

REDACTED

Request IR-8:

The data provided in response to Liberty IRs #1 and #2 show considerable differences in the progression of solid fuel prices between actual delivered prices in 2012, and forecast prices for 2015. The integration of prices from existing low sulfur solid fuel contracts for 2015 and 2016 does not apparently explain these differences. These differences have been calculated as the percentage change between the price for 2012 and the price for 2015, and are as follows:

<u>Unit</u>	<u>% Change Between</u> <u>2012 and 2015</u>
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

(a) Please explain how each of the 11 prices for 2015 were obtained, and whether or not any adjustments to the quoted forecasts were made based on NSPI market position and/or procurement strategy and ability.

(b) If such adjustments were made, please explain and justify.

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1 (c) If not already explained in "a" directly above, please explain and justify each of the
2 11 price changes between 2012 and 2015, as shown in the above chart.
3

4 (d) Data from the FAM Audit indicated that in 2014 the plan was for approximately
5 [REDACTED]

6 [REDACTED] Please explain how the prices for supply of such coal have been
7 integrated into the prices for 2015, as provided in the response to Liberty IR-1.
8

9 Response IR-8:
10

11 (a) Please refer to Liberty IR-1 for the method used for the development of the forecast.
12 Please refer to Part c) below which further explains the change between 2012 and 2015
13 pricing. As discussed in Part c), timing of contracts is a main influencer on the change
14 between 2012 pricing and that forecast for 2015. The NS Power procurement strategy
15 layers in combinations of mid- and long-term contracts which could result in pricing that
16 is above or below the current market in any one year. NS Power did not take a market
17 view by making assumptions about the timing of future contracts or whether the market
18 would move upward or downward relative to the forecasts that were used. It is worth
19 noting that the impact of existing contracts diminishes in future years as the volume of
20 delivered coal covered by pre-existing contracts (and associated historical pricing)
21 diminishes with each successive year.
22

23 (b) Please refer to Part a) and Part c).
24

25 (c) Using the approach of comparing 2012 to 2015 that is set out in Liberty IR-8, Table 1
26 provides the comparison and Table 2 and Figures 1 through 3 provide the explanations
27 for the price changes. Please also refer to Liberty IR-9 which discusses the 2012 pricing
28 used in the comparison.
29
30

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Table 1											
Solid Fuel Deliveries											
All prices in \$CAD/mmbtu											
	Lingan LS	Lingan MS	Pt Aconi LS	Pt Aconi PC	Tupper LS	Tupper MS	Tre 5 LS	Tre 5 MS	Tre 6 LS	Tre 6 NOVA	Tre 6 MS
2012 (Liberty IR-9)											
2015 Forecast	\$5.30	\$4.39	\$5.25	\$4.04	\$4.81	\$4.14	\$5.16	\$4.45	\$5.16	\$2.88	\$4.45

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Table 2

Unit & Coal Type	Delivery Port	% Change Between 2012 & 2015	Explanation of Change
Lingan LS	INP	19%	The change for INP-delivered LS Coal is consistent with the change in commercial forecast from 2012 to 2015 shown in Figure 1. A high and low band width provided with the EVA forecast shows that the 2012 actual delivered prices are near the high end of the band. The low sulphur coals delivered to INP in 2012 were priced from multi-year contracts negotiated previously when market projections were higher.
Pt Aconi LS	INP	19%	
Tupper LS	PTMT	6%	The low sulphur fuels received in 2012 at PTMT were approximately 10% higher in price than those received at INP for Lingan and Point Aconi above, which decreases the change from 2012 to 2015 as shown in Figure 1. As with INP, the contracts were negotiated in the past when market prices were higher. The PTMT low sulphur deliveries were from a higher priced fixed-price contract. Approximately 45% of the deliveries to PTMT were received in the first half of 2012 when market indices were higher, compared to approximately 25% at INP, which increased the cost of the indexed fuel into PTMT.
Tre 5 LS	PTMT	7%	
Tre 6 LS	PTMT	7%	
Lingan MS	INP	6%	Forecast trends indicate approximately a 20% upward change in mid-sulphur coal between 2012 and 2015 as shown in Figure 2. The mid-sulphur coal delivered to both INP and PTMT in 2012 was made up of higher-priced contracts negotiated in previous years when market was stronger, which decreases the change between 2012 and 2015. The INP-delivered mid-sulphur coal also was made up of contracts that were higher priced than mid-sulphur coal delivered to PTMT, resulting in the smaller change between 2012 delivered and forecast 2015 compared to the change below for PTMT-delivered mid-sulphur coal.
Tupper MS	PTMT	10%	
Tre5 MS	PTMT	11%	
Tre 6 MS	PTMT	11%	
Pt Aconi PC	INP	52%	The petcoke market is different from other fuel markets, primarily because petcoke is a by-product of the refinery process that is priced at a market value for energy. Suppliers typically price on the PACE index. There is no futures market for petcoke which precludes hedging of the PACE index. Recent history has shown volatility in the market, and petcoke is projected to continue to follow an undertain price pattern. Some suppliers predict a reduction in petcoke production associated with shale oil production, which could, in the short term result in an increase in petcoke pricing. The EVA forecast for petcoke shows a base forecast for 2015 that is closer to the high projection than the low projection (See Figure 3). The steep change between 2012 and 2015 is also due to the lower price for Point Aconi supply in 2012 resulting from an early 2012 delivery from a former low-priced contract, as well as a low-priced cargo in 2012 which was part of a settlement agreement for a past shortfall.

