


**From:** auburnwarren@nalcorenergy.com  
**Sent:** Thursday, June 16, 2016 2:44 PM  
**To:** Bown, Charles; Martin, Craig; Donna Brewer (dbrewer@gov.nl.ca)  
**Cc:** dsturge@nalcorenergy.com; davejones@nalcorenergy.com; elizabethlewis@nalcorenergy.com; jeffsharpe@nalcorenergy.com  
**Subject:** Additional Information for Province  
**Attachments:** LCP Rate Analysis June 2016 as presented June 15th.pdf; MF update information for Province.pdf

Hi all,

Please find attached below additional requested data.

Thanks!

Auburn

	<p><b>Auburn Warren, CPA, CA</b>  <b>General Manager (Commercial, Treasury, Risk &amp; Technology)</b>  <b>Nalcor Energy</b>  t. 709-737-1256 c. 709-725-1141  e. <a href="mailto:AuburnWarren@nalcorenergy.com">AuburnWarren@nalcorenergy.com</a>  w. <a href="http://nalcorenergy.com">nalcorenergy.com</a></p>
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15th.pdf

LCP Rate Analysis June 2016 as presented June

MF update information for Province.pdf

**Muskrat Falls Projected Capital Cost and Schedule**

**Muskrat Falls Capital Cost Summary (\$ billions)**

Uses	Dec 2012	Sept 2015	Current
	Sanction	AFE	
MF	2.9	3.7	4.8
LTA	0.7	0.9	0.9
LIL	2.6	3.1	3.4
	6.2	7.7	9.1
IDC/AFUDC/Financing Costs	1.2	1.3	1.6
Capitalized Bond payments due to delay	-	-	0.6
Pre-Comm/ TTO Costs	-	-	0.1
<b>Total NL</b>	<b>7.4</b>	<b>8.9</b>	<b>11.4</b>

**Sources**

Debt	5.0	5.0	5.0
Nalcor Equity	1.8	3.2	5.2
Emera Equity	0.4	0.5	0.6
AFUDC	0.2	0.2	0.6
	<b>7.4</b>	<b>8.9</b>	<b>11.4</b>

**In-Service Dates (1)**

MF Unit 1	Q4 2017	Q4 2017	Q3 2019
MF Unit 2	Q1 2018	Q1 2018	Q4 2019
MF Unit 3	Q2 2018	Q2 2018	Q1 2020
MF Unit 4	Q2 2018	Q2 2018	Q2 2020
LIL	Q2 2017	Q4 2017	Q2 2018
LTA	Q2 2017	Q4 2017	Q2 2018
ML	Q4 2017	Q4 2017	Q4 2017

(1) MF Unit in-service dates are under review in light of recent events at Muskrat Falls

**Muskrat Falls Annual Revenue Requirement Projections**

<b>Muskrat Falls Rate Analysis</b>								
<b>MF Power Revenue Requirement by Project Component (\$millions)</b>								
	2021	2022	2023	2024	2025	2030	2035	2040
Muskrat Falls	204.0	202.6	201.2	198.7	196.0	190.2	182.5	176.6
Labrador Transmission	43.3	42.7	42.2	41.8	41.6	40.1	37.3	42.3
Labrador-Island Link	265.6	260.7	259.7	255.8	254.6	249.1	246.2	261.6
Subtotal	512.9	506.0	503.0	496.2	492.2	479.4	466.0	480.6
Nalcor Net Income	223.5	240.5	260.6	282.0	303.4	417.7	557.4	725.6
Pwr Pur at Soldiers Pond	736.4	746.5	763.6	778.3	795.6	897.1	1,023.4	1,206.1

<b>MF Power Revenue Requirement by Cost Category (\$millions)</b>								
Depreciation	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2
Interest	169.6	164.7	159.9	154.8	149.8	131.3	111.3	83.1
Operating Costs	57.8	57.2	60.3	59.7	62.1	74.3	87.4	136.4
Emera Net Income	67.2	65.9	64.6	63.5	62.1	55.7	49.1	42.8
Subtotal	512.9	506.0	503.0	496.2	492.2	479.4	466.0	480.6
Nalcor Net Income	223.5	240.5	260.6	282.0	303.4	417.7	557.4	725.6
Pwr Pur at Soldiers Pond	736.4	746.5	763.6	778.3	795.6	897.1	1,023.4	1,206.1

