines in Nova Scotia?**

4 **2009 2011 2015 2020**

5 **NSPI owned**

6 **Independently Owned**

7

8 Response IR-5:

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10 Nova Scotia's Renewable Electricity Plan calls for a variety of renewable generators; NS Power,
11 Independent Power Producers and Community Groups. The Company does not independently
12 determine how many wind turbines there will be in Nova Scotia.

13

14 The connection history from 2002 to present for wind generation can be found on the Wind
15 Turbine Directory on the NS Power OASIS site:

16

17 <http://www.nspower.ca/en/home/environment/renewableenergy/wind/directory.aspx>

18

19 The future information for 2015 and 2020 is speculative, but information on proposed generation
20 projects can be found on the Combined T/D Advanced Stage Interconnection Request Queue on
21 the NS Power OASIS site:

22

23 http://oasis.nspower.ca/system_report/NSPICombinedInterconnectionRequestQueue.pdf

24

25 The Interconnection Queue shows for each project the proposed facility MW and In-Service
26 Date. The number and type of generators planned for these projects is not shown in the Queue as
27 it is Confidential Information filed in confidence by proponents with the System Operator. Not
28 all of these projects will make it to fruition as System Impact Studies and other factors may
29 render the business cases uneconomic. Additionally, these proposed projects would greatly

2013 General Rate Application (NSUARB P-893)
NSPI Responses to Progressive Conservative Caucus Information Requests

NON-CONFIDENTIAL

- 1 exceed the renewable energy requirements forecasted for compliance with the Renewable
- 2 Electricity Standard.

CONFIDENTIAL (Attachment Only)

1 **Request IR-6:**

2

3 **What is the cost per kilowatt hour per energy source in Nova Scotia?**

4 **2009 2011 2015 2020**

5 **Coal**

6 **Natural gas**

7 **Wind**

8 **Biomass**

9 **Hydro**

10 **Tidal**

11 **Muskrat Falls**

12 **Total**

13

14 Response IR-6:

15

16 Please refer to the Partially Confidential Attachment 1. While precise data is not available as
17 requested, the values are indicative current energy costs in Nova Scotia. Costs vary significantly
18 with fluctuations in the cost of fuel and plant utilization levels. The values in Partially
19 Confidential Attachment 1 include fuel, Operating, Maintenance, and General (OM&G) expense,
20 and the cost of capital. Please also refer to the 2009 Integrated Resource Plan (IRP) Update for
21 more information about long term generation sources.¹

¹ NSPI 2009 Integrated Resource Plan Update Final Report, NSUARB-NSPI-P-884, November 30, 2009.

FIGURE 1		
	Low	High
	c/kWh	c/kWh
Solid Fuel (Coal and Petroleum Coke)	6.50	7.40
Natural gas ⁽¹⁾	5.95	7.47
Wind		
New Biomass ⁽²⁾	17.50	
Hydro ⁽³⁾	4.2	14.0
New Tidal ⁽⁴⁾	65.20	
Muskrat Falls ⁽⁵⁾		

Notes:

- 1) Gas price is assumed to be at \$4.50/MMBtu
- 2) New Biomass at COMFIT Tariff. The existing IPP biomass cost is lower but is under a confidential contract. Please refer to OP-08 of the Application for details. Please refer to Appendix 8 for details respecting NS Power's Port Hawkesbury Biomass Plant.
- 3) Low Value represents existing hydro and High is hydro run-of-river at COMFIT Tariff
- 4) New Tidal at COMFIT Tariff
- 5) NS Power has not developed this price forecasts for 2015 and 2020 in the preparation of this application.