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Figure 1

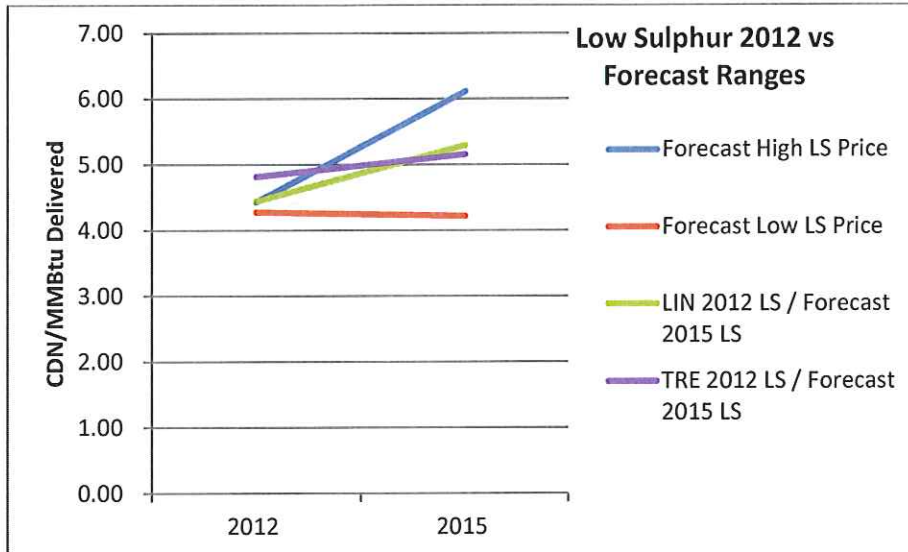
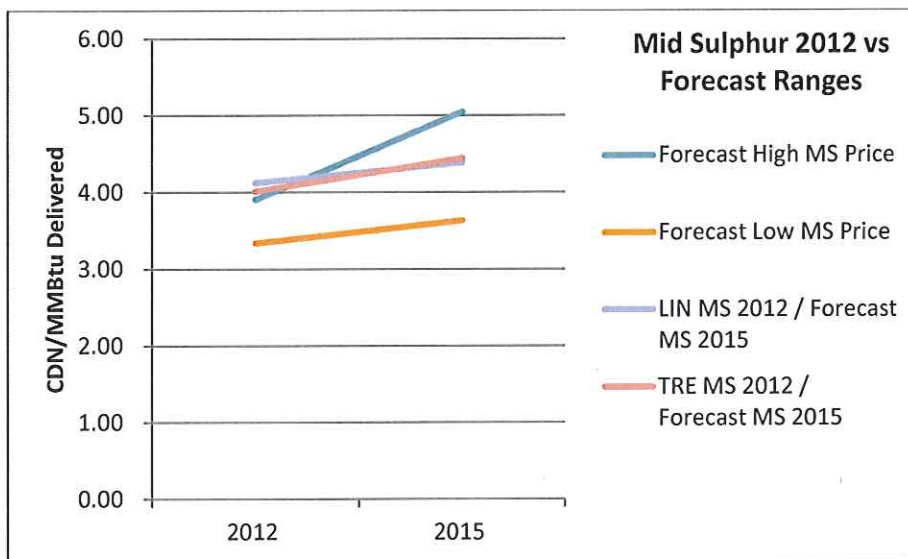
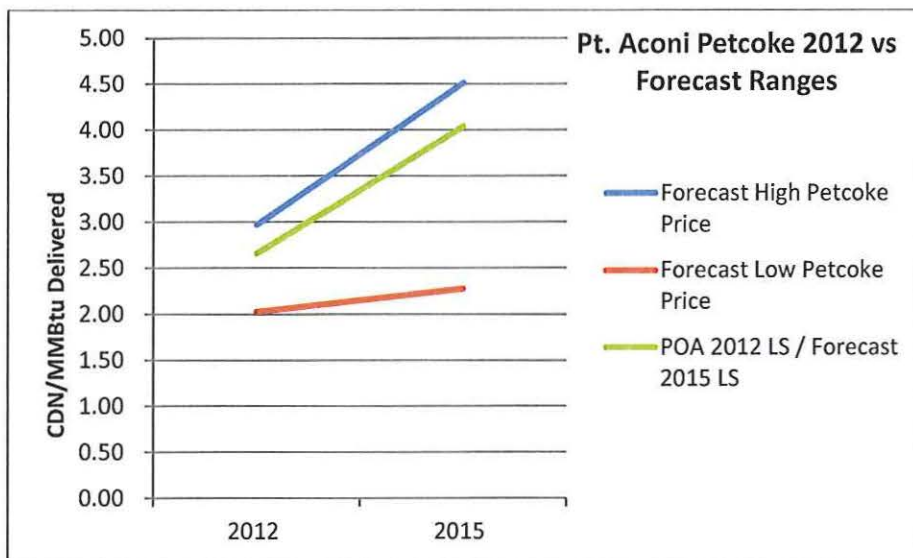


