

Muskrat Falls Project Update

Government of Canada/Independent Engineer

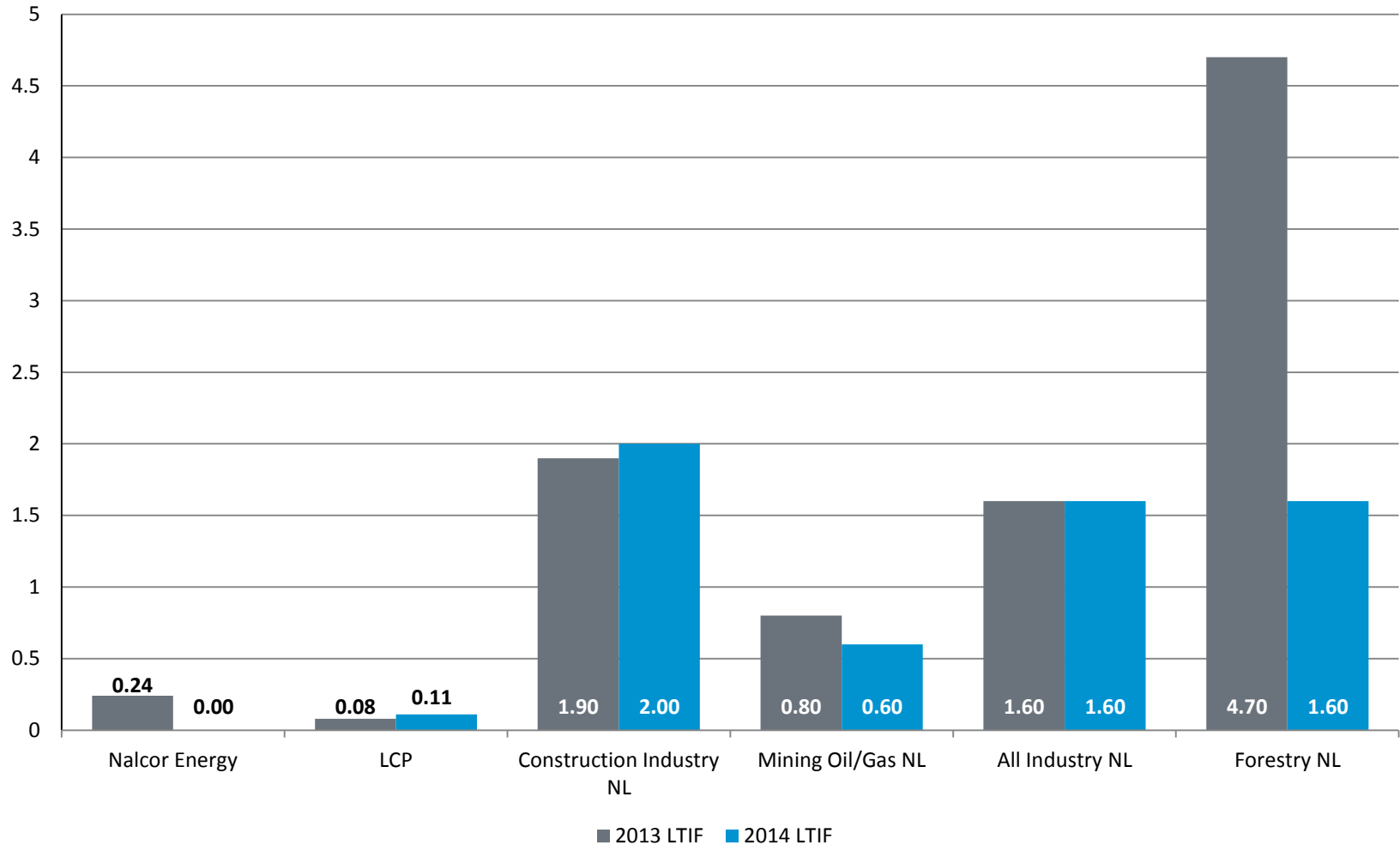
September 28, 2015

Boundless Energy



Confidential & Commercially Sensitive

Safety Remains a Top Focus



MF – A Good Investment for NL

- NL needs more power – MF creates power independence for NL
- Replaces oil-burning Holyrood plant (> 45 years old) and provides clean power (province will be 98% GHG free). Avoid emerging future risk of costs of carbon.
- Significant construction and economic benefits:
 - 4,355 NL residents working on the project, 85% of workforce
 - Approx. \$640 million in estimated wages to NL workers
 - \$900 million to NL businesses
 - Almost \$9 million invested in the local benefits weekly

