

# Muskrat Falls Project Update

June 22, 2016

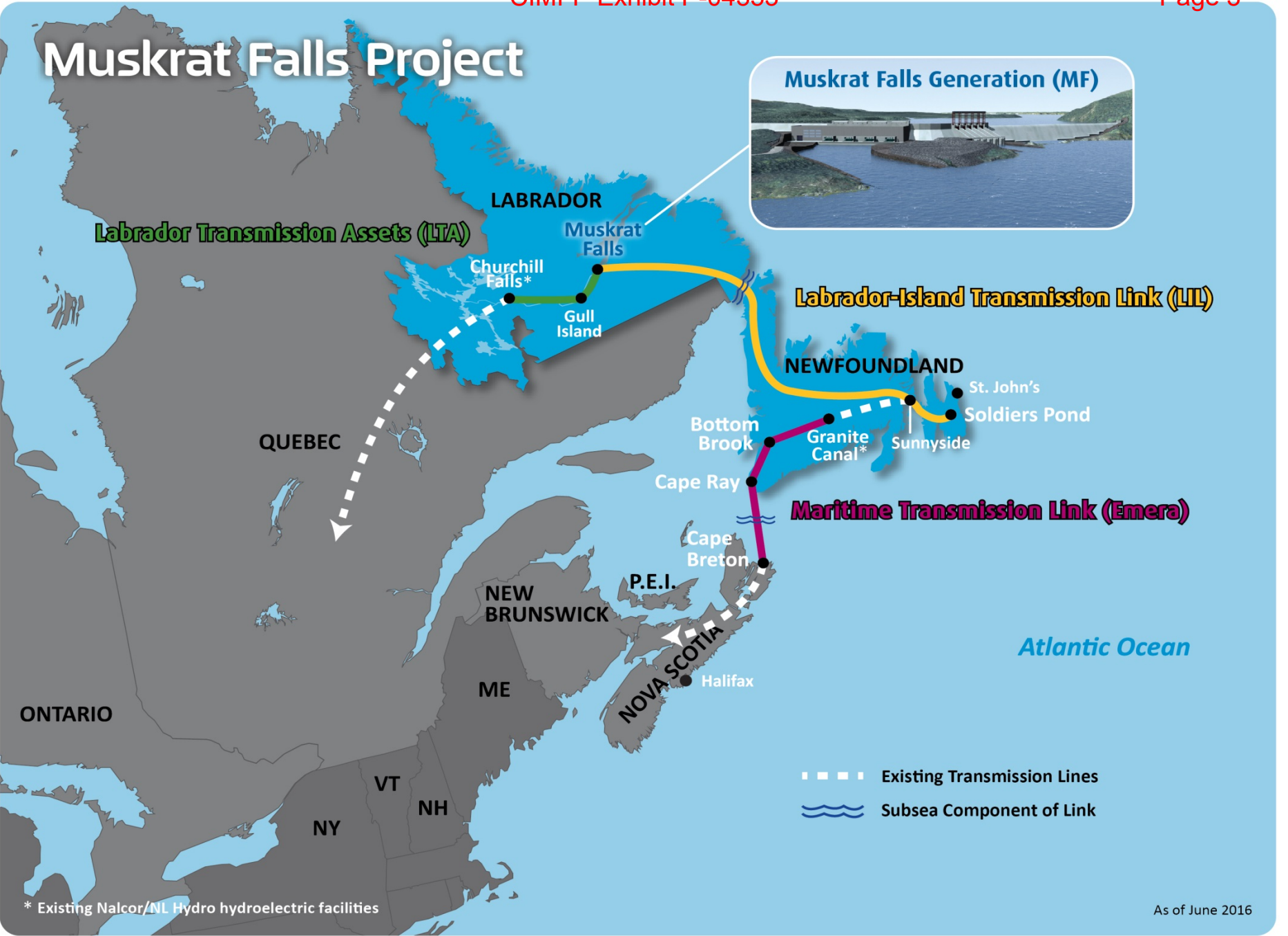
Boundless Energy



# Overview

- Muskrat Falls projected capital cost and schedule
- Unit energy cost projections for Muskrat Falls production
- Updated Island Interconnected load forecast
- Summary of Muskrat Falls production
- Muskrat Falls unit energy cost projections for NL Hydro (NLH)
- Domestic electricity rate projections
- Provincial equity requirements and dividends

# Muskrat Falls Project



\* Existing Nalcor/NL Hydro hydroelectric facilities

# Muskrat Falls Generation (MF)



- 824 megawatts; 4.9 terawatt hours/yr (TWh)
- Projected facilities costs:
  - Sanction \$2.9B
  - June 2016 \$4.8B
- Projected in service dates:
  - Sanction: first power Q4 2017; full power Q2 2018
  - June 2016: first power Q3 2019; full power Q2 2020
- Emera to receive 20% of energy for 35 years at no cost and an additional 5% during first five years, delivered during off-peak.

As of May 2016:

Spent	\$2.3B
Committed but not spent	\$0.9B
Projected balance	\$1.6B



# Labrador-Island Link (LIL)



As of May 2016:

Spent	\$1.7B
Committed but not spent	\$1.1B
Projected balance	\$0.6B

- 1,100 km line from Muskrat Falls to Soldiers Pond
- 30 km across the Strait of Belle Isle (SOBI)
- SOBI completion by end of 2016
- Projected facilities costs:
  - Sanction \$2.6B
  - June 2016 \$3.4B
- Projected in service dates:
  - Sanction: Q2 2017
  - June 2016: Q2 2018
- Emera provides equity contribution of \$0.6B based on current estimates to receive regulated utility rate of return for 35 years

# Labrador Transmission Assets (LTA)



- Churchill Falls to Muskrat Falls
- Two, 250 km 315 kilovolt lines
- Projected facilities costs:
  - Sanction \$692M
  - June 2016 \$878M
- Projected in service dates:
  - Sanction: Q2 2017
  - June 2016: Q2 2018
- Completion of construction of the transmission line at end of 2016