Figure 2



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Figure 3



(d) Strategist is not able to manage more than two fuels per unit. The blend components in the study selected for Lingan and Point Tupper were [REDACTED]. For Point Aconi, the blend components selected were [REDACTED]. [REDACTED] is not one of the main components of NS Power plant fuel blends and hence was not selected as one of the two blend components in the study. Coal pricing for the study was the same for all alternatives and the volumes of coal were similar between the alternatives (please refer to EAC IR-32 Attachment 1 showing GWh by source). The volume of coal per annum was limited by environmental constraints and they were blended to produce the lowest overall cost to customers within these constraints.

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Request IR-9:

Please explain why the footnote to the response to Liberty IR-2 indicated that pricing included consumed fuel inventory, when delivered coal price information was requested.

Response IR-9:

The annual delivered coal costs per plant are organized in the FuelWorx database based on consumption of the coal at each plant. The consumed price in any one year is a weighted average cost of all coal delivered in that year, plus any that was in the stockpile from a previous year. To better appreciate the changes in pricing between years, NSPI agrees that it is preferable to compare the price of coal delivered within that year without confusing it with pricing from variable amounts of coal in the stockpile delivered in a prior year(s). Therefore, the data comparison presented in Liberty IR-8 uses only the price of coal that was delivered in the year and not what was consumed from the stockpile. This information is presented in Table 1 below. The intent of the footnote in the response to Liberty IR-2, was to highlight that coal prices in the table may be from contracts that were negotiated years before and therefore the delivered pricing is not necessarily representative of current market prices. Please refer also to Liberty IR-8 Part (c).

Table 1											
Solid Fuel Deliveries											
All prices in \$CAD/mmbtu											
	Lingan LS	Lingan MS	Pt Aconi LS	Pt Aconi PC	Tupper LS	Tupper MS	Tre 5 LS	Tre5 MS	Tre 6 LS	Tre 6 NOVA	Tre 6 MS
2012											

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1 **Request IR-10:**

2
3 **Please explain why page 2 of Appendix 6.04 shows prices for Trenton 6 Nova coal for the**
4 **years 2015 and 2016, when the fourth quarter NSPI FAM report** [REDACTED]

5 [REDACTED]
6
7 **Response IR-10:**

8
9 The NS Power FAM report includes domestic fuel that is currently available rather than potential
10 sources that are being explored but are unconfirmed. At the time of the Maritime Link study,
11 there were indications of domestic availability and thus domestic coal was selected as one of the
12 two fuels in the Trenton 6 blend in the early years. However, this assumption was not applied
13 post 2016 which is the timeframe of the ML alternative.

