2013 **M05419**

IN THE MATTER OF THE MARITIME LINK ACT

- and -

IN THE MATTER OF AN APPLICATION BY NOVA SCOTIA POWER MARITIME LINK INCORPORATED FOR APPROVAL OF THE MARITIME LINK PROJECT

RESPONSES TO INFORMATION REQUESTS

From: **Canadian Wind Energy Association (CanWEA)**

To **Consumer Advocate/Small Business Advocate**

Date: **May 8, 2013**

Request IR-1:

On page 3 of your testimony you note that "The Applicant's analysis is for a Planning Period of 25 years, plus end effects, and the Agreements last for 35 years." Do you believe that the Applicant's analysis properly accounts for the last ten years of the contract? Please explain your answer.

Response CanWEA(CA/SBA) IR-1

MR. RAPHALS RESPONDS:

I have not examined in detail the Applicant's treatment of end effects in the NPV analysis. However, I agree with the comments on pages 39 and 40 of the Synapse report concerning the uncertainties associated with the treatment of end effects. Furthermore, according to the Levitan group's analysis of the Applicant's end effects methodology presented on pages 17 to 21 of their report, the fact that existing resources are not deemed to be replaced during the end effects period creates a bias, depending on the number of existing units in service at the end of the Planning Period. Thus, the NPV end-effects analysis is complicated by three factors:

- **The large wind build to be commissioned in 2019 is replaced in 2039, resulting in a large investment in the Indigenous Wind option just before the end of the Study Period.**
- **The last 12 years of the Nova Scotia Block (and corresponding surplus energy purchases) are excluded from the Study Period.**
- **The differences in existing units in service among the various options introduces additional bias.**

Taken together, these assessments call into question the reliability of the Applicant's economic analysis.

That said, for the other aspects of the Applicant's analysis which do not depend on the Strategist outputs, no justification has been presented for limiting the analysis to 25 years. For instance, the unit costs of the Nova Scotia Block can be calculated for the full 35 years, but Fig. 4-4 only presents them through 2040. Similarly, to satisfy the requirements of s. 5(1)(b) of the *Maritime Link Cost Recover Process Regulations*, the conformity of the Project with the *Electricity Act* and its regulations must be demonstrated. To the best of my knowledge, the Applicant has not made any such demonstration for the period 2040-2052.

Request IR-2:

On page 18, you cite NSPML's response to CanWEA IR-86.5, which noted that underestimation of DSM performance can in fact contribute significantly to over-supply. In the response to Synapse IR-13(a), NSMPL stated, "When planning long-term to meet future compliance regulations that are based on load it is prudent to be on the conservative side of DSM assumptions because if they do not materialize then compliance is jeopardized."

a) Do you concur with NSPML's response to CanWEA IR-85.5?

b) Do you believe these two statements are contradictory? Please explain.

Response CanWEA(CA/SBA) IR-2(a)

I presume that the Request intended to refer to NSPML (CanWEA) IR-86.5.

CanWEA IR-86.5 and NSPML's response to it read as follows:

> **86.5 Is NSPI aware of any possible adverse consequences that could result from under-estimating DSM? Please elaborate.**
>
> Resp: If the effects of DSM savings were under-estimated, that is, DSM turned out to have a larger effect than anticipated, then NS Power may have to serve less load than anticipated. The possible consequences could include lower requirements for RES compliant energy.

I do concur that, if the effects of DSM savings were under-estimated (that is, if DSM turned out to have a larger effect than anticipated), then NS Power would have to serve less load than anticipated. However, I consider NSPML's response to be incomplete. The only adverse consequence identified by NSPML that could result from under-estimating DSM is in fact a benefit — lower requirements for RES compliant energy. The response fails to point acknowledge that, if NSP had made inflexible commitments to purchase the amount of power that it had anticipated would be needed, the resulting over-supply could have adverse consequences for NSPI.

Response CanWEA(CA/SBA) IR-2(b)

Precisely because underestimation of DSM performance can in fact contribute significantly to over-supply, the second statement is overly simplistic. Conservative DSM assumptions are indeed less risky with respect to "planning long-term to meet future compliance regulations," but they create other risks, with respect to potential over-supply, that the Applicant appears not to have considered.

Request IR-3:

Referring to Figures 3, 4, and 5 on pages 25, 26, and 27, respectfully,

a) What are the units on the y-axis of these figures?

b) If the energy quantities shown in Figure 4 as "Nalcor's surplus energy from Muskrat Falls (after NS Block)" are used to compute the blended electricity prices shown in the figure on page 21, what would be the resulting blended electricity prices (assuming no change to the price of the Surplus Energy)?

c) Please discuss the significance of your response to part (b).

d) How would the blended electricity price change if the price of the Surplus Energy is actually higher than forecast and/or if the quantity of Surplus Energy is actually less than forecast?

e) Please provide a copy of the report or other data sources from which you derived Figure 3 on page 25.

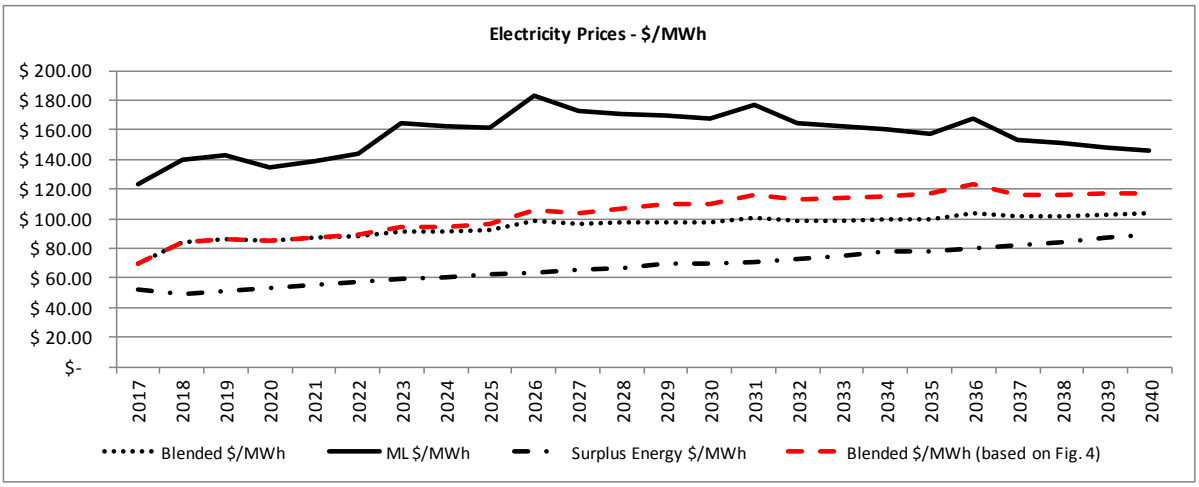
Response CanWEA(CA/SBA) IR-3a

The y-axis units for all three figures are GWh.