**Muskrat Falls Unit Cost Projections**

<b>MF Power Revenue Requirement by Project Component</b>								
<i>Cents/kWh for total MF output</i>	2021	2022	2023	2024	2025	2030	2035	2040
Muskrat Falls	4.40	4.37	4.33	4.28	4.22	4.10	3.93	3.80
Labrador Transmission	0.93	0.92	0.91	0.90	0.90	0.86	0.80	0.91
Labrador-Island Link	5.72	5.62	5.59	5.51	5.49	5.37	5.30	5.64
Subtotal	11.05	10.90	10.84	10.69	10.61	10.33	10.04	10.35
Nalcor Net Income	4.82	5.18	5.61	6.08	6.54	9.00	12.01	15.63
Cost at Soldiers Pond including Nalcor Net Income	15.87	16.08	16.45	16.77	17.14	19.33	22.05	25.99

<b>MF Power Revenue Requirement by Cost Category</b>								
<i>Cents/kWh for total MF output</i>	2021	2022	2023	2024	2025	2030	2035	2040
Depreciation	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70
Interest	3.65	3.55	3.44	3.34	3.23	2.83	2.40	1.79
Operating Costs	1.25	1.23	1.30	1.29	1.34	1.60	1.88	2.94
Emera Net Income	1.45	1.42	1.39	1.37	1.34	1.20	1.06	0.92
Subtotal	11.05	10.90	10.84	10.69	10.61	10.33	10.04	10.35
Nalcor Net Income	4.82	5.18	5.61	6.08	6.54	9.00	12.01	15.63
Cents/kWh at Soldiers Pond	15.87	16.08	16.45	16.77	17.14	19.33	22.05	25.99

<b>Cost per kWh Analysis (@ Soldiers Pond)</b>								
<i>(cents/kWh)</i>	2021	2022	2023	2024	2025	2030	2035	2040
Cost based on total MF output	15.87	16.08	16.45	16.77	17.14	19.33	22.05	25.99
Cost based on MF output less Emera commitments	21.19	21.48	21.97	22.42	21.97	24.15	27.55	32.49
Cost based on energy required by NLH	61.79	51.91	49.79	49.15	48.75	42.89	43.21	45.60

<b>Sanction 2012</b>								
<b>Cost per kWh Analysis (@ Soldiers Pond)</b>								
<i>(cents/kWh)</i>	2021	2022	2023	2024	2025	2030	2035	2040
Cost based on total MF output	9.37	9.67	9.91	10.19	10.38	11.94	13.32	14.86
Cost based on MF output less Emera commitments	12.51	12.90	13.22	13.60	13.85	15.93	17.76	19.83
Cost based on energy required by NLH	22.86	22.39	21.83	21.71	21.41	20.06	19.81	19.85

Muskrat Falls Unit Cost Projections for NLH

<b>Cost per kWh Analysis (@ Soldiers Pond)</b>								
<i>(cents/kWh) Based on energy required by NLH</i>								
	2021	2022	2023	2024	2025	2030	2035	2040
MF Cost	61.79	51.91	49.79	49.15	48.75	42.89	43.21	45.60
NLH Exports	(6.30)	(2.02)	(1.40)	(1.29)	(1.41)	(1.59)	(2.16)	(2.72)
Net Cost to NLH	55.49	49.89	48.39	47.87	47.34	41.30	41.05	42.88
MF Exports	(4.22)	(3.25)	(2.84)	(2.72)	(3.05)	(2.27)	(1.25)	(0.09)
Cost Net of Exports	51.27	46.64	45.55	45.15	44.29	39.03	39.80	42.79
Nalcor Net Income	(18.75)	(16.72)	(16.99)	(17.81)	(18.59)	(19.97)	(23.53)	(27.43)
Net Cost Excluding Nalcor Net Income	32.52	29.92	28.56	27.33	25.70	19.06	16.27	15.36

<b>Market Price (@ Soldiers Pond)</b>								
<i>(cents/kWh)</i>								
	2021	2022	2023	2024	2025	2030	2035	2040
Market Price (net back price)	3.78	3.77	3.75	3.90	4.35	5.77	7.05	7.82

Rate Projections (Island Interconnected) - Wholesale and Retail

NLH Island Interconnected Production								
(GWh)	2021	2022	2023	2024	2025	2030	2035	2040
Total MF to Island required by NLH	1,192	1,438	1,534	1,583	1,632	2,092	2,368	2,645
Total Island Production	5,845	5,635	5,582	5,582	5,581	5,391	5,391	5,396
Total Production	7,037	7,073	7,116	7,166	7,213	7,482	7,759	8,040