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1 **Request IR-11:**

2
3 **The original Liberty IR-1, item "b", requested all of the components of the price, including**
4 **mine prices. Please provide the requested mine prices, as well as transportation prices to**
5 **arrive at the FOB vessel prices.**

6
7 Response IR-11:

8
9 The commercially available long term forecast prices used in the July 2012 data referenced in
10 Appendix 6.04 were provided on an FOBT basis. Please refer to Liberty IR-12 which identifies
11 the marine freight plus land transportation prices, and well as the FOB vessel prices.

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Request IR-12:

The response to Liberty IR-1, attachment 1, is missing title information. For example 2015 Total Delivered Cost USD/MT for 13000 MS US is listed as three different prices as follows:

(a)		
		
		

Please explain and/or add necessary title information.

(b) Please explain whether the dollar units on page 12 of 13 USC or CDN.

(c) Please explain page 13 of 13.

Response IR-12:

(a-c) The titles identifying the contents of Liberty IR-1 Attachment 1, were on the spreadsheet tabs. The tab information did not appear in the pdf version of the attachment. The titles from the tabs along with an explanation of page contents is provided below:

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Page	Tab Title	Description of Page Contents
1 of 13 & 2 of 13	Summary	Delivered fuel costs for each plant, in both CDN/MT and CDN/MMBtu. The data found in the Summary pages 1&2 are obtained from Pages 4 through 11 as explained below.
3 of 13	FOB	Base fuel price at loading Port before delivery to Nova Scotia, in USD/MT.
4 of 13	LIN CDN	First table: Lingan FOB Costs in \$/MT obtained from the FOB page (Page 3 of 13) and converted to Canadian dollars. Second table: Lingan FOB costs from the first table added to Lingan transportation costs obtained from the Transportation page (Page 12 of 13) and converted to Canadian dollars to give Lingan Delivered Cost in CDN/MT. Third Table: Second table converted to \$/MMBtu to give Lingan Delivered Cost in CDN/MMBtu. The second and third tables feed Summary Page 1.
5 of 13	LIN USD	Same 3 tables as in 4 of 13 above, to give Lingan Delivered Cost in USD/MT and USD/MMBtu.
6 of 13	POA CDN	First table: Point Aconi FOB Costs in \$/MT obtained from the FOB page (Page 3 of 13) and converted to Canadian dollars. Second table: Point Aconi FOB costs from the first table added to Point Aconi transportation costs obtained from the Transportation page (Page 12 of 13) and converted to Canadian dollars to give Point Aconi Delivered Cost in CDN/MT. Third Table: Second table converted to \$/MMBtu to give Point Aconi Delivered Cost in CDN/MMBtu. The second and third tables feed Summary Page 1.

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7 of 13	POA USD	Same 3 tables as in 6 of 13 above to give Point Aconi Delivered Cost in USD/MT and USD/MMBtu.
8 of 13	TRE CDN	<p>First table: Trenton FOB Costs in \$/MT obtained from the FOB page (Page 3 of 13) and converted to Canadian dollars.</p> <p>Second table: Trenton FOB costs from the first table added to Trenton transportation costs obtained from the Transportation page (Page 12 of 13) and converted to Canadian dollars to give Trenton Delivered Cost in CDN/MT.</p> <p>Third Table: Second table converted to \$/MMBtu to give Trenton Delivered Cost in CDN/MMBtu.</p> <p>The second and third tables feed Summary Page 2.</p>
9 of 13	TRE USD	Same 3 tables as in 8 of 13 above to give Trenton Delivered Cost in USD/MT and USD/MMBtu.
10 of 13	POT CDN	<p>First table: Point Tupper FOB Costs in \$/MT obtained from the FOB page (Page 3 of 13) and converted to Canadian dollars.</p> <p>Second table: Point Tupper FOB costs from the first table added to Point Tupper Transportation Costs obtained from the Transportation page (Page 12 of 13) and converted to Canadian dollars to give Point Tupper Delivered Cost in CDN/MT.</p> <p>Third Table: Second table converted to \$/MMBtu to give Point Tupper Delivered Cost in CDN/MMBtu.</p> <p>The second and third tables feed Summary Page 2.</p>
11 of 13	POT USD	Same 3 tables as in 10 of 13 above, to give Point Tupper Delivered Cost in USD/MT and USD/MMBtu.
12 of 13	Transportation	Transportation Costs in USD/MT for Marine Freight plus Land transportation for each coal type to each Plant. The

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		table titles identify coal types and plant.
13 of 13	FX	Annual conversion rates from USD to Canadian dollars, used to convert data in pages 4, 6, 8, and 10.

