

**REDACTED**

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1 **Request IR-7:**

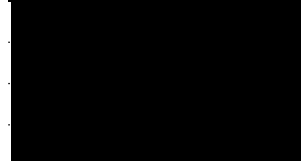
2  
3 **What is Nova Scotia Power's cost of coal per ton each year from 2000 to 2015? Please**  
4 **indicate where regulations and emissions targets (whether federal or provincial) have**  
5 **changed the price or type of coal used.**

6  
7 Response IR-7:

8  
9 Please refer to the figure below and Avon IR-26 which discusses the effect of emission limits on  
10 solid fuel cost increases between current and a decade ago.

11

<b>Solid Fuel Costs</b>	
<b>Year</b>	<b>CAD/MT (\$)</b>
2000	58.93
2001	62.21
2002	64.89
2003	60.47
2004	58.78
2005	77.07
2006	80.16
2007	81.52
2008	85.72
2009	93.91
2010	105.83
2011	102.67



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1 **Request IR-8:**

2

3 **Does Nova Scotia have excess capacity to generate electricity greater than the currently**  
4 **needs?**

5

6 Response IR-8:

7

8 NS Power has excess capacity during the summer months, but does not have excess capacity  
9 through the peak winter months. Please refer to Multese IR-7.

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1 **Request IR-9:**

2  
3 **Re: PC IR 2 – Nova Scotia will have 2865 MW of installed capacity to meet a fall in peak**  
4 **demand load of about 2250 MW. What is the cost per kWh and what is the installed MW**  
5 **cost to ratepayers of providing this surplus generating capacity?**

6  
7 Response IR-9:

8  
9 The installed capacity referenced in the PC IR-2 is the sum total of generator nameplate capacity.  
10 Various factors explain the gap to forecasted peak demand.

- 11
- 12 • Hydro, tidal, and wind are variable generating resources which operate at capacity factors  
13 from 17 percent to 70 percent. Wind and tidal generation are largely non-dispatchable  
14 and capacity values in the range of 35 percent have been derived to assume a contribution  
15 to serve firm peak demand. These assumed capacity values are being re-evaluated in the  
16 Renewables Integration Study presently underway.
  - 17
  - 18 • NS Power is required by Northeast Power Coordinating Council (NPCC) system design  
19 criteria to maintain a Planning Reserve of 20 percent over Firm Peak Demand to limit the  
20 probabilistic loss of firm load to less than one day in ten years.
  - 21
  - 22 • Generating station electrical consumption reduces unit output available to the system  
23 down to the Net Unit Capacity which is typically in the range of 90-97 percent of  
24 nameplate capacity for thermal generating units.
  - 25

26 Accordingly, this is not characterized as surplus generation. Please refer to Multese IR-7 and  
27 Multese IR-62.

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1 **Request IR-10:**

2

3 **How much of this surplus capacity(kWh and installed MW cost is for meeting the need to**  
4 **provide firm back-up power for wind generators to meet provincial renewable energy**  
5 **targets in 2020?**

6

7 Response IR-10:

8

9 The impact on the generation reserve requirements on the power system made necessary by wind  
10 generation integration is presently being evaluated as part of the Renewables Integration Study.

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1 **Request IR-11:**

2

3 **What is the true cost of wind power per kWh in 2020 when back-up firm power standby**  
4 **costs from other sources are all added in?**

5

6 Response IR-11:

7

8 NS Power has not prepared this information as part of this Application. Please also refer to PC  
9 IR-28.

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1 **Request IR-12:**

2

3 **Does Nova Scotia Power's two-year rate hike plan take in to account any rate basing of**  
4 **money for Muskrat Falls?**

5 **1. If yes, how much?**

6 **2. If no, will the cost of Muskrat Falls, (assuming it is approved) not be included in**  
7 **rates until 2015?**

8

9 Response IR-12:

10

11 The 2013 and 2014 test year forecasts do not include assumptions for the Maritime Link.

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1 **Request IR-13:**

2

3 **How can the NSPI load forecasts reflect reality or the need for new generation capacity?**

4

5 Response IR-13:

6

7 Like all electric utilities, NS Power must make energy and demand forecasts to provide input to  
8 short- and long-term planning. Given the broad range of influences on this work, it is necessary  
9 to draw upon surveys, econometric data, information supplied by customers, and informed  
10 assumptions about the economic, demographic, and technological environment in the forecast  
11 period. Please refer to DE-03-DE-04, Figures 3-7, 3-9, and 3-11 of the Application for data  
12 respecting NS Power's historical forecast accuracy for the Residential, Commercial and  
13 Industrial sectors.