As of May 2016:

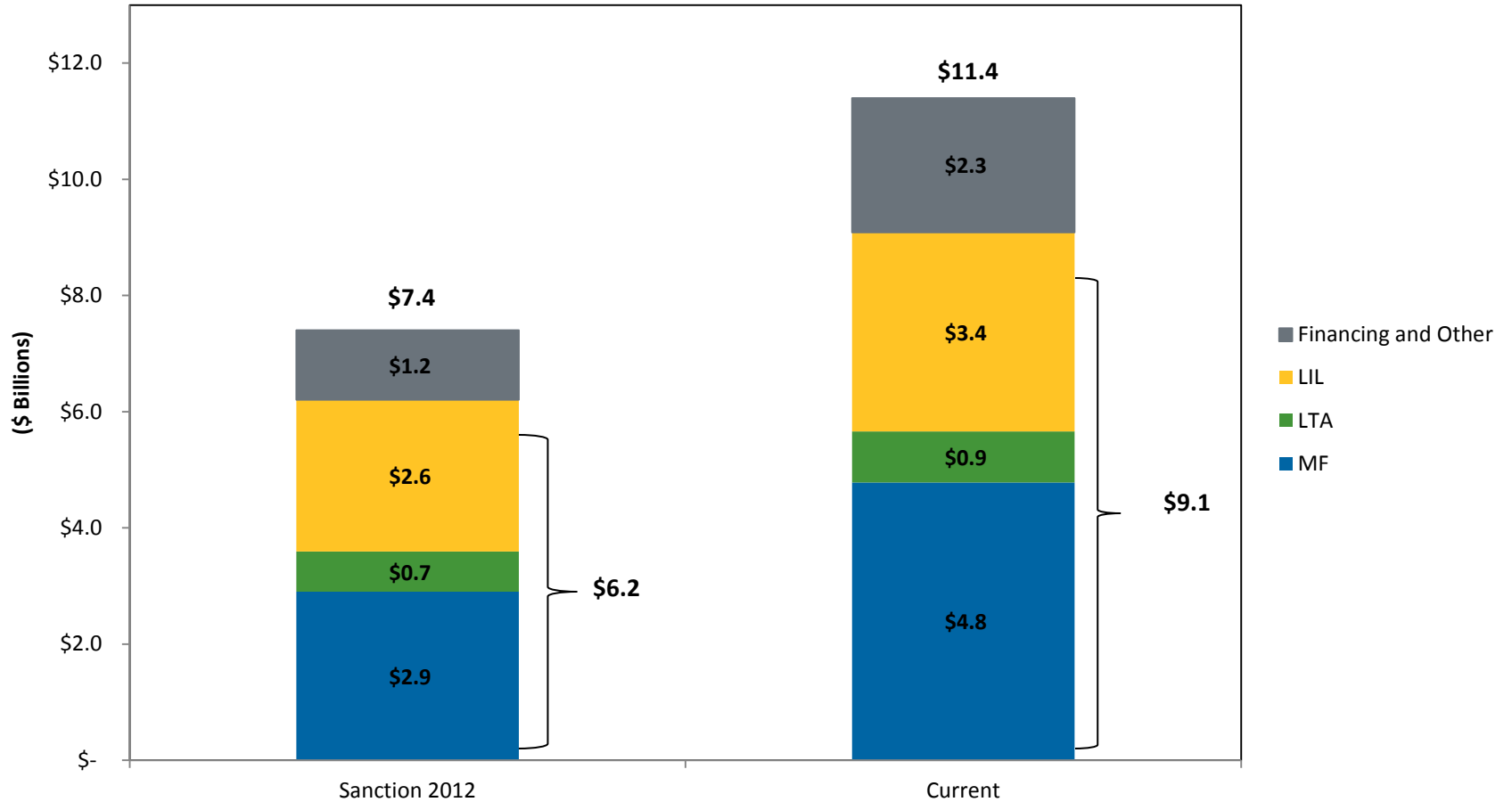
Spent	\$665M
Committed but not spent	\$104M
Projected balance	\$109M

# Maritime Link (Emera)



- Constructed, owned and operated by Emera for 35 years
- 500 MW capacity
- 170 km undersea link from Cape Ray, NL to Cape Breton, NS
- Projected facilities cost \$1.58B
- Projected in service Q4 2017
- Nalcor has transmission rights to import/export power

# Muskrat Falls Projected In-service Cost

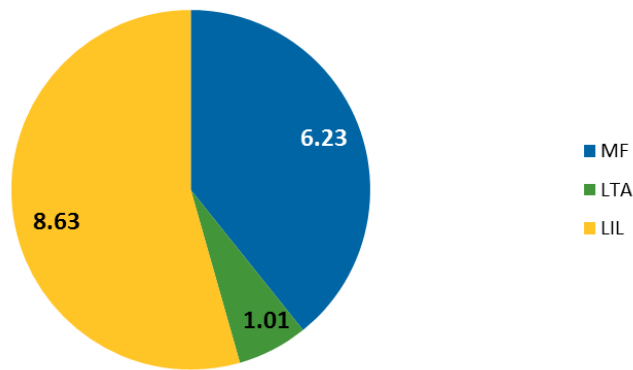




# Unit Cost Projections

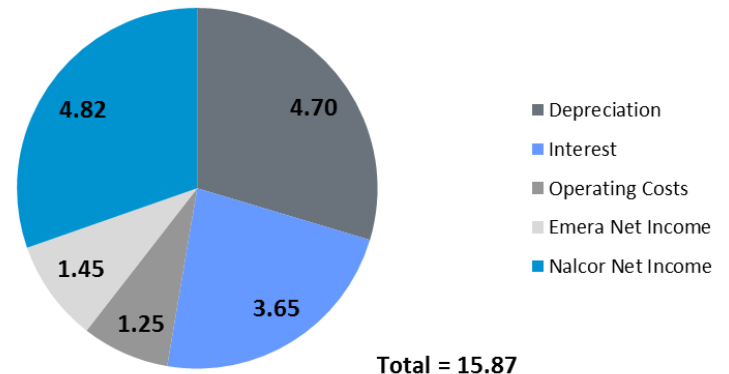
(For power delivered at Soldiers Pond including Net Income to Nalcor)

