

1 Q. The response to PUB-Nalcor-94 states in part: *'In considering emissions, the*  
2 *Government of Canada has also published its proposed greenhouse gas (GHG)*  
3 *regulations for coal fired generating facilities, and has proposed a 45 year design life*  
4 *for coal fired facilities. These have been filed in Exhibit 107.'* The response goes on  
5 to state: *"...Nalcor expects the Government of Canada to impose limitations on*  
6 *heavy fuel oil fired generating facilities that are similar to those proposed for coal*  
7 *fired generation."*

8

9 Exhibit 107, pg. 37 of 147 states *"In 2008...GHG emissions from the electricity*  
10 *generation sector contributed around 16% (or approximately 120 megatonnes(Mt)*  
11 *to Canada's inventory of emissions. In the same year, coal fired electricity*  
12 *generation was responsible for 93 Mt of GHG emissions in Canada, which represent*  
13 *78% of total electricity sector emissions."*

14

15 Has Nalcor had any formal discussions with the Government of Canada regarding  
16 confirmation that oil fired plants will be subject to similar regulations as coal fired  
17 plants and, if so, the projected timeline for such regulations? What is the basis for  
18 the statement that Nalcor expects similar restrictions to those for coal fired plants  
19 to be extended to heavy fuel oil plants?

20

21

22 A. Nalcor has not had formal discussions with the Government of Canada regarding  
23 the future regulations for oil fired generating facilities. The basis for Nalcor's  
24 expectation of future regulation on oil fired generating facilities is as follows:

25

26 The Government of Canada has announced GHG regulation for coal fired generating  
27 facilities, and has stated that the long term GHG intensity target for replacement

1 facilities is that of a modern natural gas fired combined cycle plant. Heavy fuel oil  
2 generating plants such as Holyrood have a GHG intensity more than double that of  
3 a natural gas fired combined cycle plant. Based on the long term target for  
4 replacement thermal facilities, and the extent by which oil fired facilities exceed  
5 that natural gas fired combined cycle target, Nalcor expects that new standards will  
6 be applied in the future to oil fired facilities.

7

8 The federal government has indicated publicly that the GHG emissions target in its  
9 proposed regulations for coal fired plants would also be applicable to natural gas  
10 fired facilities.<sup>1</sup> According to Environment Minister Peter Kent,

11

12 “We wanted to make sure that we didn’t bring in regulations for the  
13 coal-fired folks to hit a performance standard that would then have to  
14 be changed when we turned to working with the gas-fired sector. [The  
15 standard] reflects a fairly high efficiency for a natural-gas equivalent  
16 plant and it would probably mean that we would be consistent with  
17 that number when we get around to the natural gas reg[ulation].”

18

19 Given Holyrood’s high GHG intensity, the action taken to introduce coal plant GHG  
20 regulation, and statements made by the Government of Canada, Nalcor expects  
21 that other generating facilities, including oil-fired plants, will also be captured by  
22 GHG regulation in the future.

23

24 For the purpose of its DG2 analysis, Nalcor has not assumed any new GHG  
25 standards in its Isolated Island Alternative, but as noted in its response to MHI-

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<sup>1</sup> *The Globe and Mail*, Wednesday, August 31, 2011 (attached on the following page).

- 1 Nalcor-3, believes there is a risk that GHG emissions standards may be applied to oil
- 2 fired facilities.

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## ELECTRICITY

# Natural gas plants face new emission rules

TransAlta CEO says rules governing generators switching from coal will drive up electricity prices

**SHAWN McCARTHY**  
GLOBAL ENERGY REPORTER  
OTTAWA

The federal government plans to regulate emissions on new natural-gas-fired power plants, posing a major challenge for an industry that is being forced to phase out traditional coal-fired plants.

The electricity sector should expect to meet emission standards for new gas plants that will have to be built to replace coal-fired plants that reach the end of their commercial life after 2015, Environment Minister Peter Kent revealed in an interview on Tuesday.

The climate regulations will hit hardest in Alberta and Saskatchewan, where booming economies are driving up electricity demand even as companies will need to replace aging coal plants.

The power companies responded forcefully to the plans, arguing the coal regulations will reduce the reliability of the electricity system and drive up costs to consumers in provinces that depend on coal-fired power, while the proposed gas rules would simply be unworkable.