14

15 The recent closure decisions by Extra Large Industrial Customers are rare events that result in  
16 significant changes in NS Power's energy forecast (though firm demand remains largely  
17 unchanged by these events). Many of the assumptions faced by utilities in their long-term  
18 planning processes can have equally significant impacts on resource planning. Accordingly,  
19 exercises like integrated resource planning are important, but must be taken as directional rather  
20 than strict action plans for future investment.

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1 **Request IR-14:**

2

3 **Re: PC IR 3 Annual Capex spent by energy source on all generation including Muskrat**  
4 **Falls and subsea cables from 2009 to 2015 is five years incomplete and does not reflect the**  
5 **targets required for renewable energy by 2020. Why is this essential information not**  
6 **projected?**

7

8 Response IR-14:

9

10 The Application does not include forecast costs for years beyond 2014. NS Power anticipates  
11 there will be a separate proceeding relating to the Maritime Link.



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1 **Request IR-15:**

2

3 **What provision has NSPI made to secure and hedge ratepayers against rises in future fuel**  
4 **costs?**

5

6 Response IR-15:

7

8 NS Power adheres to the fuel hedging practices that are outlined in the Fuel Manual that was  
9 jointly developed with stakeholders. The Fuel Manual is available for viewing in the  
10 Confidential FAM Data Room.

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1 **Request IR-16:**

2

3 **What records of management discussions are available to illustrate that the ratepayer's**  
4 **interests are preferred over those of the shareholders and management?**

5

6 Response IR-16:

7

8 Please refer to NS Power's applications before the Utility and Review Board. In all aspects of  
9 management of the utility on a cost of service basis, management is obligated to pursue  
10 reasonable and prudent decisions to the benefit of customers in meeting its obligation to serve.

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1 **Request IR-17:**

2

3 **What research has been done to determine if there are markets for the additional capacity**  
4 **from Muskrat Falls?**

5

6 Response IR-17:

7

8 Please refer to NSUARB IR-42(a).

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1 **Request IR-18:**

2

3 **What is the forecasted transmission fee to move electricity from Muskrat Falls through our**  
4 **province to New Brunswick and beyond across our transmission system?**

5

6 Response IR-18:

7

8 NS Power has not prepared this information as part of this Application.

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1 **Request IR-19:**

2

3 **Why would Nova Scotia ratepayers be asked to rate base the cost of a \$1.2 billion subsea**  
4 **cable and pay the transmission costs over other NALCOR and NSPI transmission lines to**  
5 **bring power from Muskrat Falls when power can be obtained from other jurisdictions at**  
6 **between 4 and 7 cents a kWh with some less costly transmission upgrades?**

7

8 Response IR-19:

9

10 Please refer to NSUARB IR-42(a). NS Power is not aware of evidence that supports the premise  
11 of this question.

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1 **Request IR-20:**

2

3 **Has anyone at Nova Scotia Power had any conversations with anyone at the Nova Scotia**  
4 **government about securing more than 20 per cent of the electricity from Nova Scotia**  
5 **Power over 35 years?**

6

7 Response IR-20:

8

9 Yes.

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1 **Request IR-21:**

2

3 **What is Nova Scotia Power's role currently in discussions about the Muskrat Falls project**  
4 **and what is its role projected to be in the future?**

5

6 Response IR-21:

7

8 There are no costs associated with the Maritime Link project included in this Application. This  
9 project is being pursued by Emera Newfoundland & Labrador. As appropriate and in accordance  
10 with the Affiliate Code of Conduct, NS Power is consulted on the project with respect to matters  
11 requiring NS Power input.

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1 **Request IR-22:**

2

3 **Re: PC IR-3 why does the Annual Capital Spend for Wind go from \$500,000 in 2012 to**  
4 **\$190 million in 2015?**

5

6 Response IR-22:

7

8 The five year capital investment profile for wind completed at the time of ACE 2012<sup>1</sup> provided  
9 for the construction of a wind project to comply with the Nova Scotia Renewable Electricity  
10 Standard.

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<sup>1</sup> NSPI 2012 Annual Capital Expenditure Plan, NSUARB-NSPI-P-128.12, November 2, 2011.



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1 **Request IR-23:**

2

3 **In footnote 5 of PC IR-6, Nova Scotia Power said: “NS Power has not developed this price**  
4 **forecasts for 2015 and 2020 in the preparation of this application.” Why?**

5

6 Response IR-23:

7

8 This Application seeks recovery of costs forecast to occur in the 2013 and 2014 test years.

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1 **Request IR-24:**

2

3 **Re: PC IR-6 Why is Nova Scotia Power refusing to make transparent the cost of wind per**  
4 **kilowatt hour?**

5

6 Response IR-24:

7

8 NS Power procures fuel, purchased power, services, and capital equipment in a market that is  
9 driven by competitive forces and suppliers looking to create value for themselves. The more a  
10 supplier is aware of this commercially sensitive information, the better their ability to obtain the  
11 highest price, reduce competition and ultimately increase the cost for NS Power customers.