Response CanWEA(CA/SBA) IR-3b

The blended electricity prices that result from reducing the NL Surplus Energy to the amounts shown in my Fig. 4 are indicated by the dashed red line in the following graph. They rise to $117.28/MWh in 2040, 13% more than the Applicant's "blended rate".

The spreadsheet used to produce this graph is presented in CanWEA (CA/SBA) IR-3, Att. 1.



In preparing this graph, I have modified NSPML (NSUARB) IR-37, Att. 1, as follows:

- **On the page "Fig. 4-4," I have added rows 14-17, which calculate the "revenue requirement" and unit costs for the NL-NB surplus energy purchases, based on the year-by-year quantities of available NL Surplus Energy, without modifying the year-by-year unit costs.**

- **The detailed calculation of the revenue requirement and energy sales are found on the "Surplus Energy by Month" page, with my additions in yellow. Rows 36-37 recalculate the total annual imports (NL and NB), based on the reduced NL supply, and row 61 recalculates the cost (using the same unit cost). Rows 63-65**

- **I have also added rows 29-32 (in yellow), which compute the resulting blended unit costs (line 32). NSPML's original blended unit costs are found just above, in row 27.**

- **Row 39 calculates the percent of forecast imports sourced from NB, according to the Application (32% in 2040). Row 40 shows this same percentage, given the supply restrictions from Newfoundland (91% from NB in 2040).**

- **Rows in green are explained in CanWEA(CA/SBA) IR-3d.**

- **The page "available ML energy" is explained in CanWEA(CA/SBA) IR-3e.**

The increased Blended Price is shown in the range E64:E87 of the "Fig. 4-4" page (transposed from row 32). Column F, which compares these blended prices with those presented in the Application, shows that there is no increase until 2022, and that the price increase rises gradually, to 19% in 2036, before declining to 13% in 2040. The average increase (row 89) is 9.3%. Because the increase is greater in future years, comparing the NPV of the two series results in a somewhat lower increase, of 6.7% (using the Applicant's discount rate of 6.56%).

This analysis is based on the Applicant's premise that Nalcor's Surplus Energy sales to NSPI would be priced at the forecast MassHub price. However, given the analysis presented by MPA Morrison Park Advisors (M-46, pp. 38-39) and other factors, it appears that this premise is not justified. Rather, given Nalcor's 265 MW long-term reservation on the TransÉnergie system, MPA suggests that the price at which Nalcor will be willing to sell Labrador surplus power at the Woodbine station will actually be the NY/Quebec border price plus 3-4%, if that is higher than the Maine/NB price les 8% less the cost of NS and NB transmission. Furthermore, if the Champlain Hudson Power Express (CHPE) sees the light of day, Nalcor's selling

price is likely to increase further. See also CanWEA(DOE) IR-5 and CanWEA(CA/SBA)IR-3d, below.

Response CanWEA(CA/SBA) IR-3c

As I noted in my testimony, Nalcor has made no commitment to NSPI with respect to either the volumes or the prices of surplus energy to be offered to it for sale. The "Blended Price" presented by the Applicant is thus the result of combining a known element (the Nova Scotia Block, the volumes and prices of which are contractually fixed) with an element (the Surplus Energy), for which both volumes and prices are unknown.

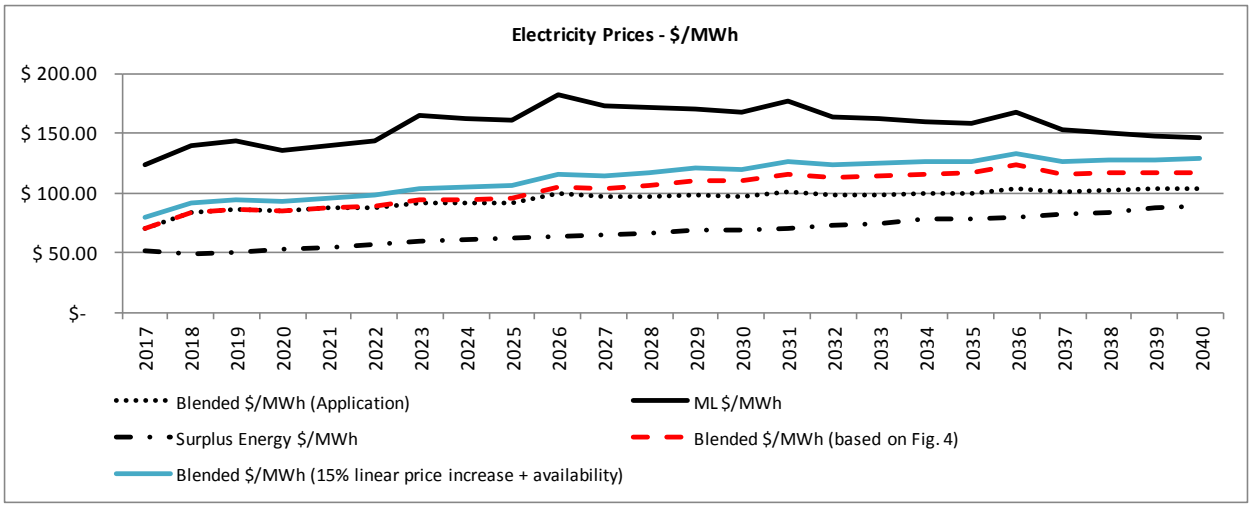
In taking such an approach, it behooves the Applicant to make conservative assumptions regarding the unknown quantities, and/or to present best- and worst-case estimates of the possible outcomes. The Applicant has done neither.

Based on the Nalcor forecasts I cited, it appears that the volume of Muskrat Falls energy that can be expected to be available for surplus sales will be drastically lower than the amounts presumed in the Applicant's analysis. While the Applicant has suggested that Nalcor has other sources of supply, this remains entirely speculative. (See CanWEA(NSPML) IR-10.) MPA's analysis of the availability of Nalcor's reservation on the Quebec transmission system reduces even further the plausibility of the Surplus Energy scenario presented in the Application.

Reducing the presumed availability of surplus Nalcor power to plausible levels affects not only the "blended" price, as shown in the previous response, but also the consistency of the Project with the obligations under the *Electricity* Act (more specifically, the *Renewable Electricity Regulations*). As shown in s. 4.2.5 of my testimony, these corrections to the amounts of available Nalcor surplus energy lead to non-conformity with the RES except in the case where 100% of the imports over the NB tieline are RES-eligible. Given the apparent scarcity of RES-eligible energy in New Brunswick and New England, this probably means that 100% of the imports over the NB tieline would have to be sourced from Hydro-Québec. Given the absence of any agreement with Hydro-Québec concerning any such long-term purchase, this means that not only the pricing <u>but also the conformity of the Project with the *Electricity Act*</u> depends on the unverified assumption that Hydro-Québec will make these quantities of electricity available (over 500 GWh/yr to start, rising to over 800 GWh/yr in 2040; no analysis is presented for the period 2040-2052) at the forecast prices.

