

Aug 2015 Briefing deck by CEO (EJM) VP (GB) to the Premier, Minister of Finance, Julia Mulalley , Charles Bown. Cap cost of \$7.65B(leading to AFE rev 2)

- 1. Discussions with IE/Canada and their financial advisors concluded in a change to how cost overruns were to be recorded in the monthly Construction Reports and the annual cost overrun calculation for Corea. The term “ Ongoing Commercial Negotiations Caveat” was formalized to cover overrun costs not quantified that were subject to commercial negotiations with Contractors. (December MF/LTA Cost overrun Certificate included for reference).**
- 2. Briefing deck Sept 2015 with the full breakdown of cost increases which is understood to have been presented to the CEO and VP as part of the Astaldi meeting call Sept 22 2015, also included is a Cost Growth Explanation.**
- 3. LCP schedule update deck was provided by email to CEO prior to being sent to GNL which identified Muskrat Falls power startup/commissioning and integration April to December 2018**

1. This was a comprehensive 80+ slide deck which spanned the project from inception through to the status as of that date with a Cap cost of \$7.65B. Which is an increase since the June 2014 AFE rev 1 of \$6.99B .

Main drivers were identified for the cost increases were:

- \$462M for Market Conditions and pressures – essentially the contractors were unwilling to take labour risk and were pricing in for expected poor productivity as seen on other projects underway in the province such as Long Harbour and Hebron.
- \$120M for Construction design changes – essentially significant reliability improvements to the transmission lines to accommodate unexpected geotechnical conditions and improved access , bridges, culverts. This need was driven by Dark NL and the Liberty report on reliability.

- \$81M was attributed to Contractor performance and execution- essentially this covered the extra Owners costs to increase the site teams because of poor contractor management and increase oversight
- Additional costs resulting from Astaldi performance and impact on other Contractors was not included and was stated as being under review

Schedule was also highlighted with power from CF seen to be on track for 2017 however the Astaldi delays already experienced would result in First Power from MF being delayed from 2017 with a revised timeframe under review.

Rate mitigation options were also included.

Key risks were identified , with most of the Purchase Orders and Contractors placed the risks shifted from the tactical risks to the strategic risks of

- Labour Productivity
- Key contractor performance
- Claims
- Union unrest
- Aboriginal unrest
- Geotechnical risk
- Commissioning and Startup.

MF/LTA 2015 COST OVERRUNS CERTIFICATEDate: **December 14, 2015****THE TORONTO-DOMINION BANK**

AS COLLATERAL AGENT
66 Wellington Street West
9th Floor
Toronto, Ontario M5K 1A2

Gentlemen:

We refer you to the amended and restated financing agreement dated as of July 16, 2015 entered into among Muskrat Falls Corporation ("**Muskrat**") and Labrador Transmission Corporation ("**Labrador Transco**"), as borrowers, Muskrat Falls/Labrador Transmission Assets Funding Trust (the "**Funding Vehicle**"), as lender, and The Toronto-Dominion Bank, as collateral agent (the "**Collateral Agent**") (said agreement, as same may be amended, supplemented or restated from time to time is hereinafter referred to as the "**Muskrat/LTA Project Finance Agreement**").

We also refer you to the amended and restated master definitions agreement entered into among, *inter alia*, the Collateral Agent, BNY Trust Company of Canada, as issuer trustee of the Funding Vehicle, Computershare Trust Company of Canada, as security trustee, Nalcor Energy, Her Majesty The Queen In Right of the Province of Newfoundland and Labrador, Muskrat, as a credit party, and Labrador Transco, as a credit party (said agreement, as same may be amended, supplemented or restated from time to time is hereinafter referred to as the "**MDA**").

Unless otherwise defined herein or unless there be something in the subject or the context inconsistent therewith, all capitalized terms and expressions used herein shall have the same meaning as that ascribed to them from time to time in the MDA.

This Cost Overruns Certificate is delivered to you pursuant to subsection 10.28.1 of the Muskrat/LTA Project Finance Agreement. Please note that all of the matters being certified below in paragraphs 2 to 4 and 7 to 9 may be impacted depending on how certain commercial negotiations currently being undertaken ultimately conclude (the "**Ongoing Commercial Negotiations Caveat**").