12

13 Pricing information could be used by renewable energy suppliers to respond to Requests for  
14 Proposals, at prices that could, in the absence of this detailed knowledge, be otherwise lower.  
15 The Board has recognized the importance of maintaining confidentiality to protect value for  
16 customers in these types of circumstances.

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1 **Request IR-25:**

2

3 **How much will ratepayers be expected to pay each year (2015 -2023) as the result of**  
4 **deferrals?**

5

6 Response IR-25:

7

8 Please refer to Liberty IR-39 Attachment 1.

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1 **Request IR-26:**

2

3 **What per cent rate increase does Nova Scotia Power forecast each year (2015-2023) to help**  
4 **cover the cost of the deferrals?**

5

6 Response IR-26:

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8 Please refer to DE-03 - DE-04 Page 28 of 159, lines 15-18 of the Application where NS Power  
9 discusses the Fixed Cost Recovery deferral mechanism and its effect on rates.

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1 **Request IR-27:**

2  
3 **What is the cost per kWh of wind at the 5, 10, 15, 20, 25, 30+ year if built in the last three**  
4 **years:**

- 5 • **COMFIT?**
- 6 • **Private Company?**
- 7 • **Nova Scotia Power**

8  
9 **Response IR-27:**

10  
11 Costs were not calculated for 5, 10, 15, 20, 25, 30 + year for the various forms of wind  
12 generation as part of this Application.

- 13  
14 • **Community Feed-in Tariff (COMFIT)**

15  
16 There are no COMFIT wind projects that have been built in the last three years.  
17 However, COMFIT rates were set by the Board on September 7, 2011 and are provided  
18 in the figure below.

19

Wind > 50 kW	\$0.131 per kWh
Wind ≤ 50 kW	\$0.499 per kWh

- 20  
21 • **Private Company**

22  
23 Of the Independent Power Producers built in the last three years, the minimum and  
24 maximum costs are provided in the table below. The majority of these companies have  
25 fixed rates for the duration of their contracts, which range from expiry in [REDACTED] through to

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

**REDACTED**

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1 [REDACTED]. [REDACTED]

2 [REDACTED].

3

Minimum	[REDACTED]
Maximum	[REDACTED]

4

- 5 • NS Power

6

7 NS Power had two wholly owned wind sites built in the last three years. Their levelized  
8 costs along with the estimated remaining life of the site, are provided in the table below  
9 and are as submitted in NS Power's Applications to the Board for these projects. Note:  
10 levelized costs refer to an economic assessment of the cost of the energy-generating  
11 system including all the costs over its lifetime: initial investment, operations and  
12 maintenance, cost of fuel, and cost of capital.

13

Digby	\$0.082 per kWh	18 year life
Nuttby	\$0.075 per kWh	21 year life

14

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1 **Request IR-28:**

2

3 **What is the net cost per kWh for delivering wind generated electricity to a customer over a**  
4 **year if you add the costs of maintaining and providing back up electricity?**

5

6 Response IR-28:

7

8 The cost for maintaining and providing back up electricity for intermittent wind generation is not  
9 measured specifically because the sources of back-up generation are also utilized for other  
10 purposes such as serving load, power system reserve requirements and providing economic fuel  
11 switching capability.

12

13 NS Power is currently conducting a Renewable Energy Integration Study, which will determine  
14 changes in system costs as more renewable generation is added to the power system. The study  
15 will not specifically determine the capital cost of additional back-up generation or power system  
16 modifications required due to increasing levels of wind generation. The results from this study  
17 will, however, be used in future work to determine the capital costs for system modifications  
18 required to back-up the wind generation on the NS Power system. Together, the system costs  
19 and capital costs can be used in determining the total cost for delivering wind generated  
20 electricity to customers.