The emission standard contained in the coal regulations is an "idealistic" threshold that can't be met by coal-fired or gas-fired plants that will be needed as the coal plants are phased out, TransAlta Corp. chief executive officer Stephen Snyder said.

The draft coal regulations were released in the Canada Gazette last weekend, and will be finalized after a 60-day comment period. They require that any new or refurbished coal-fired plant, commissioned after July 1, 2015, emit no more carbon dioxide than a high efficiency gas-fired station, and set individual retirement dates for the country's 21 coal plants.

Mr. Kent said the emission standard - 375 tonnes of CO<sub>2</sub> per gigawatt hour - was set with a view to incorporating it into gas-fired power regulations in the coming years.

"We wanted to make sure that we didn't bring in regulations for the coal-fired folks to hit a performance standard that would then have to be changed when we turned to working with the gas-fired sector," he said.

The standard "reflects a fairly high efficiency for a natural-gas equivalent plant and it would probably mean that we would be consistent with that number when we get around to the natural gas reg."

He did not indicate when Environment Canada would release draft regulations, but said it would come relatively quickly after finalizing the coal rules, in part because it is "less challenging" than the effort to impose greenhouse gas limits on sectors like the oil sands.

In an interview, Mr. Snyder said the industry has concerns about the government's planned coal regulations, and is concerned that the future gas rules would seriously erode its ability to generate electricity without dramatically driving up prices.

He is urging Ottawa to adopt a "fleetwide approach" - so that companies would have to meet an emission standard across their entire operation - rather than bringing in plant-by-plant regulations.

"TransAlta and many members of the industry feel we can actually do perhaps even better than the government has laid out and with less economic impact if we can get the regulations to be a bit more flexible and a bit less pre-

scriptive," Mr. Snyder said.

"It's very difficult to have a prescriptive approach as laid out ... these rules get at CO<sub>2</sub> reduction but they don't necessarily look at the economics, or the reliability, or the customer impact."

TransAlta owns, either wholly or in partnership, four coal-fired stations in Alberta, but is also a major investor in wind and hydro projects in the province. It also has gas, hydro and wind power stations in eastern Canada.

In an analysis accompanying the regulations, Environment Canada said it expects the provinces will meet their electricity needs by adopting carbon-capture-and-storage technology for new coal-fired plants, building new gas plants, and increasing imports from provinces with large hydro power capacity.

It said Canada's consumption of coal-fired power will drop by nearly half between 2015 and 2030, while use of natural gas for electricity will nearly double over the same period. Alberta, Saskatchewan and Nova Scotia will be most affected because they are most dependent on coal-fired electricity. Ontario is to phase out its remaining 15 plants by 2015.

But Mr. Snyder said companies will be reluctant to invest in new gas-fired plants until they are assured they will not face onerous regulations on existing plants, or an unattainable standard for new generating stations. The emission standard for coal plants "will really limit new gas plants in Canada," Mr. Snyder said.

While the standard may be appropriate for a base-load plant at sea level in moderate temperatures, gas plants operate less efficiently - and therefore emit more CO<sub>2</sub> - at higher elevations and colder temperatures. And it would be impossible to meet the 375-tonne standard at natural gas plants used intermittently for peak-power needs.

"What the industry said is that, 'We agree with setting a standard, we just don't agree with the standard you picked. It's an idealistic, perfect solution that just doesn't work for most of Canada,'" the TransAlta executive said.

1 Q. Further to the response to PUB-Nalcor-95 which referred to the economic and  
2 employment benefits associated with the Muskrat Falls project, please explain the  
3 considerations given by Nalcor, including the priority or weight to such benefits, in  
4 its DG2 decision.

5  
6

7 A. Both Muskrat Falls and the Labrador Island Transmission Link provide substantial  
8 economic and employment benefits. While these benefits were analyzed as part of  
9 DG2, they were not given any weight or priority as they do not affect the results of  
10 the CPW analysis. Rather, these factors are evaluated and reported as part of the  
11 environmental assessment processes for both projects.