Response CanWEA(CA/SBA) IR-3d

The Information Request does not specify how great a price change was intended. For purposes of illustration, I modelled a 25% increase in the price of Surplus Energy from 2017 to 2040, compared to the Applicant's forecast prices. The results are shown in the following graph:



This graph is produced by the same spreadsheet as the one shown above, by inserting 25% in cell B64 (in red) of the "Surplus Energy by Month" page. Modifying this figure will allow the user to model other price levels.

The lines added to the 'Fig. 4-4' and 'Surplus Energy by Month' pages to respond to this Request are indicated in green.

On the 'Surplus Energy by Month' page, row 64 calculates the unit cost, based on NSPML's figures (row 59) and the 25% adder. The adjusted total cost ('revenue requirement') is calculated in row 65.

These figures are carried over to row 20 of the 'Fig. 4-4' page, where they are divided by the recalculated total imports (row 16), taking into account the Newfoundland supply restrictions, to yield the recalculated import unit cost (row 22).

They are then combined with the costs of the Nova Scotia Block to yield the recalculated blended unit cost, in row 37. These costs are transposed to the range J64:J87, and plotted as the blue line on the graph.

The blue line thus indicates the combined effect of the availability restrictions described above, together with a year-by-year price increase of 25%. Compared to the figures in the Application, the average blended prices increase by up to 28% (in

2036), declining to 24% in 2040, for an average increase of 19.8%. The NPV of these prices increases by 17.2%.

Response CanWEA(CA/SBA) IR-3e

e) The spreadsheet used to produce Fig. 3 is found on the "available MF energy" page of CanWEA (CA/SBA) IR-3, Att. 1. The only data source external to the present proceeding is identified in Note 31 of my testimony, namely CAKPL-Nalcor-27, rev. 1, p. 6 (from the Muskrat Falls proceeding at the NLPUB). A copy is attached as CanWEA (CA/SBA) IR-3, Att. 2.

The purpose of this table, as explained in document, was to demonstrate the evolution of the total and unit costs (nominal and levelized) of Muskrat Falls power to Newfoundland consumers. The analytic approach is described in Nalcor's submission to the PUB (pp. 117-118) as follows:

> **"For the purposes of this CPW analysis, NLH has assumed that no revenue benefits would be derived from that surplus energy. Notwithstanding, approximately 60 percent of the production from Muskrat Falls will be initially available for either [the Nova Scotia Block,] short term sales into export market sales or for other interconnected requirements in the province, including demands in Labrador." (emphasis added)**

Thus, column (1) ("Energy at Soldier's Pond") of the document represents that quantity of Muskrat Falls energy that will be used in Newfoundland (and thus will produce revenue for Nalcor's CPW analysis). These figures are found in column E of my spreadsheet.

Rows 30-41 (in yellow) represent the years of the Nova Scotia Block which are not included in the Applicant's analysis.

Figure 3 is composed of columns C, E, G, I and J.

The same spreadsheet also was used to produce Figs. 4 and 5, on pages 26 and 27 of my testimony.

The remaining elements are self-explanatory.

Request IR-4:

On page 36, you consider whether Nova Scotia would be in compliance with the RES through 2040 if imports through New Brunswick from New Brunswick or from New

England are not 100% RES-compliant. Given the current tight supplies of qualified renewable energy in New England and programmed increases in RES requirements by individual states, what is the likelihood that RES-compliant imports will be available from New England over the forecast horizon?

Response CanWEA(CA/SBA) IR-4:

To the best of my knowledge, it is unlikely that RES-compliant imports will be available from New England or New Brunswick over the forecast horizon. As indicated in CanWEA (CA/SBA) IR-3b, this implies that the ML Base Case would only be compliant with the RES if all of the NB imports (which range between 500 and 800 GWh/year) are sourced from Hydro-Quebec.

Request IR-5:

On page 41 of your testimony you discuss the possibility of exported wind energy receiving negative prices. If surplus wind energy were exported to New England, could such negative prices be rationalized by the value of the environmental attributes, which are incremental to the locational marginal price in New England?

Response CanWEA(CA/SBA) IR-5:

As I noted on page 41, no evidence has been presented to suggest that ISO-NE prices are in fact negative during a significant proportion of the high-wind/load-load hours that are of concern. Should that situation occur, however, it is conceivable that NSPI might nevertheless choose not to curtail wind, either because the value of the environmental attributes of the exported surplus wind energy might counterbalance or exceed the negative price, or because the exports might nevertheless contribute to meeting the Nova Scotia RES requirement. Whether or not either of these conditions might apply under these hypothetical circumstances remains entirely speculative.

Request IR-6:

On page 42, you state that "Given the quality of Nova Scotia's wind resource, CanWEA's members expect that wind farms with newer turbines could produce at a CF of 40% or higher.

a) Please describe the current wind turbine technologies and the general wind resource locations in Nova Scotia capable of producing wind farms with a capacity factor of 40%.

b) Would you expect that future advances in wind turbine technology can increase future CFs and/or decrease turbine costs?

c) Has CanWEA prepared or commissioned any studies of Nova Scotia's total potential on-shore and off-shore wind resources? If so, please provide a copy of such studies.

Response CanWEA(CA/SBA) IR-6

Nova Scotia has many locations with excellent wind resources, with average wind speeds above 7.5 m/s at hub height (80 m). Many wind turbines available on the market today have the potential to operate with a CF of even higher than 40%, such as the new GE 1.6-100 wind turbine. In addition to turbine design, CF can also be affected by curtailment, availability, and environmental factors such as icing. Data produced by Synapse suggests that Nova Scotia Power operated wind farms are performing with CFs of between 37 and 40%.

In addition to the above, CanWEA expects that future advances in wind technology will result in improvements in efficiency, availability and the performance of wind turbines throughout the world. New technologies, as well as retrofitting older wind turbines, are all expected to yield improved performance. Market technology reports from the Lawrence Berkeley National Laboratory show steady advances in wind turbine performance. Furthermore, wind turbine model specifications such as the GE 1.6-100 report a CF of ~ 50% in locations with average wind speeds of 7.5 m/s. Also, taller

towers are now being deployed that raise the hub height of wind turbines to 90m or higher, and this will also increase the CF due to the better winds at the greater heights.

See also CanWEA(NSPML) IR-15.

Request IR-7:

On page 45, you state that "Even NSPML acknowledges that the Maritime Link would allow, at most, the integration of 40-80 MW of incremental renewable energy." Do you concur with this assessment? Please explain why or why not.