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1 **Request IR-29:**

2

3 **How often is wind at 100pc, 95pc down to 0pc expressed as average hours per day in**  
4 **winter, summer, spring and fall?**

5

6 Response IR-29:

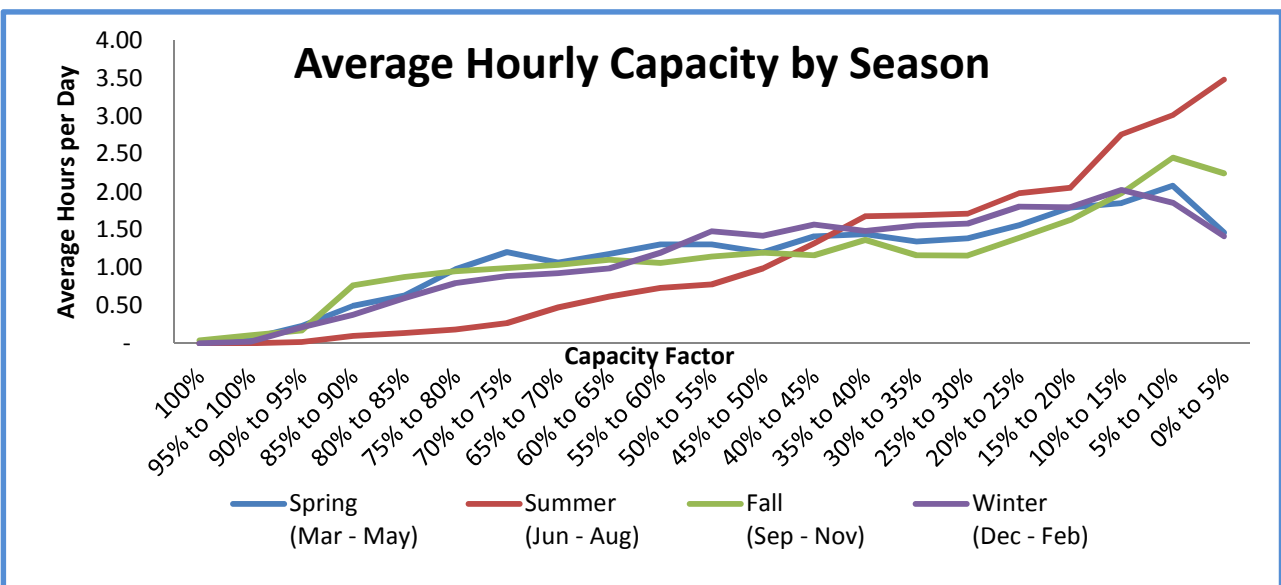
7

8 Please refer to Attachment 1 which provides wind capacity as average hours per day in winter  
9 (December through February), summer (June through August), spring (March through May) and  
10 fall (September through November). The data tables and graphs consist of average hourly  
11 capacity from May 1, 2010, through April 30, 2012, first presented as average hours per day and  
12 season as requested, then also as a percentage.



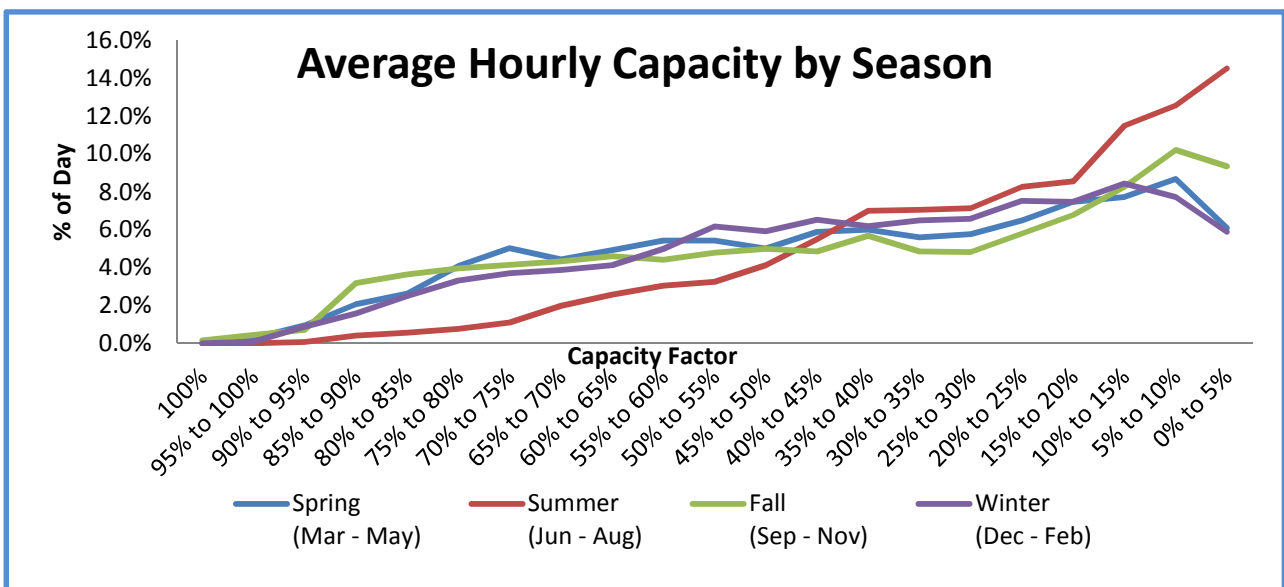
## Average Hourly Capacity by Season (Average Hours per Day)