MF – A Good Investment for NL

- Investment in an asset we own
- Significant value and cash flows will be generated returning substantial savings and return on investment to the province - over \$60 billion over 50 years
- Strategic investment establishing transmission access to North American markets for export opportunities
- Work being performed safely, in an environmentally-responsible manner to a high quality

Looking Ahead

- LIL, LTA, SOBI, North and South dams, North Spur, transition dams, Spillway and river diversion, and material and equipment deliveries remain on schedule.
- Astaldi slower progress than planned in the powerhouse, things turned around this summer
- On track for power from Churchill Falls to the island via Muskrat Falls and new transmission lines in 2017
- Offset generation from Holyrood plant in late 2017

Spillway – September 2014



Spillway – September 2015



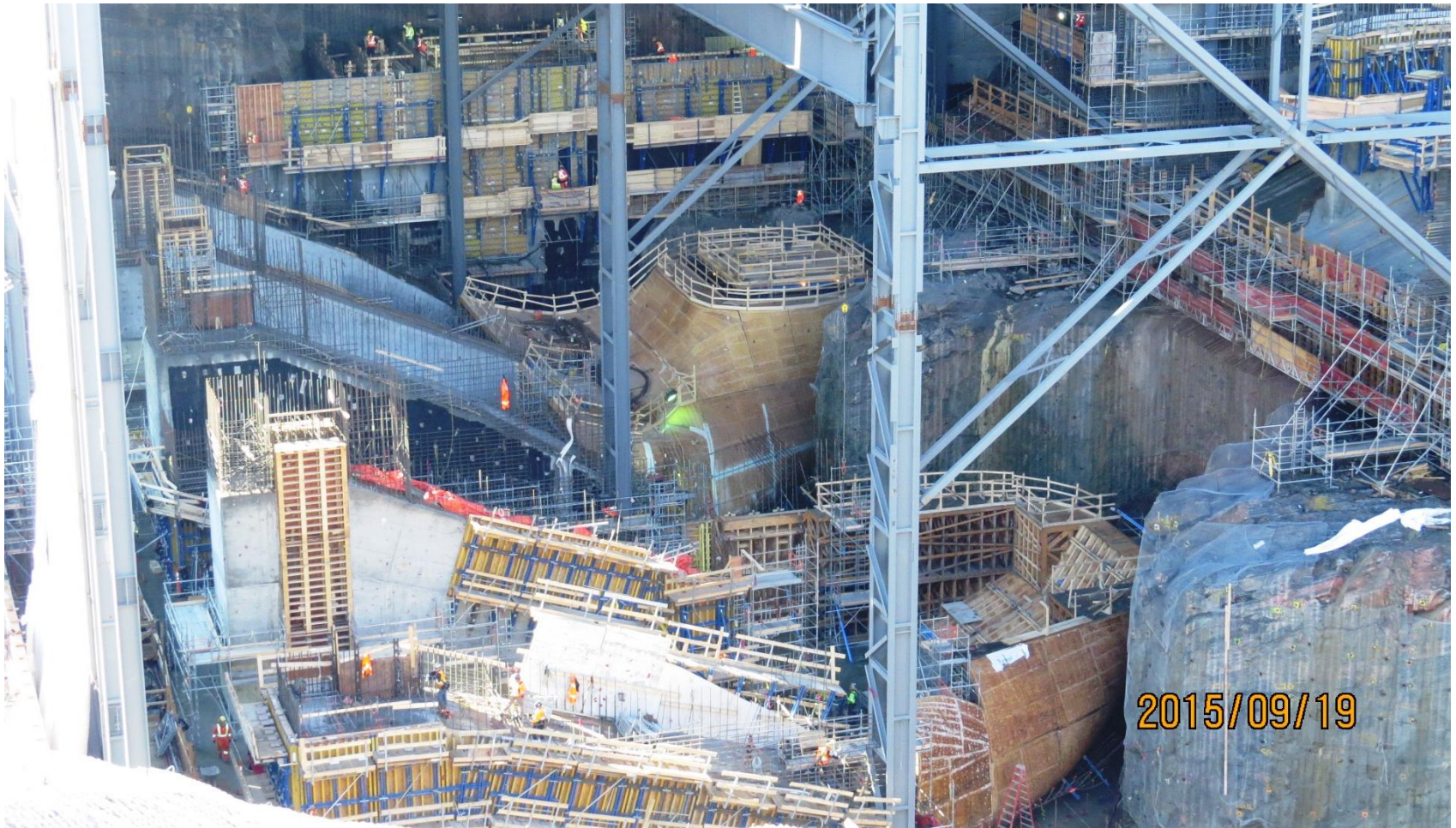
Powerhouse Area – September 2014



Powerhouse Area – September 2015



Powerhouse Area – September 2015



North Spur – September 2014



North Spur – September 2015



Transmission Line Work

- HVac (MF to CF)
 - 100% clearing & access roads complete (2,450 hectares)
 - 93% foundations installed; 79% towers assembled & 66% installed; 40% stringing completed (~195kms)
 - Work will be substantially complete in 2015
- HVdc (MF to SP)
 - 70% Lab. & 36% NF clearing complete
 - Lab: 40% foundations installed; 40% towers assembled
 - Tower assembly to start on island in Oct 2015