Response CanWEA(CA/SBA) IR-7:

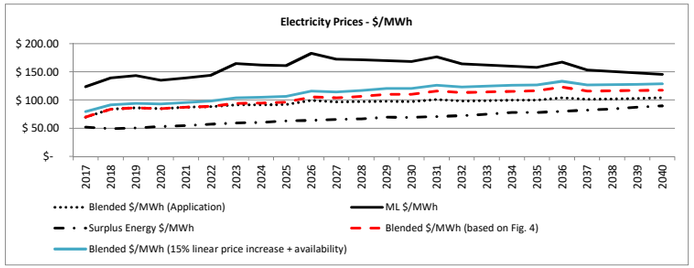
As noted on the previous page of my testimony, the value for purposes of wind integration of the ±40 MW of scheduling flexibility and the ±10 MW of Regulation Service provided by the Maritime Link agreements is seriously compromised by the fact that all energy to be delivered above the Nova Scotia Block Associated Capacity is non-firm. I am not in a position to quantify the extent to which this limitation would affect real-time balancing of wind energy in Nova Scotia. In the face of these uncertainties, I would suggest that the statement that "the Maritime Link would allow, <u>at most</u>, the integration of 40-80 MW of incremental renewable energy" (emphasis added) is technically correct, but perhaps optimistic.

	Muskrat Falls production	LITL losses	MF production minus LITL losses	Energy required to service Newfound-land load	Energy available at Soldier's Pond for export	losses SP to Woodbine	energy available at Woodbine	Nova Scotia Block	Nalcor's surplus energy from Muskrat Falls (after	NSP forecast surplus energy purchase (NL)	presumed surplus energy that is not available (shortfall)	Total NSP energy presumed from NL	Total NSP energy available from NL		shortfall
		4.5%		Nalcor testimony to PUB; CAKPL-Nalcor-27 rev. 1, p. 6		5.3%		IR UARB-37, att. 1; Fig. 4-4, line 6		att. 1, ML Base Load Surplus Energy, col. D					
	1	losses	2=1 - losses	3	4=2-3	losses	5=4 - losses	6	7=5-6 (if positive)	8	9=7-8 (if negative)	10=6+8	11=6+7 (if greater than 10)		12=10-11
2017	4933	222	4711	1,811	2900	154	2746	325	2421	282	0	607	607	2017	0
2018	4933	222	4711	1,878	2833	150	2683	1149	1534	1288	0	2437	2437	2018	0
2019	4933	222	4711	1,953	2758	146	2612	1149	1463	1289	0	2438	2438	2019	0
2020	4933	222	4711	2,019	2692	143	2549	1149	1400	1281	0	2430	2430	2020	0
2021	4933	222	4711	2,115	2596	138	2458	1149	1309	1307	0	2456	2456	2021	0
2022	4933	222	4711	2,212	2499	132	2367	1047	1320	1392	-72	2439	2367	2022	72
2023	4933	222	4711	2,378	2333	124	2209	895	1314	1529	-214	2424	2209	2023	214
2024	4933	222	4711	2,447	2264	120	2144	895	1249	1541	-292	2436	2144	2024	292
2025	4933	222	4711	2,505	2206	117	2089	895	1194	1583	-389	2478	2089	2025	389
2026	4933	222	4711	2,587	2124	113	2011	895	1116	1583	-467	2478	2011	2026	467
2027	4933	222	4711	2,676	2035	108	1927	895	1032	1598	-565	2493	1927	2027	565
2028	4933	222	4711	2,809	1902	101	1801	895	906	1598	-691	2493	1801	2028	691
2029	4933	222	4711	3,025	1686	89	1597	895	702	1653	-951	2548	1597	2029	951
2030	4933	222	4711	3,103	1608	85	1523	895	628	1608	-980	2503	1523	2030	980
2031	4933	222	4711	3,181	1530	81	1449	895	554	1625	-1071	2520	1449	2031	1071
2032	4933	222	4711	3,258	1453	77	1376	895	481	1641	-1160	2536	1376	2032	1160
2033	4933	222	4711	3,336	1375	73	1302	895	407	1672	-1265	2567	1302	2033	1265
2034	4933	222	4711	3,414	1297	69	1228	895	333	1710	-1376	2605	1228	2034	1376
2035	4933	222	4711	3,483	1228	65	1163	895	268	1664	-1396	2559	1163	2035	1396
2036	4933	222	4711	3,545	1166	62	1104	895	209	1706	-1497	2601	1104	2036	1497
2037	4933	222	4711	3,482	1229	65	1164	895	269	1709	-1440	2604	1164	2037	1440
2038	4933	222	4711	3,548	1163	62	1101	895	206	1717	-1510	2612	1101	2038	1510
2039	4933	222	4711	3,618	1093	58	1035	895	140	1724	-1584	2619	1035	2039	1584
2040	4933	222	4711	3,680	1031	55	976	895	81	1732	-1651	2627	976	2040	1651
2041	4933	222	4711	3,742	969	51	918	895	23	1732		2627	918	2041	1709
2042	4933	222	4711	3,804	907	48	859	895	0	1732		2627	895	2042	1732

	Muskrat Falls production	LITL losses	MF production minus LITL losses	Energy required to service Newfound-land load	Energy available at Soldier's Pond for export	losses SP to Woodbine	energy available at Woodbine	Nova Scotia Block	Nalcor's surplus energy from Muskrat Falls (after	NSP forecast surplus energy purchase (NL)	presumed surplus energy that is not available (shortfall)	Total NSP energy presumed from NL	Total NSP energy available from NL		shortfall
		4.5%		Nalcor testimony to PUB; CAKPL-Nalcor-27 rev. 1, p. 6		5.3%		IR UARB-37, att. 1; Fig. 4-4, line 6		att. 1, ML Base Load Surplus Energy, col. D					
	1	losses	2=1 - losses	3	4=2-3	losses	5=4 - losses	6	7=5-6 (if positive)	8	9=7-8 (if negative)	10=6+8	11=6+7 (if greater than 10)		12=10-11
2043	4933	222	4711	3,865	846	45	801	895	0	1732		2627	895	2043	1732
2044	4933	222	4711	3,927	784	42	742	895	0	1732		2627	895	2044	1732
2045	4933	222	4711	3,989	722	38	684	895	0	1732		2627	895	2045	1732
2046	4933	222	4711	4,051	660	35	625	895	0	1732		2627	895	2046	1732
2047	4933	222	4711	4,112	599	32	567	895	0	1732		2627	895	2047	1732
2048	4933	222	4711	4,174	537	28	509	895	0	1732		2627	895	2048	1732
2049	4933	222	4711	4,235	476	25	451	895	0	1732		2627	895	2049	1732
2050	4933	222	4711	4,289	422	22	400	895	0	1732		2627	895	2050	1732
2051	4933	222	4711	4,343	368	20	349	895	0	1732		2627	895	2051	1732
2052	4933	222	4711	4,396	315	17	298	895	0	1732		2627	895	2052	1732
2053	4933	222	4711	4,450	261	14	247								
2054	4933	222	4711	4,500	211	11	200								
2055	4933	222	4711	4,550	161	9	152								
2056	4933	222	4711	4,600	111	6	105								
2057	4933	222	4711	4,629	82	4	78								
2058	4933	222	4711	4,629	82	4	78								
2059	4933	222	4711	4,629	82	4	78								
2060	4933	222	4711	4,629	82	4	78								
2061	4933	222	4711	4,629	82	4	78								
2062	4933	222	4711	4,629	82	4	78								
2063	4933	222	4711	4,629	82	4	78								
2064	4933	222	4711	4,629	82	4	78								
2065	4933	222	4711	4,629	82	4	78								
2066	4933	222	4711	4,629	82	4	78								
2067	4933	222	4711	4,629	82	4	78								