12

13 These factors have not been considered in Nalcor's CPW analysis as part of the  
14 current proceeding before the Board, as the Terms of Reference for this proceeding  
15 do not consider these economic and employment benefits in determining which  
16 alternative is least-cost. However, the economic and employment benefits that  
17 accrue from Muskrat Falls and the Labrador Island Transmission Link are important  
18 considerations for the Province and doubtless would be considered as part of a  
19 broader economic cost benefit analysis undertaken by the Province.

1 Q. The response to MHI-Nalcor-44 states: *“Large projects such as the Lower Churchill*  
2 *Project are considered under separate integration studies. Final integration studies*  
3 *for the Lower Churchill Project are underway with an expected completion date of*  
4 *November 2011.”*

5

6 Please provide a copy of the Report covering these integration studies for the  
7 current configuration of the Lower Churchill Project.

8

9

10 A. The Final Integration studies for the Lower Churchill Project are still underway.  
11 Completion of these studies is now anticipated by the end of March 2012.

1 Q. Further to PUB-Nalcor 143, have these studies been conducted to include the  
2 Maritime Link, exclude the Maritime Link or, to both include and exclude the  
3 Maritime Link?  
4

5

6 A. The studies referred to in PUB-Nalcor-143 are being completed in two stages.  
7 Muskrat Falls and the Labrador Island Transmission Link are being studied first then  
8 the Maritime Link will be added in the second stage.

1 Q. The responses to PUB-Nalcor-127 and PUB-Nalcor-128 state that as the Holyrood  
2 condition assessment report, Exhibit 44, did not address the potential remaining  
3 useful life of the assets at 2041, no costs for refurbishment or replacement were  
4 included in the CPW analysis.

5

6 Pg. 5 of Exhibit 44 states that one basis for the condition assessment and life  
7 extension study was to have the Holyrood units operating as synchronous  
8 condensers to 2041.

9

10 Pg. 6 of Exhibit 44 goes on to state: *“Holyrood is also expected to be able to meet its*  
11 *2041 end of life date for operation in a synchronous condensing mode, but will*  
12 *require some further substantial equipment refurbishments and replacements*  
13 *specific to that role.”*

14

15 Given these statements, it would appear reasonable to expect costs to be included  
16 in a CPW analysis extending to 2067, assuming the equivalent reactive capacity of  
17 these machines is required post 2041.

18

19 Please confirm that the equivalent reactive capacity post 2041 has been included in  
20 Nalcor’s studies and, if so, why no costs have been included in the CPW analysis.

21

22

23 A. Nalcor has assumed that the three units at Holyrood will continue to  
24 operate as synchronous condensers beyond 2041.

25

26 While any refurbishment may have been considered ‘substantial’ in the  
27 context of other tasks outlined in the Holyrood life extension study, the



1 consultant did not state that major expenditures would be necessary to  
2 maintain operation of the three units at Holyrood as synchronous  
3 condensers beyond 2041. Nalcor is of the view that only minor  
4 expenditures, if any, would be required in 2041. Nalcor therefore concluded  
5 further detailed analysis of these minor expenditures which would occur far  
6 in the future was not necessary for the purposes of the DG2 analysis as they  
7 would have minimal impact on the outcome of the study.

1 Q. The response to MHI-Nalcor-41 Rev. 1 contains a revision to a CPW sensitivity using  
2 an Annual Load Decrease of 880 GWh. The original results of this sensitivity  
3 conducted by Nalcor showed a difference in the Cumulative Present Worth of the  
4 Isolated Island and Labrador Interconnected Options of only \$1 million, i.e. the two  
5 alternatives were basically equal from a CPW perspective.

6  
7 The revision now shows a difference of \$408 million in favour of the Labrador  
8 Interconnection. Nalcor states that this revision provides a correction for a  
9 calculation error and now properly reflects the reduction in fuel costs for the  
10 Interconnected Island alternative.

11  
12 Please provide the specifics of this calculation error.

13  
14  
15 A. The load scenarios in Exhibit 43 were built up from the response to MHI-Nalcor-49.1  
16 Fuel Costs, and were derived through a load adjustment to production. Figure 1  
17 following shows the original Exhibit 43. The formula for 2010 (Cell E49) correctly  
18 refers to the adjusted production line on Row 47. In error, this formula was not  
19 copied across all years, leaving the formulas for 2011 to 2016 still referring to the  
20 original production amounts. As Figure 1 shows, Holyrood fuel costs on the original  
21 Exhibit 43 for the Interconnected Island alternative for the years 2010 to 2016  
22 match those of the base case on MHI-Nalcor-49.1. The formulas which are in error  
23 start in Cell F49, and the formula displayed at the top of Figure 1 shows the  
24 incorrect reference to Row 45, which is the original production.