AC Transmission: September 2014



AC Transmission: September 2015



DC Transmission Construction: 2014-15



DC Transmission: North of Forteau, September 2015

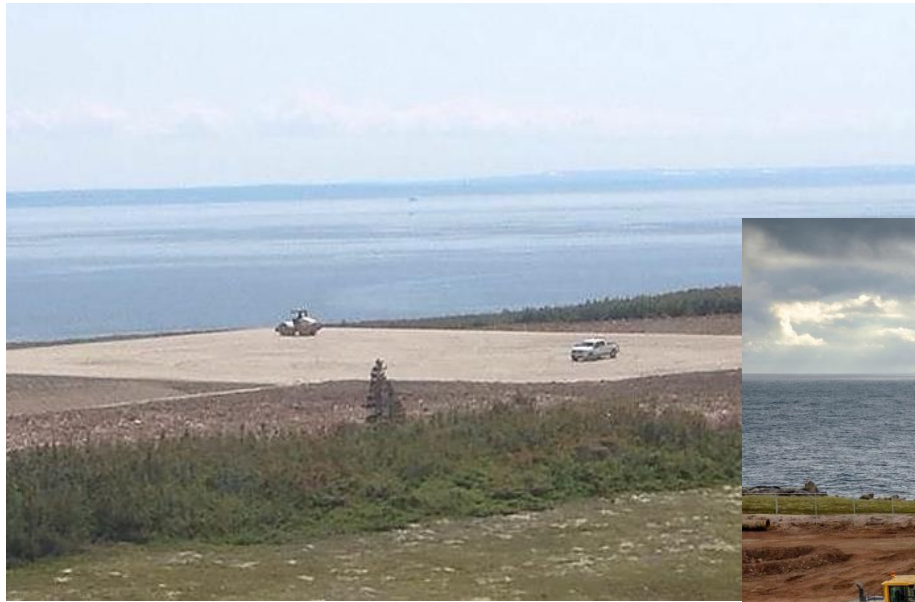


SOBI & HVdc Specialties

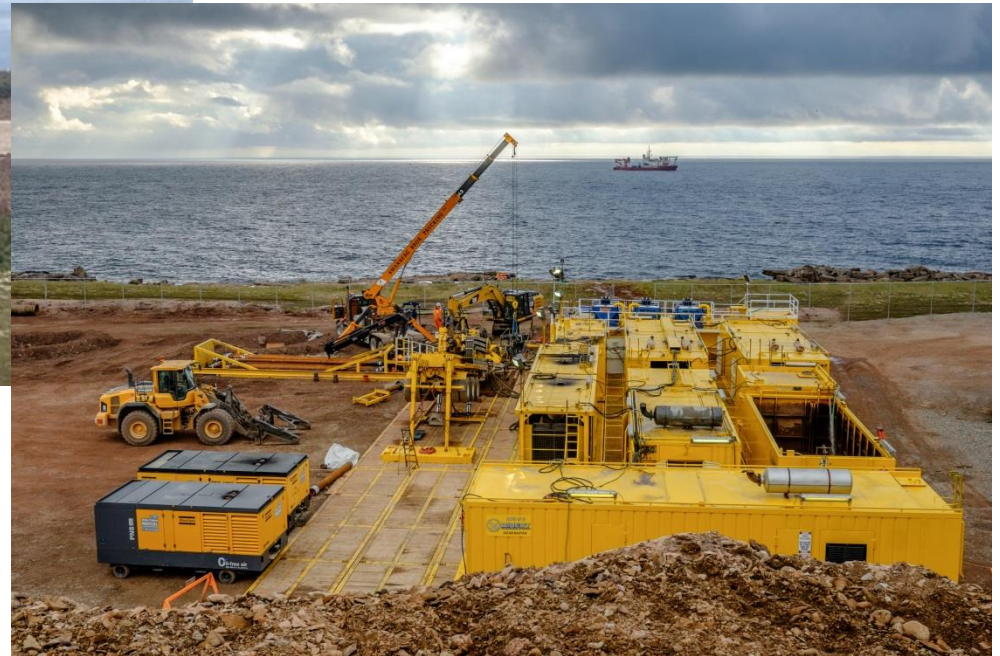
- SOBI:
 - first land cables will be installed in September 2015
 - last of 3rd cable expected this fall
 - On track for marine cable installation in 2016
- Other Transmission Work:
 - civil work underway for all major electrical components at Soldiers Pond, Muskrat Falls and Churchill Falls
 - grounding sites at Dowden's Point and L'Anse au Diable well advanced