1

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Request IR-13:

Following up on the Company's response to Liberty IR-5:

(a) Please provide the source of the "supplier premium [REDACTED]" used in Attachment 1, pages 3, 4 and 5.

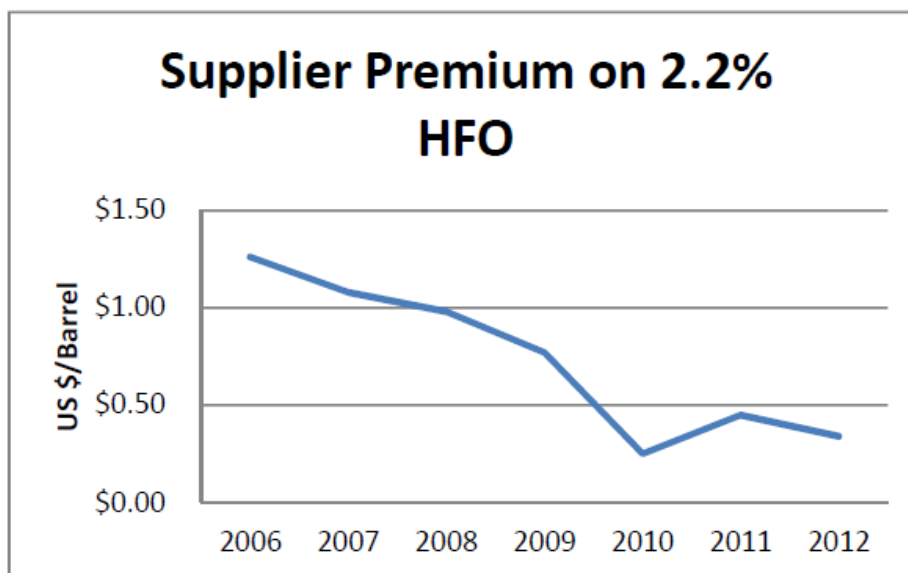
(b) Please describe the Company's rationale for not escalating that value for inflation.

Response IR-13:

(a) This is an estimate value based upon previous levels.

(b) This value does not appear to have any correlation with inflation. The historic data for the past seven years is shown below. This value is less than 1 percent of the delivered cost.

Year	Supplier Premium on 2.2%
2006	US \$1.26
2007	US \$1.08
2008	US \$0.98
2009	US \$0.77
2010	US \$0.25
2011	US \$0.45
2012	US \$0.34



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1 **Request IR-14:**

2
3 **Following up on the Company's response to Liberty IR-5:**

4
5 (a) **Please provide the source of the "Differential [REDACTED]" used in Attachment 1,**
6 **pages 6, 7.**

7
8 (b) **Please describe the Company's rationale for not escalating that value for inflation.**

9
10 Response IR-14:

11
12 (a) The differential is from the NSUARB website for the calculation of regulated fuel
13 pricing in Nova Scotia. This should be labelled "Wholesale Margin" rather than
14 [REDACTED] differential. Please refer to the link:

15
16 [http://www.nsuarb.ca/index.php?option=com_content&task=view&id=102&Itemid=](http://www.nsuarb.ca/index.php?option=com_content&task=view&id=102&Itemid=91)
17 [91](http://www.nsuarb.ca/index.php?option=com_content&task=view&id=102&Itemid=91)

18
19 (b) This value is provided by the UARB and has been flat since regulation was
20 introduced. This value is less than 0.5 percent of the delivered cost of the products.

REDACTED

1 **Request IR-15:**

2
3 **Following up on the Company's response to Liberty IR-5:**

4
5 (a) Please provide the source of the [REDACTED]
6 [REDACTED] used in Attachment 1, pages 6, 7.

7
8 (b) Please describe the rationale for the changes in those values from 2015 to 2040.

9
10 (c) Please describe the rationale for using the same values for those parameters for the
11 Reference, High and Low Cases.

12
13 Response IR-15:

14
15 (a) The differentials are based on recent RFP results.

16
17 (b) The differentials are adjusted over the period in question using the inflation rate
18 contained on page 2 of 8.

19
20 (c) These values make up approximately [REDACTED] or less of the delivered costs. Having a
21 High and Low Case for them will not materially change the delivered costs.