1

Figure 1: Original Exhibit 43

F49		fx		=F45*F48*F\$42						
A	B	C	D	E	F	G	H	I	J	K
1	NEWFOUNDLAND AND LABRADOR HYDRO									
2	Generation Expansion Analysis 2010 Interconnection Alternative									
3	Load Sensitivity									
4	Load Decrease (GWh):			0	0	0	880	880	880	880
5	Minimum (GWh):	2								
6		Factor		2010	2011	2012	2013	2014	2015	2016
40	<b>NO. 6 FUEL 0.7%:</b>									
41	\$/bbl (Fuel Forecast)			81.30	83.20	90.90	98.80	102.60	106.80	111.10
42	\$/Mbtu	6.287	MBTU/MWH	12.931	13.234	14.458	15.715	16.319	16.987	17.671
43										
44	<b>Holyrood <sup>(2)</sup></b>									
45	Production (GWh)			1,032.8	952.5	997.1	1,352.5	1,620.5	1,736.6	1,753.0
46	Adjustment			0.0	0.0	0.0	(872.4)	(867.1)	(863.3)	(862.7)
47	Net			1,032.8	952.5	997.1	480.2	753.5	873.2	890.3
48	MBTU/MWh			9.956	9.963	9.963	9.982	9.954	9.928	9.927
49	Fuel cost (\$000)			132,962	125,597	143,630	212,169	263,238	292,867	307,523
50										
51	<b>TOTALS:</b>									
52	Production (GWh)			1,038.9	957.2	1,002.2	1,362.6	1,637.1	1,757.6	1,774.7
53	Adjustment			0.0	0.0	0.0	(880.0)	(880.0)	(880.0)	(880.0)
54	Net			1,038.9	957.2	1,002.2	482.6	757.1	877.6	894.7
55	Fuel cost (\$000)			134,330	126,675	144,921	212,827	264,179	294,048	308,760
56	CPW			1,142,105						

2

3

4 Figure 2 following shows the revised Exhibit 43, with formulas correctly referring to  
 5 the adjusted production on Row 47.

6

Figure 2: Revised Exhibit 43

F49		fx		=F47*F48*F\$42						
A	B	C	D	E	F	G	H	I	J	K
1	NEWFOUNDLAND AND LABRADOR HYDRO									
2	Generation Expansion Analysis 2010 Interconnection Alternative									
3	Load Sensitivity									
4	Load Decrease (GWh):			0	0	0	880	880	880	880
5	Minimum (GWh):	2								
6		Factor		2010	2011	2012	2013	2014	2015	2016
40	<b>NO. 6 FUEL 0.7%:</b>									
41	\$/bbl (Fuel Forecast)			81.30	83.20	90.90	98.80	102.60	106.80	111.10
42	\$/Mbtu	6.287	MBTU/MWH	12.931	13.234	14.458	15.715	16.319	16.987	17.671
43										
44	<b>Holyrood <sup>(2)</sup></b>									
45	Production (GWh)			1,032.8	952.5	997.1	1,352.5	1,620.5	1,736.6	1,753.0
46	Adjustment			0.0	0.0	0.0	(872.4)	(867.1)	(863.3)	(862.7)
47	Net			1,032.8	952.5	997.1	480.2	753.5	873.2	890.3
48	MBTU/MWh			9.956	9.963	9.963	9.982	9.954	9.928	9.927
49	Fuel cost (\$000)			132,962	125,597	143,630	75,325	122,392	147,265	156,179
50										
51	<b>TOTALS:</b>									
52	Production (GWh)			1,038.9	957.2	1,002.2	1,362.6	1,637.1	1,757.6	1,774.7
53	Adjustment			0.0	0.0	0.0	(880.0)	(880.0)	(880.0)	(880.0)
54	Net			1,038.9	957.2	1,002.2	482.6	757.1	877.6	894.7
55	Fuel cost (\$000)			134,330	126,675	144,921	75,984	123,333	148,446	157,416
56	CPW			735,480						