We, the undersigned, Gilbert Bennett and James Meaney, respectively the Vice-President and the General Manager, Finance of Devco, and of Muskrat, in our respective capacity as officers and without personal liability, subject to the Ongoing Commercial Negotiations Caveat, do hereby certify the matters set forth in Section A below, and we, the undersigned, Gilbert Bennett and James Meaney, respectively the Vice-President and the General Manager, Finance of Devco, and of Labrador Transco, in our respective capacity as officers and without personal liability, subject



[Hide Details](#)

Astaldi (resched to Tues, Sept 22 at 9:30 am)

Tue 09/22/2015 9:30 AM - 10:30 AM

Attendance is **required** for Paul Harrington

Chair: **Bev Tucker/NLHydro**

Location: **EJM meeting room**



This entry has an alarm. The alarm will go off 5 minutes before the entry starts.

Required:

Ed Martin/NLHydro@NLHydro, Gilbert Bennett/NLHydro@NLHydro, Jason Kean/NLHydro@NLHydro, Lance Clarke/NLHydro@NLHydro, Paul Harrington/NLHydro@NLHydro

Description

*Postupdate included
in discussion;*

Personal Notes

6/4/2018

Muskrat Falls Project Cost Update

September, 2015

Boundless Energy



Key Messages

- Facilities capital costs are currently projected to grow by an additional 10.7%, (total since sanction including this 10.7% is 23.4%)
 - \$6,990M + \$663M = \$7,653M
 - This current capital cost projection (\$7,653M) includes a contingency allowance representing ~4% of remaining expenditures – or ~\$187M
 - Plan (AFE rev 1 June 2014 of \$6,990M) included a contingency of ~\$225M
 - DG3 (Baseline of \$6,202M) included a contingency of ~\$368M
- Although the following amounts are not a part of “facilities capital”, they are partial offsets to overall value of the project which have occurred since sanction, equating to 13% (nominal) of facilities capital;
 - 8% (nominal) - \$500M nominal lower than budgeted financing costs, and
 - 5% (nominal) - \$300M nominal higher than budgeted revenue from excess electricity sales

LOWER CHURCHILL PROJECT



6/4/2018

Key Messages (cont'd)

- Procurement of material and supplies, and selected NL execution work (such as SOBI drilling) of total facilities capital are overall within 2.5% of budgeted amounts
- Increase of 23.4% in facilities capital since sanction (excluding offsets) are primarily related to execution of work in Newfoundland and Labrador, comprised of 3 main categories;
 - Market conditions and pressures
 - Construction design changes
 - Contractor performance and project management execution

LOWER CHURCHILL PROJECT



Changes from DG3, June 2014 and August 2015

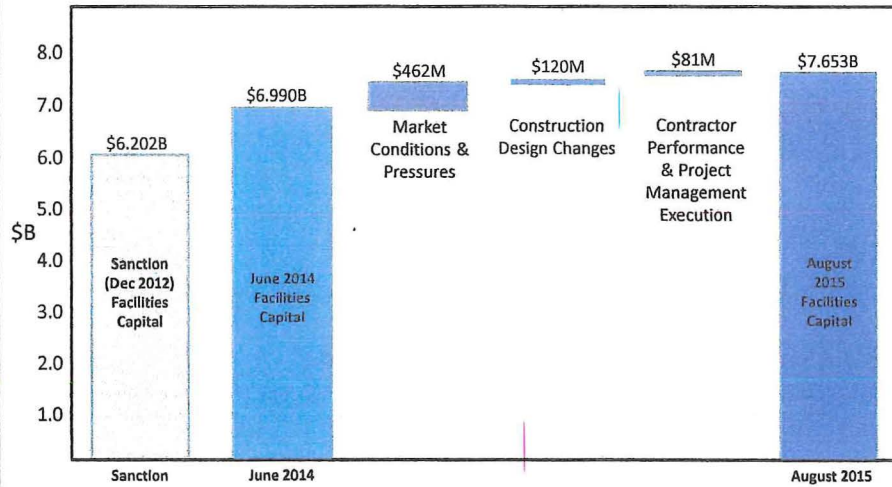
Project Component	DG3 Cost Estimate	June 2014 Cost Estimate	August 2015 Cost Estimate
Muskrat Falls Generating Facility	\$2,901	\$3,372	\$3,686
Labrador Transmission Assets	\$691	\$832	\$878
Labrador-Island Transmission Link	\$2,610	\$2,786	\$3,089
TOTAL	\$6,202	\$6,990	\$7,653