Weighted Average Cost								
(cents/kWh)	2021	2022	2023	2024	2025	2030	2035	2040
Cost Out LCP, net of exports and Nalcor share of net income	32.52	29.92	28.56	27.33	25.70	19.06	16.27	15.36
Cost out of Island Fleet	6.58	6.25	6.26	6.36	6.42	6.68	7.42	9.20
Weighted Average (1)	10.98	11.06	11.07	11.00	10.78	10.14	10.12	11.23

Contribution to NLH Wholesale Rate to Newfoundland Power								
(cents/kWh)	2021	2022	2023	2024	2025	2030	2035	2040
MF Purchased Power Costs, net of exports and Nalcor share of net income	5.93	6.54	6.64	6.55	6.28	5.79	5.53	5.64
NLH Other	6.67	6.21	6.18	6.27	6.33	6.21	6.63	7.92
Total (2)	12.60	12.75	12.82	12.81	12.61	12.00	12.16	13.56

NP Domestic Retail Rate, Excluding Nalcor NI								
(cents/kWh)	2021	2022	2023	2024	2025	2030	2035	2040
NLH Purchased Power Costs, net of exports and Nalcor share of net income	12.60	12.75	12.82	12.81	12.61	12.00	12.16	13.56
NP Costs	4.57	4.53	4.78	4.74	4.71	5.09	5.51	5.63
	17.17	17.28	17.60	17.56	17.32	17.10	17.67	19.20
HST (15%)	2.58	2.59	2.64	2.63	2.60	2.56	2.65	2.88
Total (3)	19.74	19.87	20.24	20.19	19.92	19.66	20.32	22.08

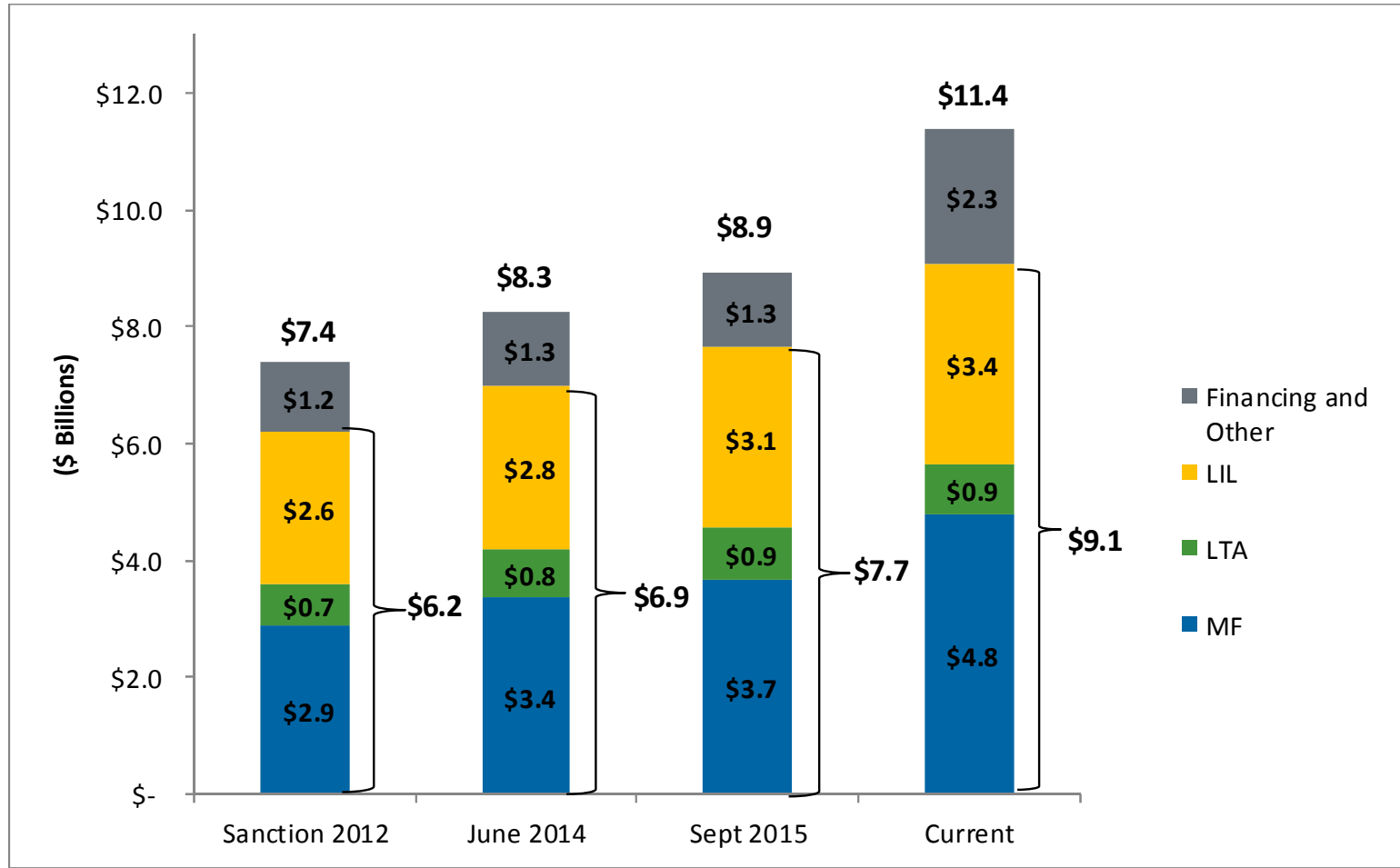
Sanction 2012 NP Domestic Retail Rate								
(cents/kWh)	2021	2022	2023	2024	2025	2030	2035	2040
NLH Purchased Power Costs	11.12	11.13	11.14	11.19	11.20	11.57	12.50	13.82
NP Costs	4.00	4.17	4.12	4.06	4.26	4.28	4.59	4.96
	15.12	15.30	15.26	15.25	15.46	15.84	17.09	18.78
HST (5%)	0.76	0.77	0.76	0.76	0.77	0.79	0.85	0.94
Total at DG3	15.88	16.07	16.03	16.01	16.23	16.63	17.95	19.72
Adjusted to current HST rate	17.39	17.60	17.55	17.54	17.78	18.22	19.65	21.60