7

1 Q. Further to PUB-Nalcor-146, in light of this error, have all other sensitivities and/or  
2 analyses completed by Nalcor been reviewed to determine whether they contain  
3 the same or other calculation errors?  
4

5  
6 A. The key underlying analyses related to the base case generation expansion  
7 alternatives include Exhibit 99, filed in response to MHI-Nalcor-1, and the Excel  
8 spreadsheets filed in response to MHI-Nalcor-49. These analyses for the Isolated  
9 and Interconnected generation expansion alternatives duplicated *Strategist*  
10 calculations so they were visible in Excel format, and confirmed the cumulative  
11 present worth (CPW) calculations performed by Strategist and the \$2.2 billion CPW  
12 preference for the Interconnected Island generation expansion alternative.  
13

14 With regard to calculations affecting the escalating supply price for Muskrat Falls  
15 power purchases, a simplified financial model was developed in response to MHI-  
16 Nalcor-117. This model confirmed that the \$76/MWh used for the base case  
17 provided an 8.4% internal rate of return as intended.  
18

19 One other load sensitivity was developed from the same template which caused the  
20 error with the original Exhibit 43, and this sensitivity, with its minor correction, was  
21 also revised on Exhibit 43, Rev. 1. The remaining sensitivities have been reviewed,  
22 and Nalcor believes that the results are reasonable and indicative of the sensitivities  
23 modeled.  
24

25 Depending on the scenario, one or more of the following procedures were used to  
26 verify and rationalize the various scenario results:

- 1 (a) Performing spot checks on formulas for selected data series over the analysis
- 2 horizon;
- 3 (b) Relating new data to previous data in some way;
- 4 (c) Verifying results with separate analysis; and
- 5 (d) Verifying results through alternate means.

6

7 The following is a list of sensitivities, and the corresponding verification procedures  
8 performed for each:

9

10 **Exhibit 43 Revision 1:**

- 11 (1) Fuel costs decreased by 44%:

12 Cost impacts were calculated each year, and annual results were discounted  
13 over the analysis horizon to derive CPW results. These results were checked  
14 by adjusting the total CPWs of fuel costs for both base cases by the same  
15 reduction factor and confirming the differences.

16

- 17 (2) Fuel costs PIRA Low:

18 Results were verified through separate independent analysis; and  
19 Sample detail calculations were manually traced and reported in the response  
20 to CA KPR-Nalcor-56.

21

- 22 (3) Fuel costs PIRA High:

23 Sample detail calculations were manually traced and reported in the response  
24 to CA KPR-Nalcor-56; and

25

Spot checks were performed on other formulas.

- 1           (4) Fuel Costs May 2011 Forecast:  
2                     Sample detail calculations were manually traced and reported in the response  
3                     to MHI-Nalcor-60; and  
4                     Spot checks were performed on other formulas.  
5
- 6           (5) Capital – Labrador-Island Link capital costs adjusted by +25%:  
7                     The CPW of the fixed charge component of the Labrador-Island Transmission  
8                     Link for the base case was calculated from Exhibit 99 filed in response to MHI-  
9                     Nalcor-1 (\$1,593 million). The scenario adjusted the CPW of the base case by  
10                    \$398 million, which was confirmed as 25% of the base case Labrador-Island  
11                    Transmission Link fixed charges.  
12
- 13          (6) Capital – Muskrat Falls capital costs adjusted by +25%:  
14                     The change in Muskrat Falls capital costs was accommodated by a change in  
15                     the Muskrat Falls escalating supply rate. This rate was provided by PWC, and  
16                     was determined by running the detailed Muskrat Falls financial model. The  
17                     revised escalating supply rate was confirmed with the summary Muskrat Falls  
18                     model, provided in response to MHI-Nalcor-117.  
19
- 20          (7) Capital – Muskrat Falls and LIL capital costs adjusted by +25%:  
21                     The base case differences for the two preceding sensitivities were totaled and  
22                     confirmed.  
23
- 24          (8) Load - Annual load decrease of 880 GWh (Rev. 1):  
25                     Once the error had been detected as explained in PUB-Nalcor-146, the revised  
26                     results were compared with the Strategist results for the fuel impact related  
27                     to load, as reported in PUB-Nalcor-53. The sensitivity produced a CPW

1 difference for fuel of \$3,129 million, versus the Strategist difference of \$3,153  
2 million. The \$24 million difference between the sensitivity result and the  
3 more detailed Strategist result was considered reasonable for a sensitivity  
4 analysis; and  
5 Spot checks were performed on other formulas.