Strait of Belle Isle: 2014

Transition Compound, Forteau



HDD Program Completed



Strait of Belle Isle: 2015

Arrival of land cables in Shoal Cove



Quay construction, Forteau



Transition Compound, Forteau

Soldiers Pond: Fall 2014



Soldiers Pond: September 2015





Cost Challenges

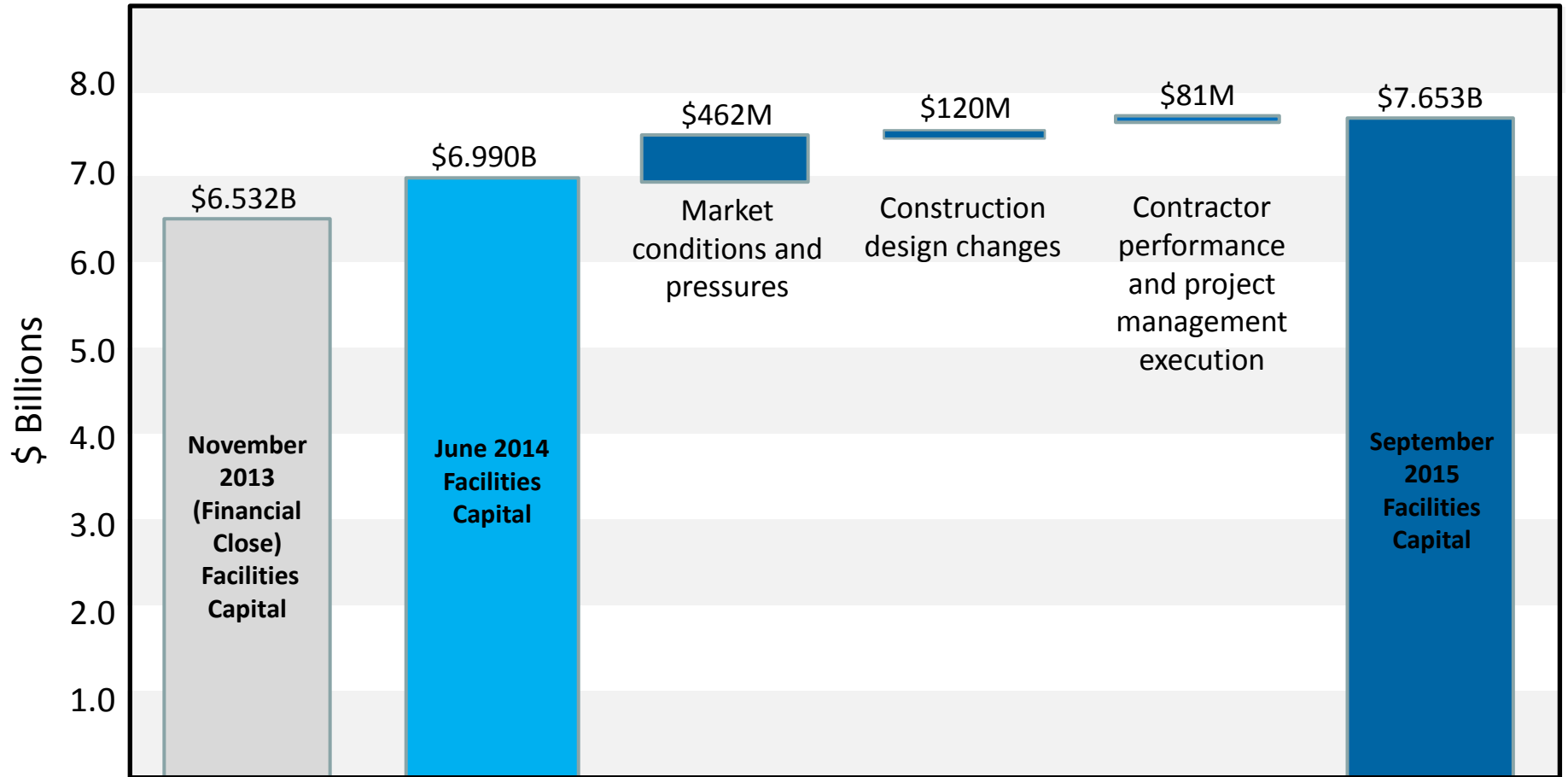
- Construction capital costs have increased by 9.5% since June 2014
- Increase primarily related to execution of work in NL:
 - Market pressures
 - Enhancements during construction
 - Contractor performance and additional project management execution

Changes from Financial Close to June 2014 / Sept 2015

(\$ Millions)

Project Component	Financial Close	June 2014 Cost Estimate	Sept 2015 Cost Estimate
Muskrat Falls Generating Facility	\$3,265	\$3,372	\$3,686
Labrador Transmission Assets	\$720	\$832	\$878
Labrador-Island Transmission Link	\$2,546	\$2,786	\$3,089
TOTAL	\$6,532	\$6,990	\$7,653

Facilities Capital Cost Growth Drivers



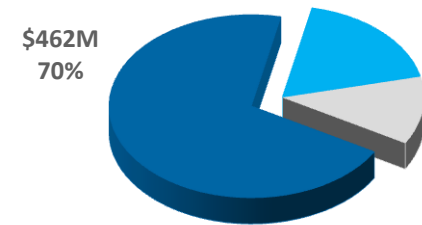
Distribution of Capital Cost Increase from June 2014

(\$ Millions)

Project Component	MF	LTA	LIL	Total
Market Conditions & Pressures	\$254	\$(2)	\$210	\$462
Construction Design Changes	\$9	\$18	\$93	\$120
Contractor Performance & Project Management Execution	\$51	\$30	\$ -	\$81
TOTAL	\$314	\$46	\$303	\$663

Market Conditions & Pressures

- Extremely active construction industry, highly competitive labour market. LCP is not unique – we are facing labour and productivity challenges
- Contractors are adding labour risk premiums into their bids – this is driving up costs
- Cost pressures reflected in latest contracts: North Spur, North and South Dams, Mechanical and Electrical (M&E) Auxiliaries, some transmission line work
- Market pressures increasing capital costs, pricing, contracts for the project
- Decreasing value of Canadian dollar, foreign exchange rates
 - We have avoided the majority of this but still have an impact



Muskrat Falls - \$254M

- North Spur \$55M
- North & South Dams \$112M
- M&E Aux \$70M
- Contractor Productivity \$64M
- Savings Realized (\$47)