Maritime Link + Surplus Energy Purchases

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Maritime Link																								
Revenue requirement - $K	$ 40,180	$ 160,012	$ 164,653	$ 155,161	$ 159,895	$ 150,340	$ 147,536	$ 145,010	$ 144,263	$ 163,470	$ 154,438	$ 153,208	$ 151,833	$ 150,329	$ 158,029	$ 146,976	$ 145,157	$ 143,244	$ 141,252	$ 149,733	$ 137,054	$ 134,872	$ 132,632	$ 130,345
Energy Sales (MWh)	325,254	1,148,867	1,148,867	1,148,867	1,148,867	1,047,435	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288	895,288
$/MWh	**$ 123.54**	**$ 139.28**	**$ 143.32**	**$ 135.06**	**$ 139.18**	**$ 143.53**	**$ 164.79**	**$ 161.97**	**$ 161.14**	**$ 182.59**	**$ 172.50**	**$ 171.13**	**$ 169.59**	**$ 167.91**	**$ 176.51**	**$ 164.17**	**$ 162.13**	**$ 160.00**	**$ 157.77**	**$ 167.25**	**$ 153.08**	**$ 150.65**	**$ 148.14**	**$ 145.59**
Surplus Energy (NL + NB)																								
Revenue requirement - $K	$ 52,251	$ 90,078	$ 92,690	$ 95,791	$ 100,670	$ 107,154	$ 120,638	$ 124,036	$ 133,142	$ 136,165	$ 141,018	$ 142,870	$ 156,748	$ 155,652	$ 160,576	$ 165,393	$ 177,011	$ 189,022	$ 182,346	$ 194,718	$ 201,125	$ 206,798	$ 220,212	$ 229,781
Energy Sales (MWh)	1,000,663	1,833,891	1,828,764	1,812,133	1,835,828	1,875,718	2,036,982	2,049,251	2,121,500	2,131,478	2,156,459	2,148,512	2,258,897	2,248,435	2,268,430	2,286,003	2,364,093	2,433,188	2,346,217	2,426,179	2,443,536	2,456,878	2,530,032	2,565,488
$/MWh	**$ 52.22**	**$ 49.12**	**$ 50.68**	**$ 52.86**	**$ 54.84**	**$ 57.13**	**$ 59.22**	**$ 60.53**	**$ 62.76**	**$ 63.88**	**$ 65.39**	**$ 66.50**	**$ 69.39**	**$ 69.23**	**$ 70.79**	**$ 72.35**	**$ 74.87**	**$ 77.68**	**$ 77.72**	**$ 80.26**	**$ 82.31**	**$ 84.17**	**$ 87.04**	**$ 89.57**
Surplus Energy (NL + NB) (taking acct of available NL energy)																								
Revenue requirement - $K	$ 52,251	$ 90,078	$ 92,690	$ 95,791	$ 100,670	$ 103,043	$ 107,945	$ 106,386	$ 108,715	$ 106,346	$ 104,049	$ 96,899	$ 90,723	$ 87,819	$ 84,773	$ 81,501	$ 82,273	$ 82,094	$ 73,843	$ 74,596	$ 82,603	$ 79,676	$ 82,352	$ 81,936
Energy Sales (MWh)	1,000,663	1,833,891	1,828,764	1,812,133	1,835,828	1,803,754	1,822,648	1,757,655	1,732,267	1,664,701	1,591,118	1,457,193	1,307,409	1,268,563	1,197,576	1,126,480	1,098,811	1,056,759	950,125	929,469	1,003,579	946,596	946,153	914,814
$/MWh	**$ 52.22**	**$ 49.12**	**$ 50.68**	**$ 52.86**	**$ 54.84**	**$ 57.13**	**$ 59.22**	**$ 60.53**	**$ 62.76**	**$ 63.88**	**$ 65.39**	**$ 66.50**	**$ 69.39**	**$ 69.23**	**$ 70.79**	**$ 72.35**	**$ 74.87**	**$ 77.68**	**$ 77.72**	**$ 80.26**	**$ 82.31**	**$ 84.17**	**$ 87.04**	**$ 89.57**
Surplus Energy (NL + NB) (taking acct of available NL energy and a 25% price increase)																								
Revenue requirement - $K	$ 65,313	$ 112,598	$ 115,863	$ 119,738	$ 125,838	$ 128,803	$ 134,931	$ 132,983	$ 135,893	$ 132,933	$ 130,061	$ 121,124	$ 113,404	$ 109,773	$ 105,966	$ 101,877	$ 102,842	$ 102,618	$ 92,304	$ 93,245	$ 103,254	$ 99,595	$ 102,940	$ 102,420
Energy Sales (MWh)	1,000,663	1,833,891	1,828,764	1,812,133	1,835,828	1,803,754	1,822,648	1,757,655	1,732,267	1,664,701	1,591,118	1,457,193	1,307,409	1,268,563	1,197,576	1,126,480	1,098,811	1,056,759	950,125	929,469	1,003,579	946,596	946,153	914,814
$/MWh	**$ 65.27**	**$ 61.40**	**$ 63.36**	**$ 66.08**	**$ 68.55**	**$ 71.41**	**$ 74.03**	**$ 75.66**	**$ 78.45**	**$ 79.85**	**$ 81.74**	**$ 83.12**	**$ 86.74**	**$ 86.53**	**$ 88.48**	**$ 90.44**	**$ 93.59**	**$ 97.11**	**$ 97.15**	**$ 100.32**	**$ 102.89**	**$ 105.21**	**$ 108.80**	**$ 111.96**
Total ML + Surplus																								
Revenue requirement - $K	$ 92,431	$ 250,090	$ 257,344	$ 250,952	$ 260,565	$ 257,494	$ 268,174	$ 269,046	$ 277,406	$ 299,636	$ 295,457	$ 296,078	$ 308,581	$ 305,982	$ 318,605	$ 312,370	$ 322,168	$ 332,266	$ 323,598	$ 344,451	$ 338,178	$ 341,670	$ 352,844	$ 360,126
Energy Sales (MWh)	1,325,917	2,982,758	2,977,631	2,961,000	2,984,695	2,923,154	2,932,270	2,944,539	3,016,788	3,026,766	3,051,747	3,043,800	3,154,185	3,143,723	3,163,718	3,181,291	3,259,381	3,328,476	3,241,505	3,321,467	3,338,824	3,352,166	3,425,320	3,460,776
$/MWh	**$ 69.71**	**$ 83.85**	**$ 86.43**	**$ 84.75**	**$ 87.30**	**$ 88.09**	**$ 91.46**	**$ 91.37**	**$ 91.95**	**$ 99.00**	**$ 96.82**	**$ 97.27**	**$ 97.83**	**$ 97.33**	**$ 100.71**	**$ 98.19**	**$ 98.84**	**$ 99.83**	**$ 99.83**	**$ 103.70**	**$ 101.29**	**$ 101.93**	**$ 103.01**	**$ 104.06**
Total ML + Surplus (taking acct of available NL energy)																								
Revenue requirement - $K	$ 92,431	$ 250,090	$ 257,344	$ 250,952	$ 260,565	$ 253,383	$ 255,480	$ 251,397	$ 252,978	$ 269,817	$ 258,487	$ 250,107	$ 242,556	$ 238,148	$ 242,802	$ 228,478	$ 227,430	$ 225,339	$ 215,095	$ 224,330	$ 219,657	$ 214,548	$ 214,984	$ 212,282
Energy Sales (MWh)	1,325,917	2,982,758	2,977,631	2,961,000	2,984,695	2,851,190	2,717,936	2,652,943	2,627,555	2,559,989	2,486,406	2,352,481	2,202,697	2,163,851	2,092,864	2,021,768	1,994,099	1,952,047	1,845,413	1,824,757	1,898,867	1,841,884	1,841,441	1,810,102
$/MWh	**$ 69.71**	**$ 83.85**	**$ 86.43**	**$ 84.75**	**$ 87.30**	**$ 88.87**	**$ 94.00**	**$ 94.76**	**$ 96.28**	**$ 105.40**	**$ 103.96**	**$ 106.32**	**$ 110.12**	**$ 110.06**	**$ 116.01**	**$ 113.01**	**$ 114.05**	**$ 115.44**	**$ 116.56**	**$ 122.94**	**$ 115.68**	**$ 116.48**	**$ 116.75**	**$ 117.28**
Total ML + Surplus (taking acct of available NL energy and a 25% prince increase)																								
Revenue requirement - $K	$ 105,494	$ 272,610	$ 280,516	$ 274,899	$ 285,732	$ 279,143	$ 282,466	$ 277,993	$ 280,157	$ 296,403	$ 284,499	$ 274,332	$ 265,237	$ 260,103	$ 263,995	$ 248,853	$ 247,998	$ 245,862	$ 233,556	$ 242,979	$ 240,308	$ 234,467	$ 235,572	$ 232,766
Energy Sales (MWh)	1,325,917	2,982,758	2,977,631	2,961,000	2,984,695	2,851,190	2,717,936	2,652,943	2,627,555	2,559,989	2,486,406	2,352,481	2,202,697	2,163,851	2,092,864	2,021,768	1,994,099	1,952,047	1,845,413	1,824,757	1,898,867	1,841,884	1,841,441	1,810,102
$/MWh	**$ 79.56**	**$ 91.40**	**$ 94.21**	**$ 92.84**	**$ 95.73**	**$ 97.90**	**$ 103.93**	**$ 104.79**	**$ 106.62**	**$ 115.78**	**$ 114.42**	**$ 116.61**	**$ 120.41**	**$ 120.20**	**$ 126.14**	**$ 123.09**	**$ 124.37**	**$ 125.95**	**$ 126.56**	**$ 133.16**	**$ 126.55**	**$ 127.30**	**$ 127.93**	**$ 128.59**