6  
7 (9) Load - Reduce annual percentage load growth by 50% post 2014 (Rev. 1):  
8 Reliance was placed on the Strategist confirmation of the revised template  
9 results for the load reduction of 880 GWh; and  
10 Spot checks were performed on formulas.

11  
12 (10) Load - Annual Load Decrease of 1086 GWh (New):  
13 Reliance was placed on the Strategist confirmation of the revised template  
14 results for the load reduction of 880 GWh; and  
15 Spot checks were performed on formulas.

16  
17 **PUB-Nalcor-54:**

18 (11) Fuel costs decreased by 20%; Muskrat Falls and LIL capital costs increased by  
19 20%:  
20 Cost impacts were calculated each year, and annual results were discounted  
21 over the analysis horizon to derive CPW results. These results were checked  
22 by adjusting the total CPWs of fuel costs for both base cases by the same  
23 reduction factor and confirming the differences.

24  
25 The change in Muskrat Falls capital costs was accommodated by a change in  
26 the Muskrat Falls escalating supply rate. This rate was provided by PWC, and  
27 was determined by running the detailed Muskrat Falls financial model. The

1 revised escalating supply rate was confirmed with the summary Muskrat Falls  
2 model, provided in response to MHI-Nalcor-117.

3  
4 The CPW of the fixed charge component of the Labrador-Island Transmission  
5 Link for the base case was calculated from Exhibit 99 filed in response to MHI-  
6 Nalcor-1 (\$1,593 million). The scenario adjusted the CPW of the base case  
7 fixed charges by \$318 million, which was confirmed as 20% of the base case  
8 Labrador-Island Transmission Link fixed charges.

9

10 **PUB-Nalcor-118:**

11 (12) Muskrat Falls and LIL capital costs increased by 50%:

12 The change in Muskrat Falls capital costs was accommodated by a change in  
13 the Muskrat Falls escalating supply rate. This rate was provided by PWC, and  
14 was determined by running the detailed Muskrat Falls financial model. The  
15 revised escalating supply rate was confirmed with the summary Muskrat Falls  
16 model, provided in response to MHI-Nalcor-117.

17

18 The CPW of the fixed charge component of the Labrador-Island Transmission  
19 Link for the base case was calculated from Exhibit 99 filed in response to MHI-  
20 Nalcor-1 (\$1,593 million). The scenario adjusted the CPW of the base case  
21 fixed charges by \$796 million, which was confirmed as 50% of the base case  
22 Labrador-Island Transmission Link fixed charges.

23

24 **CA/KPR-Nalcor-22:**

25 (13) 1% increase in interest rates:

26 To verify the increase in CPW for the Labrador-Island Transmission Link, the  
27 spreadsheet created for MHI-Nalcor-1 was used as a template. The increased



1           in-service capital costs (increase of \$42.7 million) and the increased weighted  
2           average cost of capital (increase of 0.75% - 75% debt x 1%) were input, and  
3           produced a CPW for fixed charges of \$1,734 million. This confirmed the \$141  
4           million increase in CPW fixed charges over the base case of \$1,593 million  
5           associated with the Labrador-Island Transmission Link.

6

7           **CA/KPR-Nalcor-23:**

8           (14) 1% increase in equity return:

9           The increase in CPW reported for this sensitivity of \$556 million was related to  
10          both the Labrador-Island Transmission Link and Muskrat Falls. Of this total  
11          amount, \$51 million was attributed to the Labrador-Island Transmission Link  
12          and the remaining amount of \$505 million was associated with Muskrat Falls.