**Muskrat Falls Unit Cost Projection by Project Component**  
(2021 - cents/kWh)



Total = 15.87 cents/kWh

**Muskrat Falls Unit Cost Projection by Cost Category**  
(2021 - cents/kWh)



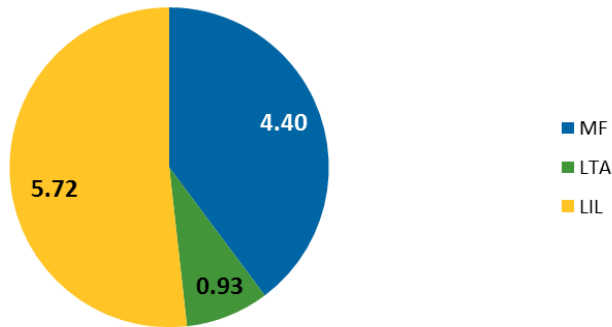
Total = 15.87 cents/kWh

# Unit Cost Projections

(For power delivered at Soldiers Pond excluding Net Income to Nalcor)

**Muskrat Falls Unit Cost Projection by Project Component Excluding Net Income**

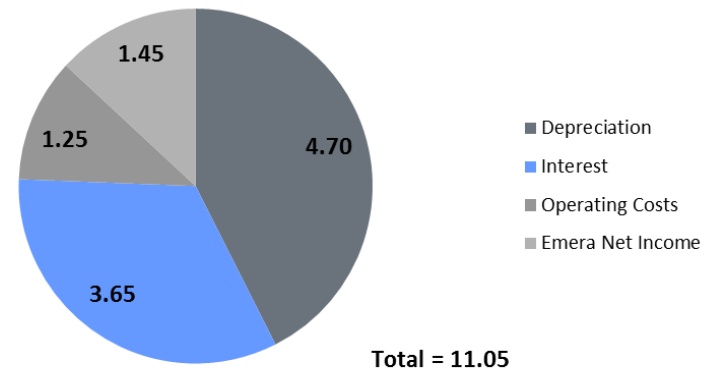
(2021 - cents/kWh)



Total = 11.05 cents/kWh

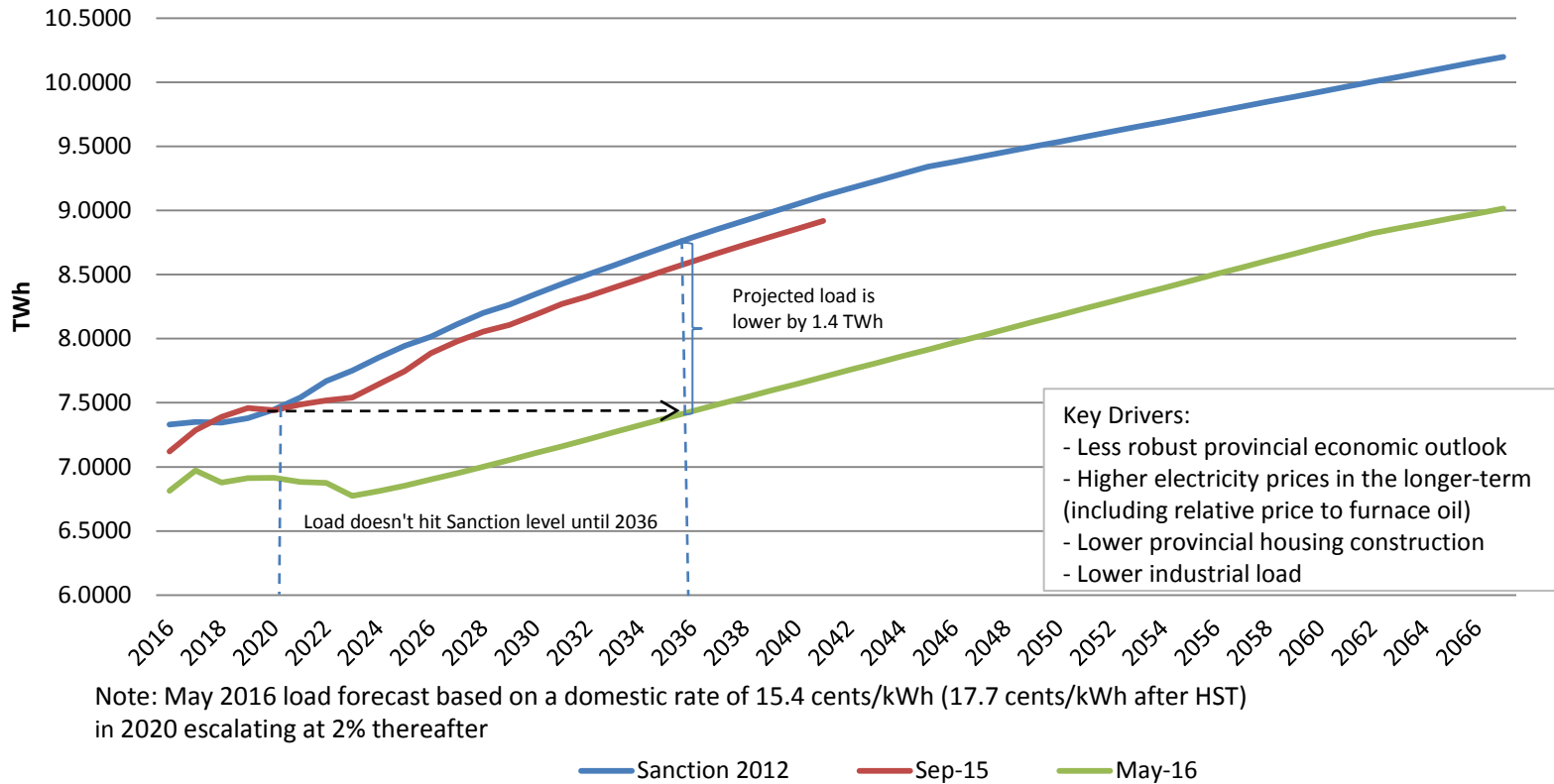
**Muskrat Falls Unit Cost Projection by Cost Category Excluding Net Income**