ML Base Load				
	Total Surplus Energy (NL & NB)	Total Economy Energy (NL & NB)	NL	NB
	$k	GWh	GWh	GWh
2017*	$52,250.7	1000.7	282.2	718.5
2018	$90,078.4	1833.9	1287.9	546.0
2019	$92,690.2	1828.8	1289.5	539.3
2020	$95,790.7	1812.1	1281.4	530.7
2021	$100,670.4	1835.8	1307.5	528.4
2022	$107,153.7	1875.7	1391.5	484.2
2023	$120,638.2	2037.0	1528.7	508.3
2024	$124,036.1	2049.3	1540.6	508.6
2025	$133,142.3	2121.5	1583.3	538.2
2026	$136,165.3	2131.5	1583.2	548.3
2027	$141,018.2	2156.5	1597.5	559.0
2028	$142,869.8	2148.5	1597.5	551.0
2029	$156,747.8	2258.9	1653.1	605.8
2030	$155,652.3	2248.4	1607.7	640.8
2031	$160,575.7	2268.4	1624.8	643.7
2032	$165,393.3	2286.0	1640.5	645.5
2033	$177,011.2	2364.1	1672.4	691.7
2034	$189,022.0	2433.2	1709.7	723.5
2035	$182,346.1	2346.2	1664.0	682.2
2036	$194,717.6	2426.2	1705.9	720.3
2037	$201,124.7	2443.5	1708.8	734.7
2038	$206,798.5	2456.9	1716.7	740.2
2039	$220,211.9	2530.0	1724.0	806.1
2040	$229,780.8	2565.5	1732.0	833.4

* 2017 amounts on Figure 4.4 have been factored to represent the Maritime Link coming into service in October of 2017.