13

14          To verify the increase in CPW for the Labrador-Island Transmission Link, the  
15          spreadsheet created for MHI-Nalcor-1 was used as a template. The increased  
16          in-service capital costs (increase of \$21 million) and the increased weighted  
17          average cost of capital (increase of 0.25% - 25% equity x 1%) were input, and  
18          produced a CPW for fixed charges of \$1,644 million. This confirmed the \$51  
19          million increase in CPW fixed charges over the base case of \$1,593 million  
20          associated with the Labrador-Island Transmission Link.

21

22          The change in Muskrat Falls IRR to equity was accommodated by a change in  
23          the Muskrat Falls escalating supply rate. This rate was provided by PWC, and  
24          was determined by running the detailed Muskrat Falls financial model. The  
25          revised escalating supply rate was confirmed with the summary Muskrat Falls  
26          model, provided in response to MHI-Nalcor-117.

1           **CA/KPR-Nalcor-24:**

2           (15) Fuel costs decreased by 20%:

3                   The fuel component of PUB-Nalcor-54 was reviewed and reproduced for the  
4                   response to this RFI.

5

6           **CA/KPR-Nalcor-58 (currently in progress)**

7           (16) Fuel costs May 2011 low forecast:

8                   Results were rationalized in relation to the previous low fuel forecast  
9                   sensitivity, reported on Exhibit 43; and  
10                  Spot checks were performed on formulas.

11

12          (17) Fuel costs May 2011 high forecast:

13                  Results were rationalized in relation to the previous high fuel forecast  
14                  sensitivity, reported on Exhibit 43; and  
15                  Spot checks were performed on formulas.

1 Q. Pg. 16 of Exhibit 27, states: *“Industrial load forecasts are based on consultations*  
2 *with each of the individual industrial customers and generally reflect existing*  
3 *contractual arrangements with the customer. While business cycle risk exists for*  
4 *Hydro’s sales to its direct industrial customers, it is more of a short-term operational*  
5 *risk for Hydro than a longer-term system planning risk. The PLF does not exercise*  
6 *judgement respecting the longer-term viability for established industry in the*  
7 *Province unless definitive notices have been provided to the Province.”*

8

9 Please describe the nature and timeframe for these types of consultations that  
10 were most recently held with Corner Brook Pulp and Paper. When were these most  
11 recent consultations held and what were the specific outcomes of these  
12 consultations?

13

14

15 A. The most recent consultation with Corner Brook Pulp and Paper about their  
16 forecasted load requirements was in the Spring of 2011. At that time Nalcor  
17 requested a five year power and energy forecast for the Corner Brook Pulp and  
18 Paper operation. A five year load forecast was subsequently provided to Nalcor that  
19 indicated a nominal increase in energy requirements over what was forecasted in  
20 the DG-2 analysis without any increase in demand.

1 Q. The response to PUB-Nalcor-46 states that the purchase price paid by Hydro to  
2 Nalcor for the power and energy from the Muskrat Falls Plant escalates evenly over  
3 time and is applied only to power actually used by rate payers. PUB-Nalcor-90  
4 states that changes in energy volumes would not affect the internal rate of return.  
5 Is the purchase price for power and energy to be paid by Hydro to be on a take-or-  
6 pay basis, that is, the price paid does not change depending on volumes taken or  
7 used?

8

9

10 A. Once the annual payments based on forecasted energy deliveries have been  
11 established for a defined shareholder return, reduced energy deliveries will not  
12 change the annual payments. Therefore, for the purpose of Nalcor's DG2 analysis,  
13 the purchase price for power and energy paid by Hydro would be consistent with a  
14 take or pay arrangement.

1 Q. The response to PUB-Nalcor-46 pg. 2 lines 4-5 states that the power purchase price  
2 paid by Hydro to Nalcor for power and energy from the Muskrat Falls project is an  
3 escalating price that is subject to escalation at CPI. The response to PUB-Nalcor-48  
4 lines 8-10 states that a 2% general inflation escalator was applied to the power  
5 purchase price. Please describe how the power purchase price was escalated in the  
6 analysis and how it will be treated in the PPA.

7

8

9 A. The power purchase price to be paid by Hydro for Muskrat Falls power and energy  
10 has been escalated at an annual rate of 2% in Nalcor's analysis, a rate consistent  
11 with Nalcor's assumption for long-term CPI in this analysis.

12

13 Nalcor expects the escalator to be treated in the PPA in the same manner as in its  
14 analysis.