(1) - Weighted average cost for all Island Interconnected customers including industrials and Newfoundland Power.

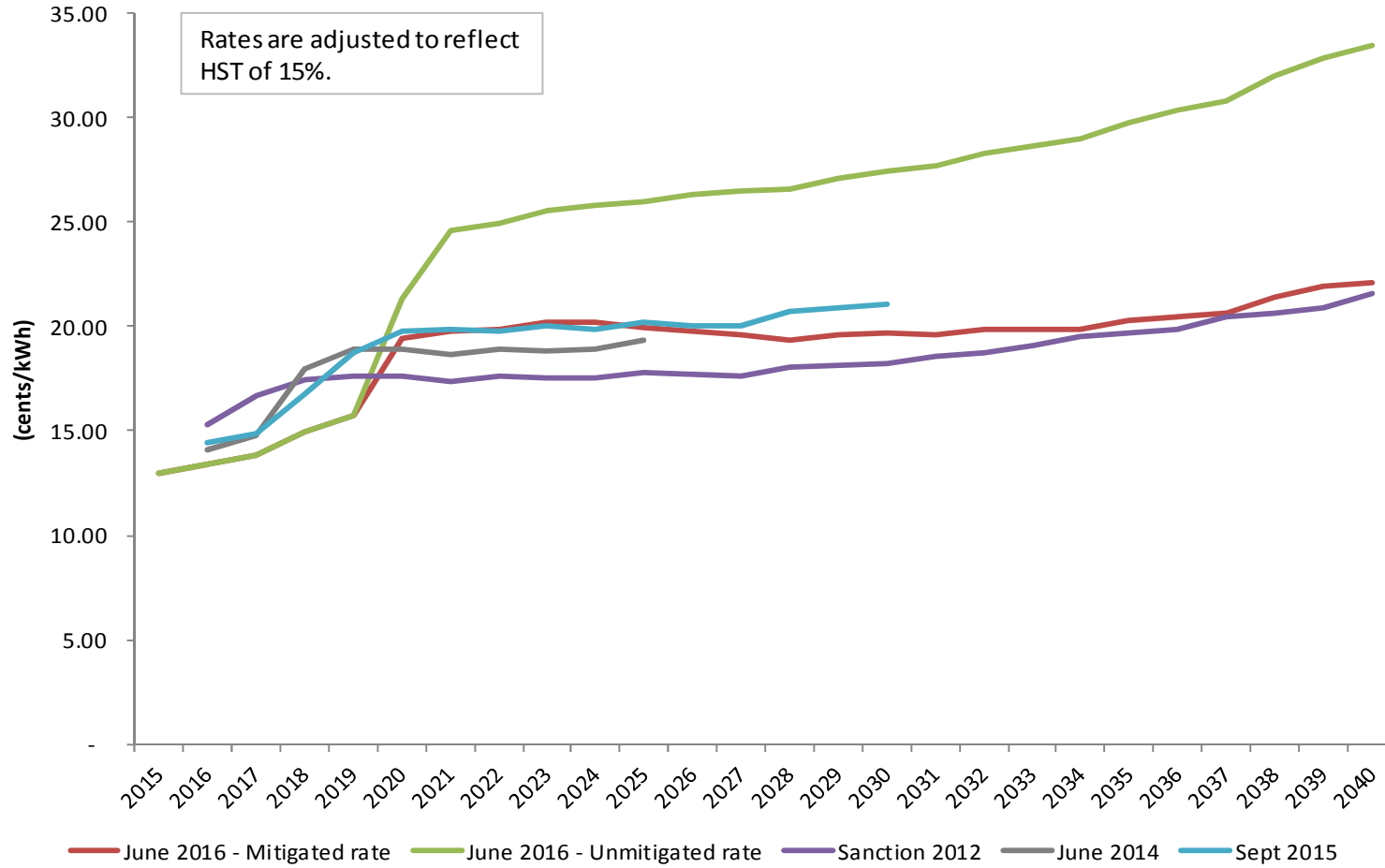
(2) - Current Wholesale Rate is approximately 7.8¢/kWh