ML Base Load Case																													
																												MW	
NB Surplus Energy	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	days	2040	
Jan	0.0	0.0	21.4	2.3	3.9	4.5	5.2	5.5	7.2	8.2	10.1	10.5	10.9	11.0	12.2	12.9	15.1	16.3	19.6	28.3	17.8	23.2	27.9	29.8	39.2	48.6	31	65.3	
Feb	0.0	0.0	47.0	7.4	10.0	4.5	11.5	11.3	10.6	5.8	18.5	20.7	23.7	8.5	36.2	40.4	46.0	33.9	58.7	62.3	55.3	54.7	64.5	63.6	65.8	69.6	28	103.6	
Mar	0.0	0.0	74.4	70.3	70.3	70.3	69.6	53.5	63.5	65.8	68.2	68.6	69.0	69.2	71.0	73.3	73.3	73.4	73.5	73.6	73.5	73.6	73.7	73.7	73.8	73.8	31	99.2	
Apr	0.0	0.0	72.0	67.0	67.0	66.9	67.0	66.7	67.0	67.3	67.4	67.6	67.7	67.9	68.1	66.2	66.5	66.8	67.5	68.2	71.1	70.2	68.4	68.8	69.3	71.3	30	99.0	
May	0.0	0.0	74.4	70.2	70.1	69.9	61.9	36.6	40.1	37.8	46.2	50.5	54.0	59.4	69.8	71.9	59.3	68.4	73.2	71.2	72.1	73.3	72.1	72.3	72.5	72.7	31	97.7	
Jun	0.0	0.0	72.0	30.5	30.6	30.5	30.4	30.5	30.7	30.8	30.5	31.0	31.1	31.3	42.0	35.1	35.3	40.5	46.9	65.3	36.2	69.0	69.9	70.2	70.6	69.8	30	96.9	
Jul	0.0	0.0	72.1	34.6	34.7	34.9	34.6	34.6	38.1	38.1	35.5	35.6	35.5	35.7	36.0	38.9	38.4	38.9	39.0	39.0	39.0	39.0	39.0	38.9	74.0	74.4	31	100.0	
Aug	0.0	0.0	74.4	70.8	71.0	71.2	71.6	71.3	71.9	71.5	71.7	71.9	72.5	72.4	66.2	73.9	74.0	74.2	74.4	74.3	73.9	74.2	74.3	74.3	74.4	74.4	31	100.0	
Sep	0.0	0.0	71.2	62.5	53.6	53.6	53.6	53.7	53.9	54.0	54.1	54.3	54.6	54.8	55.8	65.9	66.4	66.8	67.5	67.0	70.4	67.9	68.6	69.2	69.8	67.0	30	93.1	
Oct	0.0	0.0	68.0	67.0	67.1	67.0	67.0	67.1	67.2	67.4	67.5	67.6	67.8	67.9	68.1	66.4	71.6	66.9	67.5	68.2	68.8	69.4	67.9	68.5	69.1	69.8	31	93.8	
Nov	0.0	0.0	63.9	55.7	53.1	47.7	46.5	45.8	49.9	51.7	55.6	56.7	58.5	59.0	62.1	65.7	65.9	65.8	66.3	66.9	66.1	66.6	68.7	69.1	69.5	68.7	30	95.4	
Dec	0.0	0.0	7.6	7.7	8.0	9.6	9.4	7.6	8.2	10.2	12.8	13.3	13.7	13.9	18.2	30.1	31.9	33.6	37.5	39.2	38.1	39.1	39.9	41.9	58.1	73.5	31	98.8	
	0.0	**0.0**	**718.5**	**546.0**	**539.3**	**530.7**	**528.4**	**484.2**	**508.3**	**508.6**	**538.2**	**548.3**	**559.0**	**551.0**	**605.8**	**640.8**	**643.7**	**645.5**	**691.7**	**723.5**	**682.2**	**720.3**	**734.7**	**740.2**	**806.1**	**833.4**		95.2	95.1
NL Surplus Energy	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**		2741.9	
Jan	0.0	0.0	0.0	25.9	27.7	28.1	29.2	29.9	67.4	70.6	85.9	78.1	81.7	82.0	109.8	83.8	87.7	91.1	99.7	132.8	111.7	122.6	129.6	136.4	142.7	146.4	31	196.8	
Feb	0.0	0.0	0.0	61.6	69.1	54.5	70.7	69.9	109.1	105.1	115.1	116.4	118.0	116.4	124.8	130.0	130.9	134.8	132.9	132.9	132.7	137.4	132.9	132.9	132.9	137.7	28	204.9	
Mar	0.0	0.0	0.0	97.0	97.0	97.0	97.0	96.5	145.3	145.3	145.4	145.4	145.5	145.5	145.5	146.9	146.9	147.0	147.0	147.0	147.0	147.0	147.1	147.1	147.1	147.2	31	197.8	
Apr	0.0	0.0	0.0	141.7	141.7	141.7	141.7	141.7	141.8	141.8	141.8	141.8	141.8	141.9	141.9	141.4	141.4	141.5	141.7	141.9	142.4	142.2	141.9	142.0	142.2	142.4	30	197.8	
May	0.0	0.0	0.0	146.1	146.1	146.1	146.1	146.1	146.3	146.1	146.1	146.2	146.2	146.4	146.3	146.8	147.0	147.0	147.1	146.3	147.0	147.0	146.6	146.7	146.8	146.9	31	197.4	
Jun	0.0	0.0	0.0	140.5	140.4	140.0	139.9	139.9	140.0	140.2	140.0	140.4	140.5	140.5	140.8	141.7	141.8	141.9	140.7	140.6	141.8	141.9	142.0	142.0	142.1	141.8	30	196.9	
Jul	0.0	0.0	0.0	105.2	103.1	109.6	115.1	114.3	118.8	126.6	135.8	138.4	142.7	142.3	146.3	122.5	127.3	132.6	147.2	147.2	129.7	147.2	147.2	147.2	147.2	147.2	31	197.8	
Aug	0.0	0.0	0.0	147.1	147.1	147.1	147.2	147.2	147.2	147.1	147.1	147.1	147.2	147.2	146.4	147.2	147.2	147.2	147.2	147.2	147.2	147.2	147.2	147.2	147.2	147.2	31	197.8	
Sep	0.0	0.0	0.0	141.6	135.4	135.3	135.4	135.4	135.7	135.9	136.1	136.3	136.5	136.7	138.0	141.9	142.0	142.0	142.1	142.0	142.4	142.0	142.1	142.2	142.2	141.9	30	197.1	
Oct	0.0	0.0	146.4	146.1	146.1	146.1	146.1	146.1	146.2	146.2	146.2	146.2	146.3	146.3	146.4	145.6	147.1	145.9	146.1	146.3	146.5	146.6	146.2	146.3	146.5	146.6	31	197.1	
Nov	0.0	0.0	92.2	88.5	88.5	88.3	88.7	133.7	133.4	133.6	133.7	133.8	134.4	134.1	134.6	139.0	139.1	139.0	139.3	139.6	139.1	139.3	139.9	140.0	140.2	139.9	30	194.3	
Dec	0.0	0.0	43.6	46.6	47.2	47.6	50.4	90.9	97.5	102.2	110.1	113.1	116.7	118.3	132.4	120.9	126.4	130.6	141.5	145.9	136.5	145.4	146.2	146.5	146.8	146.8	31	197.3	
	0.0	**0.0**	**282.2**	**1287.9**	**1289.5**	**1281.4**	**1307.5**	**1391.5**	**1528.7**	**1540.6**	**1583.3**	**1583.2**	**1597.5**	**1597.5**	**1653.1**	**1607.7**	**1624.8**	**1640.5**	**1672.4**	**1709.7**	**1664.0**	**1705.9**	**1708.8**	**1716.7**	**1724.0**	**1732.0**		197.8	197.7
Total (NB plus NL) GWh	**0.0**	**0.0**	**1000.7**	**1833.9**	**1828.8**	**1812.1**	**1835.8**	**1875.7**	**2037.0**	**2049.3**	**2121.5**	**2131.5**	**2156.5**	**2148.5**	**2258.9**	**2248.4**	**2268.4**	**2286.0**	**2364.1**	**2433.2**	**2346.2**	**2426.2**	**2443.5**	**2456.9**	**2530.0**	**2565.5**			