LTA – (\$2M)

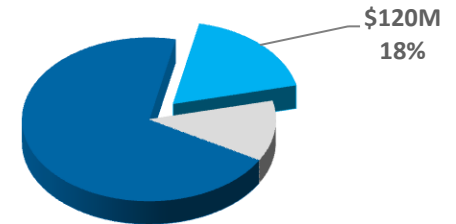
- 735 kV T-line \$2M
- MF & CF Switchyards \$10M
- Savings Realized (\$14M)

LIL - \$210M

- MF Converter \$8M
- Island AC Upgrades \$8M
- DC Line access construction \$24M
- Contractor Productivity \$150M
- Foreign Exchange \$20M

Construction Design Changes

- Design enhanced for some tower anchors, and weight & type of foundations required to suit geotechnical conditions confirmed in field
 - Geotechnical constraints identified after start of construction more than planned in some areas, particularly in the interior of Labrador
- Winter roads added in addition to all season roads to more effectively advance clearing work fronts and installing bridges
 - Severe weather conditions last winter impacting worker productivity, driving up workers/hours
 - Constructing permanent transmission infrastructure in remote, challenging terrain – bridges, roads
- Additional costs upfront, but long-term value and reliability such as long term access for maintenance, & more robust towers adding to long term reliability



Muskrat Falls - \$9M

- Civil (added quantity excavation and concrete) \$6M
- T&G Scope Change \$3M

LTA - \$18M

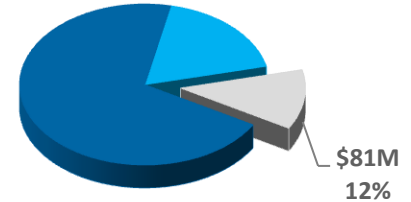
- Switchyard Layout Changes based on final geotechnical investigations \$3M
- AC Line design changes to suit terrain confirmed in the field \$19M
- Savings realized (\$4M)

LIL - \$93M

- Tower & foundation design enhancements for geotechnical conditions confirmed in field \$15M
- Converter layout enhancements for geotechnical conditions \$23M
- Converter filter enhancements \$5M
- Overall long term access reliability improvements due to experience gained during construction \$50M

Contractor Performance & Project Management Execution

- 200+ contracts managed by the LCP project team
- Majority of contracts tracking on schedule, and cost
- More project management required by LCP on some contracts - additional costs but positive outcomes:
 - Concrete placement tripled from 8,000 m³/mo. to 24,000 m³/mo. since May 2015
 - Additional oversight for transmission construction
- LCP hands-on with contractors for productivity, safety, quality, environment, general project management – ultimately benefits outcome



Muskrat Falls - \$51M

- Additional contractor management \$22M
- Labour associated with camp loading \$18M
- North Spur services \$3M
- Disputes – South Side Access Rd. \$2M and Bulk excavation \$3M
- Historic resources work \$3M

LTA - \$30M

- Additional contractor management \$45M
- Savings realized (\$15M)

LIL - nil

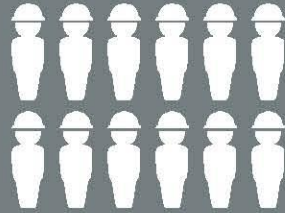
Muskrat Falls – Benefiting NL

- Financial and power independence
- Creating 4000+ jobs for Newfoundlanders and Labradorians
- Replaces 45+ year old oil-burning Holyrood plant with clean, renewable energy
- Savings and value returned to NL of \$60 billion
- Diversification of our economy
- Returning \$9 million per week to local businesses
- Investment in an asset we own for 100+ years
- Establish access to North American markets

Muskrat Falls: Our Project, Our Benefits



> 12M hours
worked since start
of construction



Approximately
5,100 people
working on the
project at peak

> 537 women
from NL



4,355
NL residents
working on
the project

85%
of project workforce

492 Aboriginal
NL residents



\$900M invested
in NL business
since start of
project construction

\$640M in
estimated wages
to NL residents

** Figures above for July 2015 and project to date*

To secure a strong economic future
for successive generations of
Newfoundlanders and Labradorians