LOWER CHURCHILL PROJECT



6/4/2018

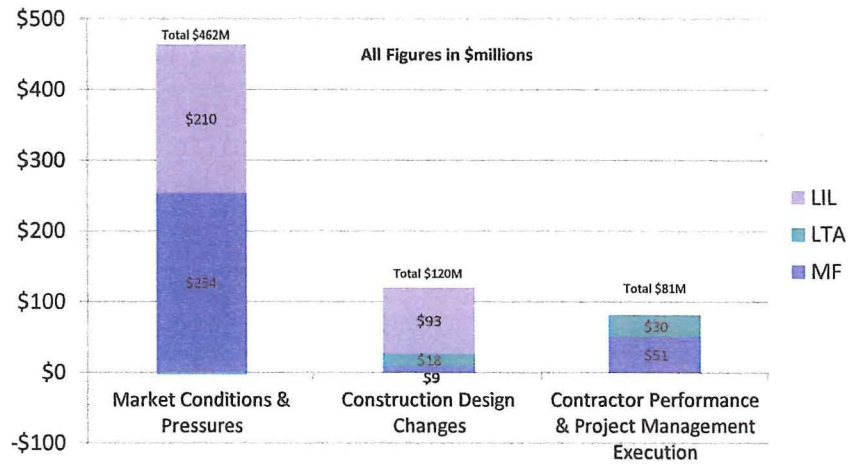
Cost growth contributors since sanction



LOWER CHURCHILL PROJECT



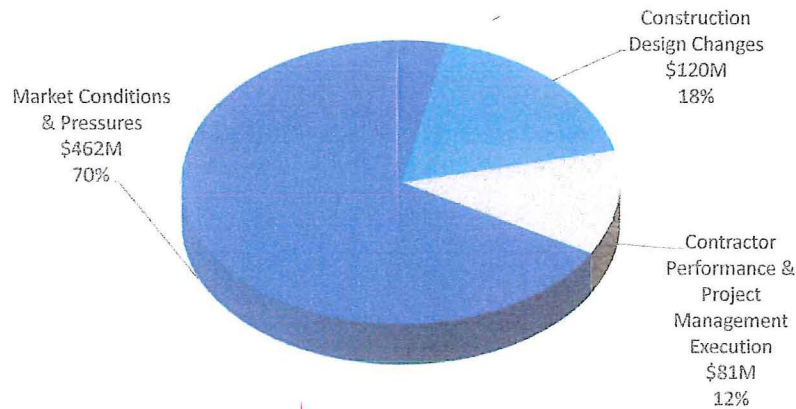
Distribution of Capital Cost Increase



LOWER CHURCHILL PROJECT



Facilities Capital Changes (since June 2014)

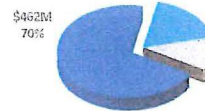


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Market Conditions & Pressures

- 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 Tline \$2M
 - MF & CF Switchards \$10M
 - Savings Realized (\$14M)
- LIL - \$210M**
 - MF Converter \$8M
 - Island AC Upgrades \$8M
 - DC Line access construction \$24
 - Contractor Productivity \$150m
 - Foreign Exchange \$20M

LOWER CHURCHILL PROJECT



6/4/2018

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



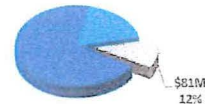
- Muskrat Falls - \$9M**
- Civil (added quantity excavation and concrete) \$6M
 - T&G Scope Change \$3M
- LTA - \$18M**
- Switchyard Layout Changes based on final geotechnical investigations \$3M
 - AC Line design changes to suit terrain confirmed in the field \$19M
 - Savings realized (\$4M)
- LIL - \$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

LOWER CHURCHILL PROJECT



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**

LOWER CHURCHILL PROJECT





Fw: Cost Growth Explanation Doc - Final Version
George Chehab to: Paul Harrington

09/22/2015 02:47 PM

Paul
as requested, please see attached

cheers

George Chehab
LCP Lead Cost Controller
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----- Forwarded by George Chehab/LCP/NLHydro on 09/22/2015 02:47 PM -----

From: James Meaney/NLHydro
To: George Chehab/LCP/NLHydro@NLHYDRO, Jason Kean/NLHydro@NLHydro
Date: 09/03/2015 02:54 PM
Subject: Cost Growth Explanation Doc - Final Version

Here is the "final" version

James Meaney
General Manager Finance
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You owe it to yourself, and your family, to make it home safely every day. What have you done today so that nobody gets hurt?