(2021 - cents/kWh)



Total = 11.05 cents/kWh

# NL Hydro Island Interconnected Sales

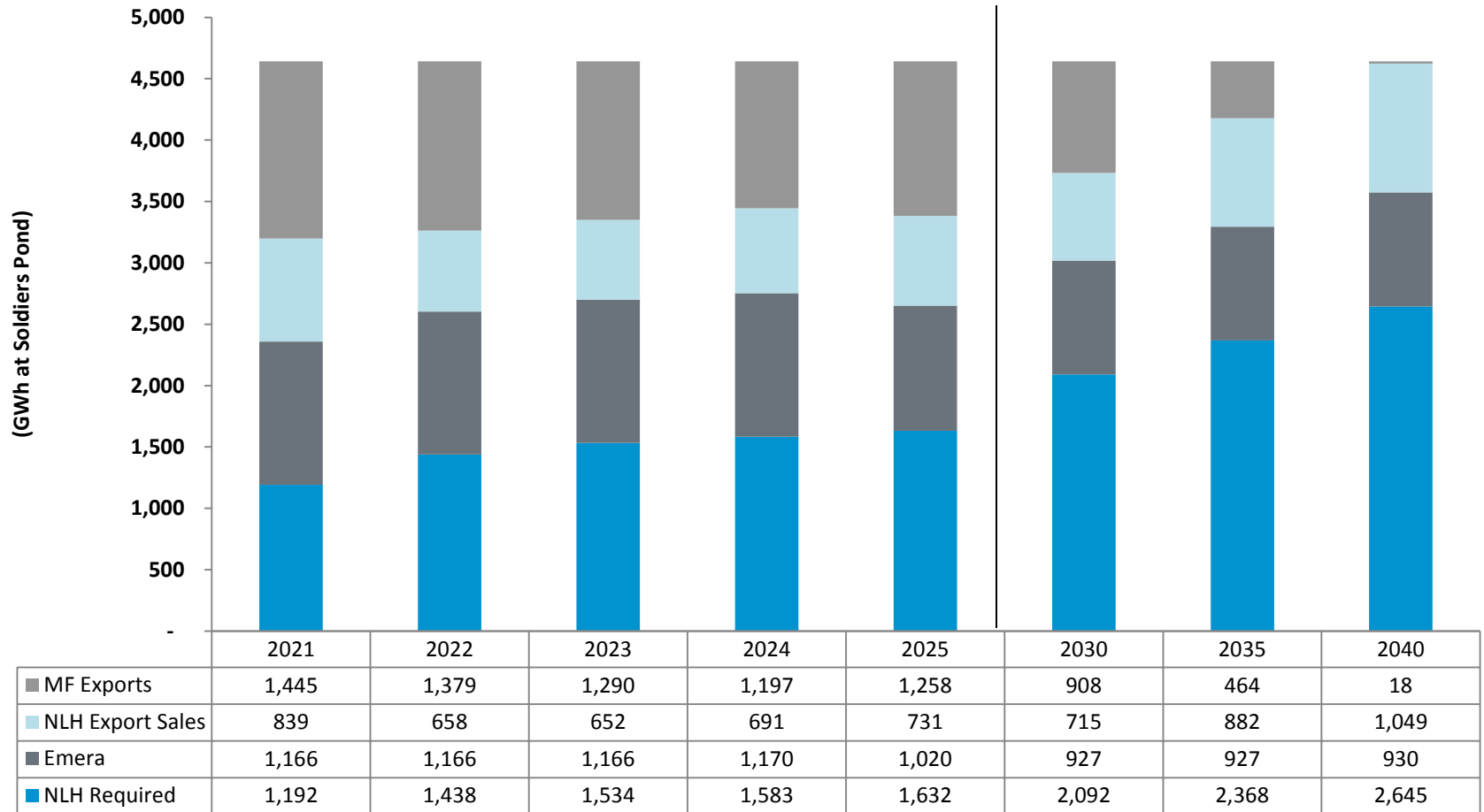


Note: May 2016 load forecast based on a domestic rate of 15.4 cents/kWh (17.7 cents/kWh after HST) in 2020 escalating at 2% thereafter