% of Total Capacity	Spring (Mar - May)	Summer (Jun - Aug)	Fall (Sep - Nov)	Winter (Dec - Feb)
100%	0.00	0.00	0.04	0.00
95% to 100%	0.07	0.00	0.10	0.02
90% to 95%	0.23	0.02	0.17	0.21
85% to 90%	0.49	0.10	0.77	0.38
80% to 85%	0.63	0.14	0.87	0.60
75% to 80%	0.98	0.18	0.95	0.80
70% to 75%	1.21	0.26	0.99	0.89
65% to 70%	1.07	0.48	1.04	0.93
60% to 65%	1.18	0.62	1.10	0.99
55% to 60%	1.30	0.73	1.06	1.20
50% to 55%	1.30	0.78	1.15	1.48
45% to 50%	1.20	0.99	1.20	1.42
40% to 45%	1.41	1.32	1.16	1.57
35% to 40%	1.44	1.68	1.37	1.49
30% to 35%	1.34	1.69	1.16	1.56
25% to 30%	1.39	1.71	1.16	1.58
20% to 25%	1.56	1.98	1.39	1.81
15% to 20%	1.79	2.05	1.63	1.80
10% to 15%	1.85	2.76	1.98	2.03
5% to 10%	2.08	3.02	2.45	1.86
0% to 5%	1.46	3.49	2.25	1.41
<b>Total</b>	<b>24.00</b>	<b>23.99</b>	<b>24.00</b>	<b>24.00</b>



## Average Hourly Capacity by Season (% of Day)

% of Total Capacity	Spring (Mar - May)	Summer (Jun - Aug)	Fall (Sep - Nov)	Winter (Dec - Feb)
100%	0.0%	0.0%	0.2%	0.0%
95% to 100%	0.3%	0.0%	0.4%	0.1%
90% to 95%	1.0%	0.1%	0.7%	0.9%
85% to 90%	2.1%	0.4%	3.2%	1.6%
80% to 85%	2.6%	0.6%	3.6%	2.5%
75% to 80%	4.1%	0.8%	4.0%	3.3%
70% to 75%	5.0%	1.1%	4.1%	3.7%
65% to 70%	4.4%	2.0%	4.3%	3.9%
60% to 65%	4.9%	2.6%	4.6%	4.1%
55% to 60%	5.4%	3.0%	4.4%	5.0%
50% to 55%	5.4%	3.2%	4.8%	6.2%
45% to 50%	5.0%	4.1%	5.0%	5.9%
40% to 45%	5.9%	5.5%	4.8%	6.5%
35% to 40%	6.0%	7.0%	5.7%	6.2%
30% to 35%	5.6%	7.1%	4.8%	6.5%
25% to 30%	5.8%	7.1%	4.8%	6.6%
20% to 25%	6.5%	8.3%	5.8%	7.5%
15% to 20%	7.5%	8.6%	6.8%	7.5%
10% to 15%	7.7%	11.5%	8.3%	8.4%
5% to 10%	8.7%	12.6%	10.2%	7.7%
0% to 5%	6.1%	14.5%	9.4%	5.9%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



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1 **Request IR-30:**

2

3 **Re: Muskrat Falls: what are the known and projected components to the cost per kWh**  
4 **delivered in Nova Scotia and what is the total projected cost?**

5

6 Response IR-30:

7

8 Please refer to NSUARB IR-42(a).

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1 **Request IR-31:**

2

3 **Assuming \$1.2 billion is not spent on Muskrat Falls and that an equal or lesser sum is spent**  
4 **otherwise to meet Nova Scotia needs, what would the cost per KWh to consumers be in 2, 5,**  
5 **10, 15, 20 25 and 30+ years if the cheapest method(s) is/are adopted?**

6

7 Response IR-31:

8

9 NS Power has not prepared this information as part of this Application.

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1 **Request IR-32:**

2

3 **What would it cost per kWh to transmit two TWh of electricity from Quebec to Nova**  
4 **Scotia customers? Please separate the cost per kWh, cost for transmission and the cost of**  
5 **any capital investments needed to make this possible.**

6

7 Response IR-32:

8

9 NS Power has not prepared this information as part of this Application.