(3) - Current Retail Rate is approximately 13.0¢/kWh

# Projected In-service Costs

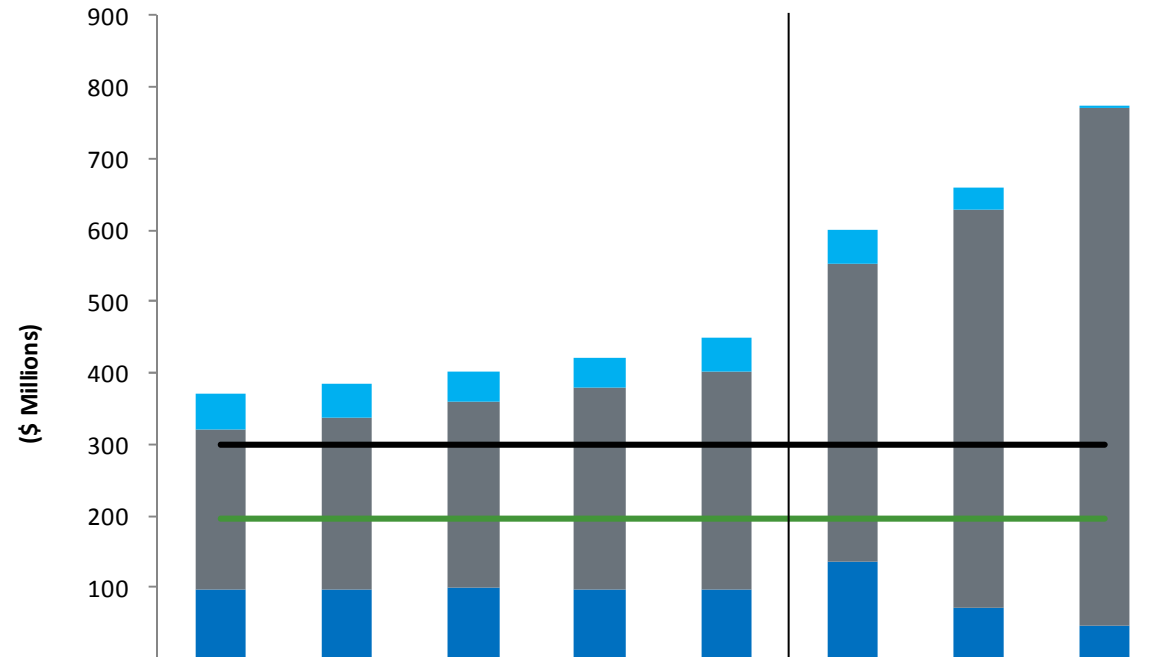


# Domestic Rates





# Provincial Dividends from MF



	2021	2022	2023	2024	2025	2030	2035	2040
MF Exports	50	47	44	43	50	47	30	2
Nalcor share of net income	224	240	261	282	303	418	557	726
Net LCP Dividends from MF project	98	97	99	97	97	136	71	45
Government's estimated carrying cost	196	196	196	196	196	196	196	196
Government's estimated carrying cost plus sinking fund payments	300	300	300	300	300	300	300	300

# Provincial Dividends from Nalcor