— Sanction 2012    — Sep-15    — May-16

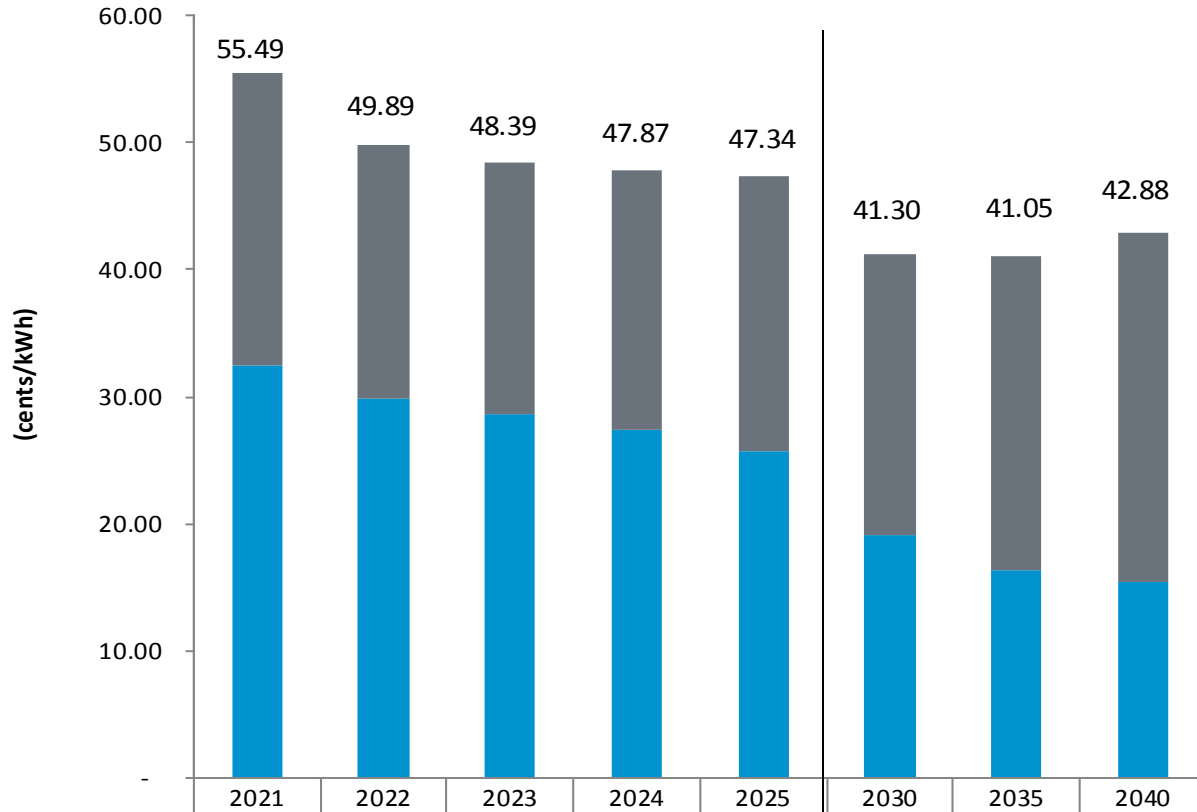
Confidential and Commercially Sensitive

# Muskrat Falls Energy Deliveries



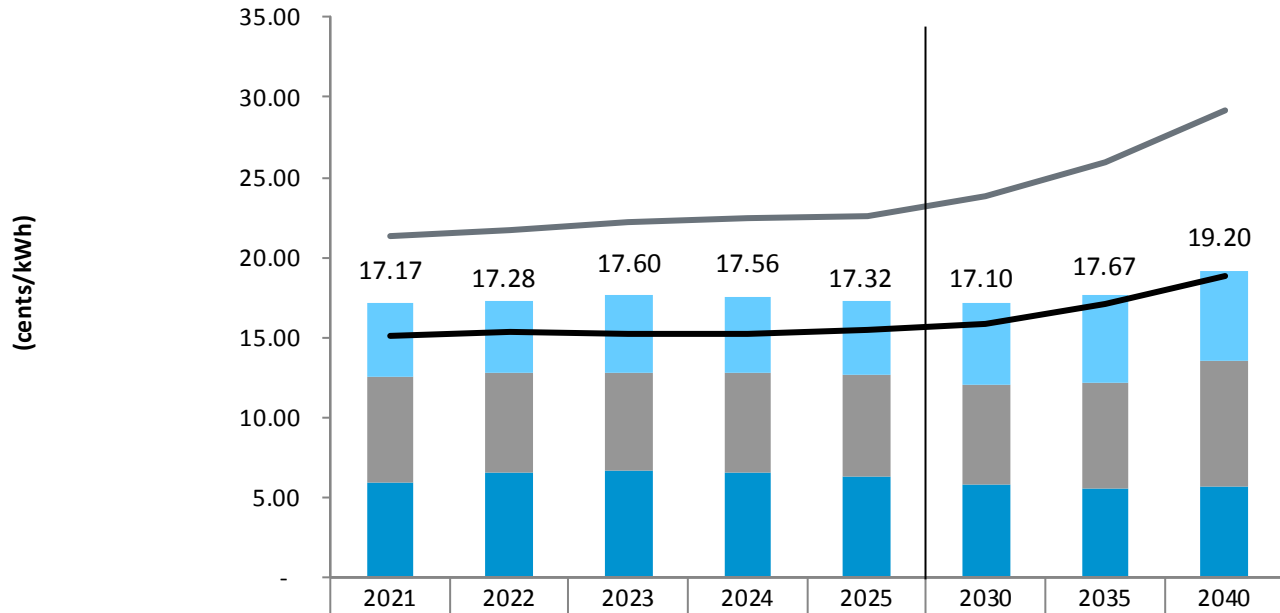


# Muskrat Falls Unit Cost Projections for NLH



	2021	2022	2023	2024	2025	2030	2035	2040
■ MF Exports and Nalcor share of net income	22.97	19.97	19.83	20.53	21.64	22.23	24.78	27.52
■ MF cost to NLH net of exports & net income	32.52	29.92	28.56	27.33	25.70	19.06	16.27	15.36

# Island Interconnected Domestic Rate Projections



	2021	2022	2023	2024	2025	2030	2035	2040
NP Costs	4.57	4.53	4.78	4.74	4.71	5.09	5.51	5.63
NLH Other	6.67	6.21	6.18	6.27	6.33	6.21	6.63	7.92
Net MF purchased power	5.93	6.54	6.64	6.55	6.28	5.79	5.53	5.64
Sanction 2012	15.12	15.30	15.26	15.25	15.46	15.84	17.09	18.78
June 2016 with Nalcor net income and no export sales credit	21.37	21.69	22.25	22.47	22.63	23.88	25.91	29.12

Current wholesale and domestic rates are 7.8 cents/kWh and 11.9cents/kWh (excluding HST), respectively.