Available surplus MF energy			**2421.3**	**1533.9**	**1462.8**	**1400.3**	**1309.4**	**1319.6**	**1314.4**	**1249.0**	**1194.1**	**1116.4**	**1032.2**	**906.2**	**701.7**	**627.8**	**553.9**	**481.0**	**407.1**	**333.3**	**267.9**	**209.2**	**268.9**	**206.4**	**140.1**	**81.4**			
Total (NB plus NL) GWh (taking acct of availab			**1000.7**	**1833.9**	**1828.8**	**1812.1**	**1835.8**	**1803.8**	**1822.6**	**1757.7**	**1732.3**	**1664.7**	**1591.1**	**1457.2**	**1307.4**	**1268.6**	**1197.6**	**1126.5**	**1098.8**	**1056.8**	**950.1**	**929.5**	**1003.6**	**946.6**	**946.2**	**914.8**			
NB percent (according to Application)			72%	30%	29%	29%	29%	26%	25%	25%	25%	26%	26%	26%	27%	28%	28%	28%	29%	30%	29%	30%	30%	30%	32%	32%			
NB percent (taking acct of available surplus)			72%	30%	29%	29%	29%	27%	28%	29%	31%	33%	35%	38%	46%	51%	54%	57%	63%	68%	72%	77%	73%	78%	85%	91%			
ML Base Load																													
Monthly cost of Total Imports (NB & NL)																													
k$	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**			
Jan	0	0	1,783	2,227	2,534	2,690	2,918	3,120	6,641	7,172	9,297	8,455	9,042	9,278	13,049	9,445	10,243	10,963	12,601	18,577	14,856	17,281	19,229	20,901	23,475	26,176			
Feb	0	0	3,749	5,065	5,832	4,481	6,416	6,571	9,656	9,079	11,257	11,799	12,457	11,042	14,756	15,843	16,831	16,133	19,055	19,764	19,387	20,065	21,246	21,547	22,255	23,705			
Mar	0	0	3,961	8,537	8,754	9,158	9,392	8,650	12,077	12,487	12,907	13,191	13,485	13,771	14,190	14,696	14,991	15,293	15,608	15,928	16,228	16,561	16,899	17,239	17,586	17,942			
Apr	0	0	3,471	9,340	9,620	10,049	10,379	10,898	11,112	11,346	11,580	11,818	12,062	12,315	12,573	12,681	12,956	13,233	13,545	13,870	14,360	14,572	14,725	15,055	15,394	15,854			
May	0	0	3,571	9,842	10,174	10,734	10,698	9,748	10,218	10,243	11,094	11,656	12,160	12,840	13,960	14,409	13,600	14,668	15,386	15,520	15,902	16,322	16,539	16,886	17,242	17,603			
Jun	0	0	3,766	7,844	8,123	8,700	8,988	9,392	9,611	9,816	9,994	10,242	10,454	10,676	11,838	11,413	11,653	12,368	13,221	15,300	12,686	16,223	16,627	16,984	17,368	17,633			
Jul	0	0	4,413	6,595	6,650	7,478	8,122	8,399	9,142	9,999	10,879	11,340	11,955	12,162	12,810	10,899	11,564	12,370	14,139	14,421	12,815	15,000	15,299	15,598	20,373	20,824			
Aug	0	0	4,201	11,332	11,618	12,045	12,305	12,715	13,015	13,253	13,529	13,807	14,118	14,397	14,244	15,064	15,369	15,686	16,013	16,328	16,619	16,974	17,315	17,661	18,015	18,370			
Sep	0	0	3,515	9,444	8,994	9,344	9,589	9,989	10,205	10,427	10,648	10,882	11,124	11,370	11,729	12,802	13,086	13,372	13,691	13,924	14,455	14,544	14,884	15,227	15,576	15,657			
Oct	0	0	9,187	9,364	9,637	10,044	10,308	10,754	10,931	11,155	11,382	11,616	11,856	12,099	12,358	12,461	13,097	13,005	13,315	13,629	13,949	14,277	14,426	14,763	15,109	15,465			
Nov	0	0	7,551	7,135	7,224	7,278	7,448	10,001	10,416	10,756	11,250	11,553	11,945	12,208	12,713	13,447	13,732	13,995	14,327	14,674	14,873	15,216	15,710	16,060	16,423	16,666			
Dec	0	0	3,083	3,354	3,531	3,787	4,107	6,917	7,613	8,305	9,325	9,806	10,360	10,712	12,527	12,493	13,452	14,307	16,112	17,086	16,215	17,682	18,227	18,877	21,395	23,887			
Total	**$0**	**$0**	**$52,251**	**$90,078**	**$92,690**	**$95,791**	**$100,670**	**$107,154**	**$120,638**	**$124,036**	**$133,142**	**$136,165**	**$141,018**	**$142,870**	**$156,748**	**$155,652**	**$160,576**	**$165,393**	**$177,011**	**$189,022**	**$182,346**	**$194,718**	**$201,125**	**$206,798**	**$220,212**	**$229,781**			
Unit cost			52.22	49.12	50.68	52.86	54.84	57.13	59.22	60.53	62.76	63.88	65.39	66.50	69.39	69.23	70.79	72.35	74.87	77.68	77.72	80.26	82.31	84.17	87.04	89.57			
Annual cost of Total Imports (NB & NL) (taking			**$52,251**	**$90,078**	**$92,690**	**$95,791**	**$100,670**	**$103,043**	**$107,945**	**$106,386**	**$108,715**	**$106,346**	**$104,049**	**$96,899**	**$90,723**	**$87,819**	**$84,773**	**$81,501**	**$82,273**	**$82,094**	**$73,843**	**$74,596**	**$82,603**	**$79,676**	**$82,352**	**$81,936**			
price increase	3%		125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%			
adjusted unit cost			65.27	61.40	63.36	66.08	68.55	71.41	74.03	75.66	78.45	79.85	81.74	83.12	86.74	86.53	88.48	90.44	93.59	97.11	97.15	100.32	102.89	105.21	108.80	111.96			
Adjusted annual cost of Total Imports (NB & N			**$65,313**	**$112,598**	**$115,863**	**$119,738**	**$125,838**	**$128,803**	**$134,931**	**$132,983**	**$135,893**	**$132,933**	**$130,061**	**$121,124**	**$113,404**	**$109,773**	**$105,966**	**$101,877**	**$102,842**	**$102,618**	**$92,304**	**$93,245**	**$103,254**	**$99,595**	**$102,940**	**$102,420**			