----- Forwarded by James Meaney/NLHydro on 09/03/2015 02:53 PM -----

From: Janine McCarthy/NLHydro
To: James Meaney/NLHydro@NLHYDRO,
Date: 09/03/2015 02:41 PM
Subject: Document

Hi Jim,
I think this is the version of the document that you were looking for earlier.

Janine



cost growth explanation_Aug 10 2015_Breakdown by components_Final costs buckets.docx

Janine McCarthy

Senior Communications Advisor

PROJECT DELIVERY TEAM

Lower Churchill Project

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You owe it to yourself, and your family, to make it home safely every day. What have you done today so that nobody gets hurt?

Revised Capital Cost – Cost Growth

Project Summary

June 2014:	\$6,990M
Growth since AFE Rev 1:	<u>\$ 663M</u>
Total Facilities Capital Cost Aug 2015:	\$ 7,653M

	MF	LTA	LIL	Total
Market Conditions & Market Pressures	254	(2)	210	462
Reliability Improvements & Design Enhancements	9	18	93	120
Contractor Performance & Project Management Execution	51	30	0	81
Total	314	46	303	663

Changes from DG3, June 2014 and AFE 2

Project Component	DG3 Cost Estimate	June 2014 Cost Estimate	AFE2 (August 2015) Cost Estimate
Muskrat Falls Hydroelectric Generating Facility	\$2,901,158	\$3,371,989	3,686
Labrador Transmission Assets	\$691,582	\$831,945	878
Labrador-Island Transmission Link	\$2,609,749	\$2,786,480	3,089
Total	\$6,202,489	\$6,990,414	\$7,653

1. Market Conditions and Market Pressures:

Increase of \$523M with realized savings of \$61M for total increase of \$462M

1.1 Muskrat Falls Generation – \$254M

i. Contractor Bid/Work Cost Increases:

Similar to other construction projects in NL, across the country and around the world, we are also experiencing changing market conditions in the extremely active construction industry and this is driving the capital costs of the project. We are experiencing a very competitive market and market pressures are increasing the price of the work and the contracts we require for the Muskrat Falls Project.

Background Note: The reason for the increase in the budget is that bidders perceived increased risk due to labour productivity and geotechnical conditions. Bidders foresee difficulty to work with the unions and to be able to manage their labour in a productive manner. As a result they increased their price to protect themselves. In addition to the

Revised Capital Cost – Cost Growth

labour productivity issue, sensitive geotechnical conditions due to the nature of the soil are of a concern especially for the North Spur contract. Bidders must be very careful as to how the work is executed and the bidders were aware of this and three out of five refused to bid; those that did bid accounted for the increased risk in their price.

The contracts expected to show budget shortfall are the following for \$237M:

- North Spur: \$55M
- North and South Dams: \$112M
- Mechanical and Electrical Auxiliaries: \$70M

ii. Contractor Productivity Costs:

The productivity of the main concrete contractor at Muskrat Falls (Astaldi) indicates that it will be difficult to maintain the target price for this contract, hence it is expected that the contract price will increase to reach the LMAX contractual value: \$64M.

iii. Savings Realized:

Reduction of the Contingency due to lower risk on the awarded contracts and decrease in the asset FTC value: (\$47M)

1.2 Labrador Transmission Assets – (\$2M)

i. Contractor Bid/Work Cost Increases:

Background Note: As a reaction to increased risks related to labour productivity in Labrador and concerns related to difficulties to work with the unions, contractors are increasing their manpower loading on site and their prices. There is an expected budget shortfall for the construction of the 735 kV line and the site services of the Alstom team for the construction of the MF & CF Switchyards for \$12M:

- 735 kV line: \$2M
- MF & CF Switchyards site services: \$10M

ii. Savings Realized:

Reduction of the Contingency due to lower risk on the awarded contracts and decrease in the asset FTC value: (\$14M)

1.3 Labrador Island Transmission Link - \$210M

i. Contractor Bid/Work Cost Increases:

As a reaction to increased risks related to labour productivity in Labrador and concerns related to difficulties to work with the unions, Contractors are increasing their

Revised Capital Cost – Cost Growth

manpower loading on site. There is an expected budget shortfall for the site services of the Alstom team for the construction of the MF Converter station: \$8M.