# Electricity Rate Comparison (cents kWh)

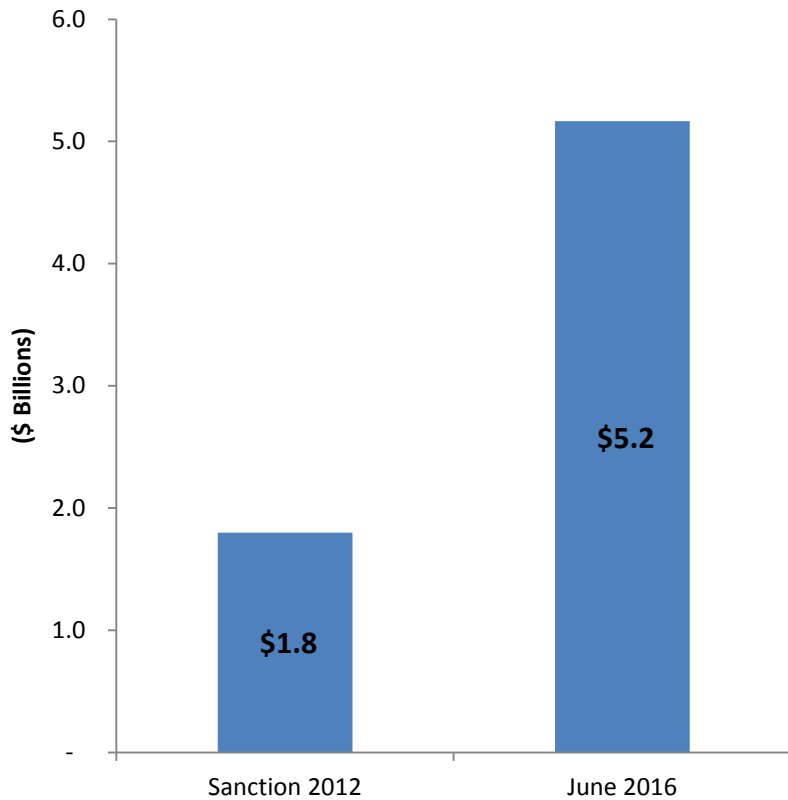
Quebec	7.19
Manitoba	8.11
British Columbia	10.29
NL Island Domestic Rate	11.93*
Alberta	11.66
New Brunswick	12.30
Saskatchewan	14.37
Ontario	14.86
Prince Edward Island	15.62
Nova Scotia	16.03

\*Current average domestic rate based on average consumption of 1,517 kWh before HST.

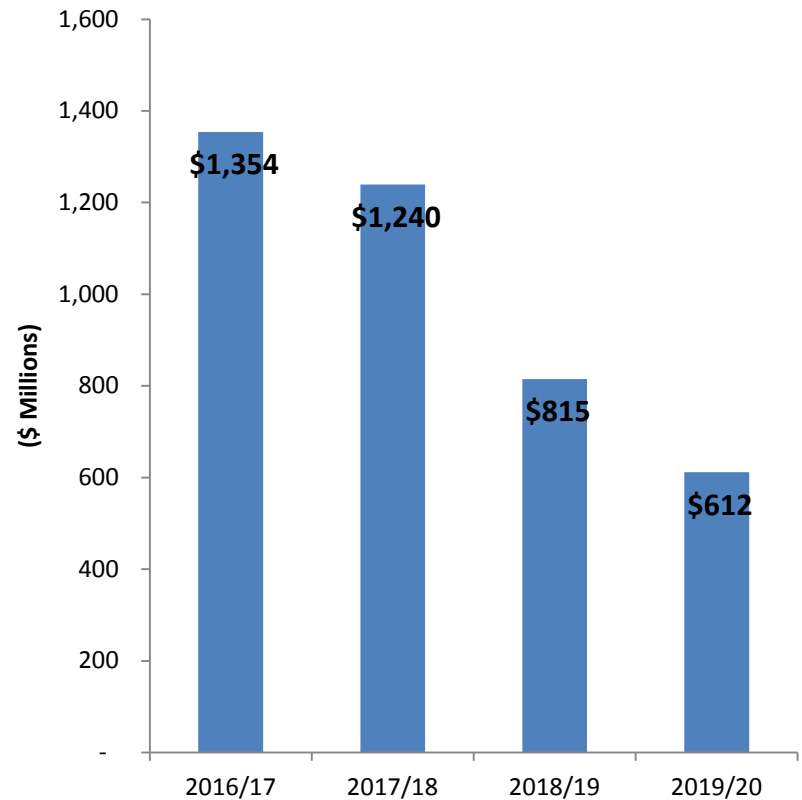
Note: Rates are taken from a Hydro Quebec survey and are based on April 1, 2015 rates without tax and average monthly consumption of 1,000 kWh (with the exception of the NL Island Domestic Rate).