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1 **Request IR-16:**

2
3 **With respect to the Company's response to Liberty IR-5, Attachment 2, page 1:**

4
5 (a) **What do the initials in parentheses under the Low and two High cases (AS, OLG**
6 **and SGL) mean?**

7
8 (b) **What is the meaning of the percentage numbers in the bottom right quadrant of the**
9 **page?**

10
11 **Response IR-16:**

12
13 (a) The PIRA 2012 Annual Guidebook for Scenario Planning has the following definitions:

14
15 AS=Abundant Supply

16 OLG=Oil Lifts Gas

17 SGL=Shale Gas Limits

18
19 (b) The percentage numbers in the bottom right quadrant show the annual change based upon
20 the forecast numbers above. The first line shows the percentage change from 2012-2013,
21 the second line is the percentage change from 2013-2014, etc.

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1 **Request IR-17:**

2
3 **With respect to the Company's response to Liberty IR-5, Attachment 2, page 2:**

4
5 (a) **What is the source of the data on this page?**

6
7 (b) **What is the date of the data on this page? Is it June 26, 2012, or is that the date that**
8 **the table was created?**

9
10 **Response IR-17:**

11
12 (a) **PIRA.**

13
14 (b) **The data was updated by PIRA on June 26th, 2012.**

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1 **Request IR-18:**

2
3 **With respect to the Company's response to Liberty IR-5, Attachment 2, page 3:**

4
5 (a) **What is the source of the data on this page?**

6
7 (b) **What is the date of the data on this page?**

8
9 (c) **Is the data converted to constant 2010 U.S. dollars?**

10
11 (d) **If so, how is the data converted to constant 2010 U.S. dollars?**

12
13 **Response IR-18:**

14
15 (a) PIRA.

16
17 (b) The data was last updated by PIRA on May 10th, 2012.

18
19 (c) No, the data is not converted to constant 2010 U.S. dollars.

20
21 (d) N/A.

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1 **Request IR-19:**

2
3 **With respect to the Company's response to Liberty IR-5, Attachment 2, pages 4-8, 10-21:**

4
5 (a) **What is the source of the values used for** [REDACTED]

6 **[REDACTED]?**

7
8 (b) **What is the Company's rationale for keeping those values constant for the years**
9 **2015 through 2037?**

10
11 **Response IR-19**

12
13 (a) **The source for the value of the M&NP US is the M&NP US tariff.**

14
15 The source for the value of the M&NP Exp (Expansion) is an estimate made by
16 NS Power based on a cost estimate provided by M&NP.

17
18 The source for the value of the M&NP Cdn is taken from the M&NP Cdn tariff, adjusted
19 for reductions forecast to take place due to a declining capital base.

20
21 (b) **The M&NP US system has a firm shipper with rates locked in until 2034.**

22
23 NS Power assumed the expansion cost would be a firm toll that would be locked in for an
24 extended period.

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Request IR-20:

With reference to the MassHub prices used in the Company's analysis of alternatives and provided in Appendix 6.04 to the Company's Application, and the Company's responses to NSUARB IR-37 and Synapse IR-33:

(a) Who is ESAI?

(b) Who is "Dalton"?

(c) How does the date of the ESAI Q3 2012 forecast compare to the dates of the forecasts that the Company used for fuel oil and natural gas prices?

Response IR-20:

(a) ESAI is ENERGY SECURITY ANALYSIS, INC. Founded in 1984, ESAI provides market research and strategic advisory services to energy and power markets. ESAI provides a framework for interpreting and prioritizing empirical market data and industry information. ESAI provides detailed analysis of energy and power markets and explains future market trends. More information can be found at <http://www.esai.com>

(b) "Dalton" refers to the prices found in the "Analysis of Proposed Development of the Maritime Link and Associated Energy from Muskrat Falls Relative to Alternatives" prepared for the Nova Scotia Department of Energy on January 16, 2013 by John Dalton of Power Advisory, LLC. The prices are based on U.S. Energy Information Agency's (EIA's) forecasts (as reported in their Annual Energy Outlook, 2013 Early Release). The "Dalton Report" can be found at <http://novascotia.ca/homepage/argyle/hottopics/AnalysisOfElectricitySupplyAlternatives.pdf>

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1 (c) The date of the ESAI Q3 2012 forecast is Oct. 12, 2012. Please refer to Liberty IR-4,
2 Liberty IR-5, Liberty IR-17 and Liberty IR-18 for the dates of the various components of
3 the fuel oil and natural gas forecasts.