Higher than estimated cost of the construction of the ac line on the Island: \$8M

Increase in Contingency mostly related to the remaining risk on the dc line: \$24M

ii. Contractor Productivity Costs:

The difficult and the unknown topography of the terrain forced to adopt a T&M type of contracts for the clearing and accesses of the dc line, creating substantial risks on the Owner. Severe weather conditions and contractors poor productivity due to unknown geotechnical constraints contributed to cost escalation. In the interior section of Labrador, and to offset schedule delays, Valard access building equipment and crews were required into the work fronts of blocks 4, 5 and 6 to help in the execution of the clearing and accesses scope. Winter roads were also added in addition to all season roads to advance clearing work fronts and installation of bridges. The cost increase is expected to reach: \$150 M.

iii. Foreign Exchange:

Realized Impact of Foreign Currency due to the recent turmoil in the markets, mainly on the Converter and the Synchronous Condenser contracts: \$20M

2. Reliability Improvements & Design Enhancements:

Increase of \$124M with realized savings of \$4M for total increase of \$120M

2.1 Muskrat Falls Generation – \$9M

i. Design Enhancements:

Changes in contracts for additional quantity of materials and scope changes:

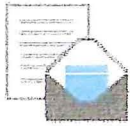
- Civil works: additional concrete (overbreak), site conditions, construction power \$6M
- T&G contract: scope changes above original contract items \$3M

2.2 Labrador Transmission Assets – \$18M

i. Design Enhancements for Geotechnical Conditions:

Due to potential issues relating to the soil (clay, silt soils) in the Muskrat Falls and Churchill Falls switchyard areas, the layout of the switchyards were changed. In addition, grounding quantities were increased after the recent resistivity testing results: \$3M

To adapt to geotechnical conditions of the terrain encountered on the ac line, enhancements were made to the ac line to ensure reliability: \$19M

**Re: Prep Question****Jason Kean** to: Ed Martin

Cc: Gilbert Bennett, Paul Harrington, Lance Clarke

09/27/2015 01:29 PM

Ed,

The \$150 million growth is largely driven by site conditions, including geotechnical and weather being worst than anticipated, as well as the conscious decision to invest in bridge and water crossing that will be available for post construction support. By that I mean, rather than going through the effort to install a bridge that is designed to withstand a 2 year weather event, we have deliberately over designed the bridge abutments and increased the span so as to give us a level of confidence it will be available for the next years.

With respect to on-site geotechnical conditions, by all accounts the soil conditions south of Muskrat Falls for the first 200km of line, as well as the Great Northern Peninsula are marginal for both road building as well as grillage foundation installation. The net result is that we need use more engineering / quarried rock to place beneath foundations, as well as develop rock quarries for use in road development rather than in situ material.

The challenge with quarry development is seeking approvals from the Province for the quarries. Timelines are lengthy for the Island given concerns re loss of caribou habitat, and resource limitations within Natural Resources, thus leading to inefficient construction (i.e. if you don't have an approved quarry, then you have to continue to haul longer distances from a previous quarry, thus reducing production). Gilbert is doing what he can to get NR aligned, but at this point this is a key risk for the line build (and will cost more money).

Regarding the categorization, it is far from black and white. A good portion could be linked to design development since we did not plan to develop access to the level expected, but then again the access is costing more to develop because of on-site conditions and other inefficiencies related to Valard's management of the work (I will leave that item for a separate discussion).

Let me know if you have further questions or whether you need further clarity on the above.

I'm around all day.

JK

Jason R. Kean, P. Eng., MBA, PMP
Deputy General Project Manager - LCP
Lower Churchill Management Corporation

> On Sep 27, 2015, at 1:06 PM, "Ed Martin" <EMartin@nalcorenergy.com> wrote:

>

> I am getting ready for this week's announcement. Couple of questions;

> 1. Regarding the \$150M increase in LIL, my understanding is that this is extra for time and materials in excess of their bid amounts that we took some risk on to ensure their bid was not overloaded with contingency. I also understand that the time and materials is driven mainly by winter conditions and access being more difficult, and motto geotechnical issues. Testing to ensure my understanding is correct. Is there any other drivers for the \$150?