# Provincial Equity Requirements for MF Project

## Total NL Equity Required

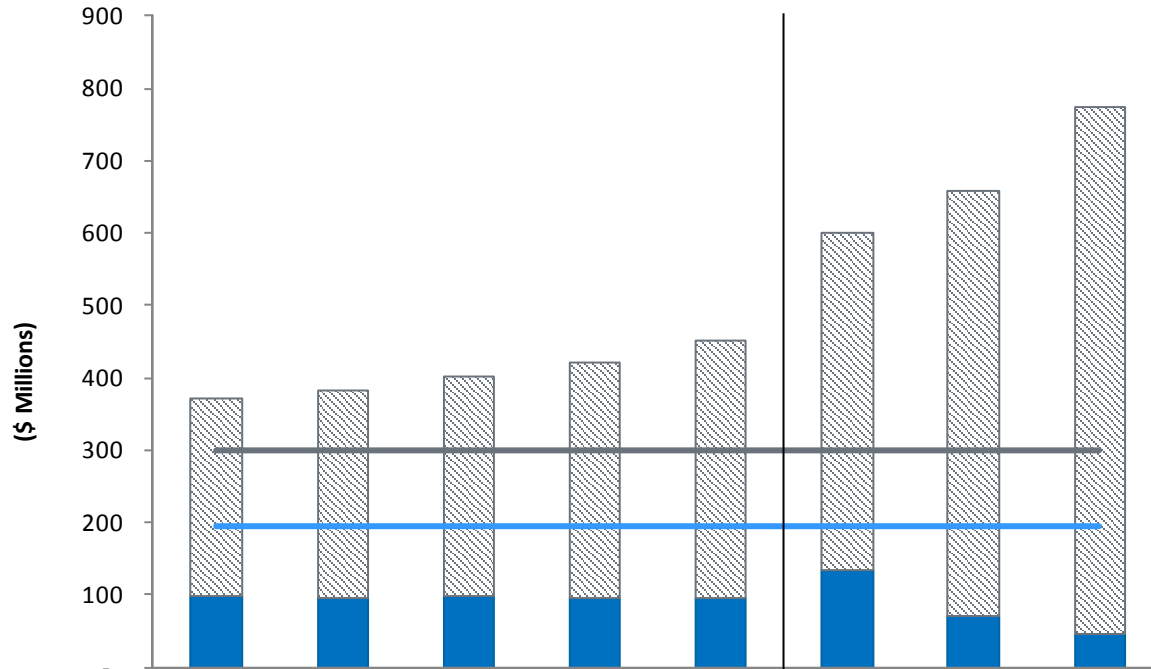


## Annual NL Equity Required





# Provincial Dividends from MF Project



	2021	2022	2023	2024	2025	2030	2035	2040
MF Exports and Nalcor share of net income	274	287	304	325	353	465	587	728
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 carrying costs assume total debt of \$5.2B with average interest rate of 3.8% and term of 50 years.

# Muskrat Falls Analysis of Cost Update and Electricity Rates



# Project Cost Increases

CIMFP Exhibit P-04353

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- Sanction                \$6.2 billion
- June 2014             \$6.99 billion
- Sept 2015             \$7.65 Billion
- June 2016             \$9.1 billion

Note: These numbers reflect Capital Costs only and do not include interest during construction

# Estimated Electricity Rate 2025

(unmitigated)

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<b>Date</b>	<b>Excl. HST (cents/kWh)</b>	<b>Incl. HST (cents/kWh)</b>
Sanction (2012)	15.48	17.80
June 2014	16.96	19.50
September 2015	17.39	20.00
June 2016	22.61	26.00

Rate changes are due to both cost and consumption forecast changes



# Rate Mitigation Mechanisms

CIMFP Exhibit P-04353

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- Rates are calculated based on total income required to cover all project costs
- Rate Mitigation Mechanisms include:
  - Rate Smoothing - rates are adjusted to a higher level over a fixed period at a fixed rate (e.g.. 3% or 5% per year)
  - Rate Adjustments - Rates are adjusted immediately to some a pre-determined level
    - DG3 (Project Sanction)?
    - July 2014 cost update?
    - September 2015 cost update?
    - Atlantic Average?
    - National Average?

# Rate Mitigation Commitments

## - Previous Administration

CIMFP Exhibit P-04353

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“The ratepayers of the province have always been the primary focus for this government in pursuing the Muskrat Falls Project. Our government has recognized that when first power comes from the project and rates are affected, the government at the time would decide what to do with the return coming from the project. We maintain that position. If first power were flowing today, our government would use money from the project’s revenue streams to offset the increases in electricity rates over and above what we anticipated at sanction. We have remained committed to doing what is in the best interest of ratepayers.”

*- Premier Marshall – June 26, 2014*

# Rate Mitigation Commitments

- Current Administration

## Sell Surplus Power to Reduce Energy Bills

Liberals believe that, as the primary stakeholders, Newfoundlanders and Labradorians must be the primary beneficiaries of the Muskrat Falls Project. *A New Liberal Government will work to mitigate potential increases in electricity rates. Revenue generated from the sale of surplus power will be used to offset power rates for Newfoundlanders and Labradorians.*

*Red Book – November 13, 2015*

- Proposal is to forego any Net Income from Project and reinvest to reduce rates.
  - This would result in electricity rates at approximately sanction level
  - HST was reapplied to electricity in Budget 2015 (post Sanction)
- There is no timeline on the rate adjustment - a “forever” solution
- Rates will be fixed 4-5 years before project in-service
- Major items not yet resolved
  - Astaldi
  - Federal Loan Guarantee

# Analysis

CIMFP Exhibit P-04353

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- Re-directing net income to electricity rate reduction will reduce dividends available to the province that could alternatively have been used for delivery of other programs
- There will be an impact on the fiscal forecast (return to surplus target) due to reduced Nalcor net income
- Remaining dividend from MF is less than Government's carrying costs (interest payments) for the funds borrowed for the Equity investment

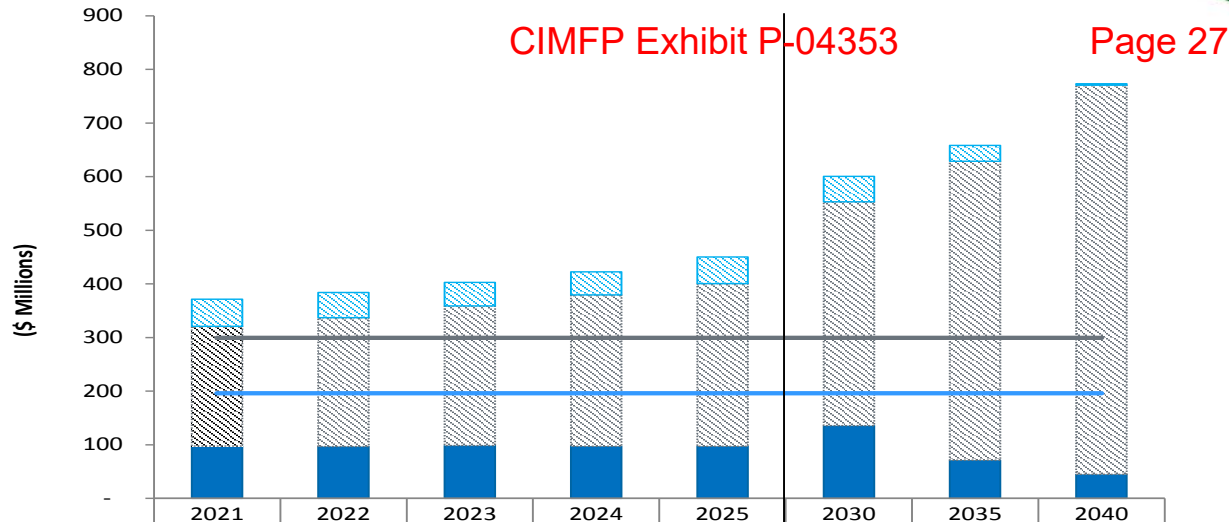
# Considerations

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- Only one option for rate mitigation has been considered. Focus is on ratepayer impact, not taxpayer
- Ratepayers will have a fixed anticipation of electricity rates
- It will be difficult to move off this policy once set
  - Freezes rates indefinitely (similar to MUN tuition freeze)
  - Policy is blanket “rate subsidy”. Does not allow any tailoring of subsidy (income testing)
- Taxpayers are subsidizing ratepayers
- Remaining dividend does not cover cost of borrowing

# Provincial Dividends from MF Project



	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 carrying costs assume total debt of \$5.2B with average interest rate of 3.8% and term of 50 years.



# Change in Dividends to Province Budget vs. Update

CIMFP Exhibit P-04353

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(with mitigation)

<b>Dividends</b>	<b><u>2019</u></b>	<b><u>2020</u></b>	<b><u>2021</u></b>	<b><u>2022</u></b>	<b><u>2023</u></b>	<b><u>2024</u></b>	<b><u>2025</u></b>
Budget - Before June 2016 Update	34.0	448.0	481.0	501.0	551.0	580.0	554.0
Revised - Post June 2016 Update	0.0	758.4	361.3	354.6	352.1	370.0	344.9
	(34.0)	310.4	(119.7)	(146.4)	(198.9)	(210.0)	(209.1)

Note: Dividend higher in 2020 due to estimated one time refund of amounts remaining in the COREA (~\$97M for LIL and \$70M for MFLTA) as well as the capital cost true-up with Emera of ~\$192M (Emera pays Nalcor)

# Change in Borrowings

## Cash Requirements Budget vs. Update

(with mitigation)

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<b>Borrowings</b>	<b>Description</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>
Budget	Nalcor Equity	(1,313.0)	(558.0)	(111.0)	0.0
Budget	PRUDENCE CONTINGENCY	(350.0)	(535.0)	(535.0)	0.0
Budget	TOTAL CASH BUDGETED	(1,663.0)	(1,093.0)	(646.0)	0.0
Revised	Cash Requirements	(1,638.9)	(1,127.3)	(693.2)	(427.3)
	Net Change	24.1	(34.3)	(47.2)	(427.3)

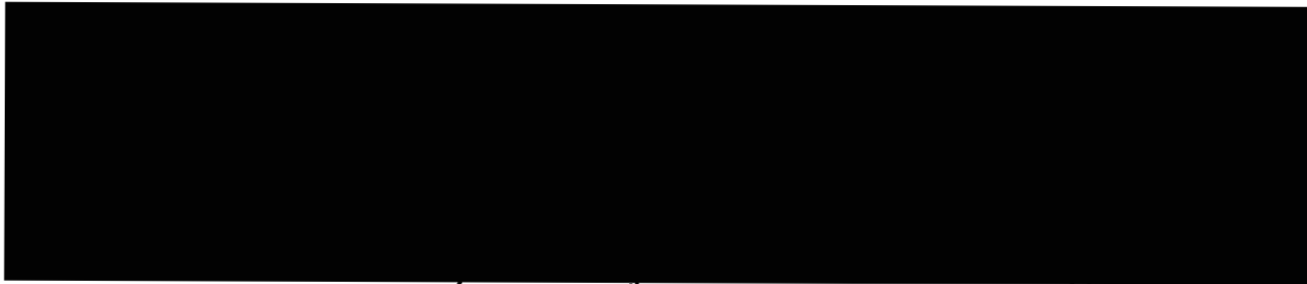
### Notes:

1. Net change in Total equity requirement 2016/17 is \$325.9M. May require changes to current vote of \$1.313B.
2. Borrowings updated for Nalcor Dividends only.

# Fiscal Outlook

## Changes in Projected Deficit

\$ million	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
<b>Deficit Before Risk Adj. - at Budget</b>	(1,705.0)	(931.2)	(856.3)	(862.2)	(716.7)	(495.4)	(435.7)
<b>Deficit Before Risk Adj. - Revised for Levy</b>	(1,737.9)	(996.2)	(917.8)	(931.4)	(833.8)	(611.9)	(552.0)
<b>Deficit Before Risk adj. - Revised Levy &amp; Nalcor</b>	<b>(1,733.7)</b>	<b>(968.6)</b>	<b>(955.0)</b>	<b>(929.0)</b>	<b>(990.3)</b>	<b>(780.5)</b>	<b>(741.1)</b>
<b>Revenue Risk Adj.</b>	125.0	125.0	125.0	125.0	125.0	125.0	125.0
<b>Revised Adjusted Deficit</b>	<b>(1,858.7)</b>	<b>(1,093.6)</b>	<b>(1,080.0)</b>	<b>(1,054.0)</b>	<b>(1,115.3)</b>	<b>(905.5)</b>	<b>(866.1)</b>
<b>Surplus/(Deficit) Target</b>	<b>(1,830.0)</b>	<b>(800.0)</b>	<b>(650.0)</b>	<b>(500.0)</b>	<b>(250.0)</b>	<b>0.0</b>	<b>100.0</b>



2016/06/23

MC2016-██████

NR/DM  
Nalcor/CEO  
Deputy Clerk  
File

XX2016-██████

An Update respecting Muskrat Falls was received from the Chief Executive Officer of Nalcor Energy.

*Julia Mullaley*  
Clerk of the Executive Council