> 2. Also, we are categorizing the \$150 as market forces because the market was such that Valard would not take the time and material risk at a reasonable contingency because they were in a tight market and felt they did not have to? I am trying to understand the link to market versus categorizing it as " design adjustment", knowing the distinctions may not be black and white obviously.

> Ed

>

> Sent from my iPhone



Re: as discussed- pls print and hand to him 
Paul Harrington to: Kathy Knight

09/23/2015 02:07 PM

Thanks



Paul Harrington
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Kathy Knight

I have given it to Ed. Kathy

09/23/2015 01:58:27 PM

From: Kathy Knight/NLHydro
To: Paul Harrington/NLHydro@NLHydro
Date: 09/23/2015 01:58 PM
Subject: Re: as discussed- pls print and hand to him

I have given it to Ed.

Kathy



Kathy Knight
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as discussed- pls print and hand to him
Paul Harrington to: Kathy Knight

09/23/2015 01:38 PM

Please find attached a short deck which provides the key schedule dates for LCP . There is a slide which looks at what key events we intend to achieve in 2016, 2017, 2018 and then another slide which provides dates in those years that the events will be achieved. Karen O'Neill has this and is including in the the speaking notes, but I wanted to let you see this first before she sends to GNL. so if you are OK with it please let Karen know. The key point we discussed yesterday is when we can achieve First Powerwhich is shown here as Fall of 2018. By avoiding a nailed down date we can protect our commercial negotiation position with Astaldi whilst being credible to Shareholder and public. You may wish to state that Nalcor is working with all our contractors to mitigate schedule delay .

For your information First Power is when we start to generate power from the first unit when connected to LIL. This is followed by startup and integration testing .

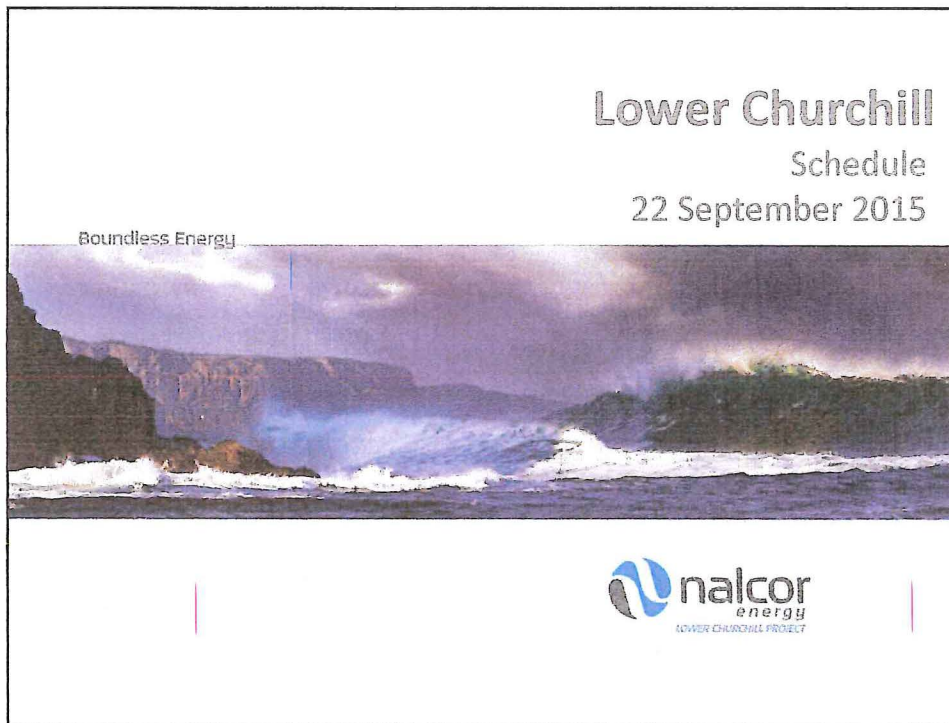
Regards Paul



schedule - key dates- 2015 Rev3.pptx



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LCP Schedule- key dates per year

- 2016- Diversion and SOBI cables
 - River diverted and reservoir impounded to 25m
 - SOBI sub sea cables installed and terminated
- 2017 –First Power from Labrador
 - First Power from Labrador via Muskrat Falls, commence integration testing and reduce Holyrood generation
- 2018 – Start up/Commissioning and Integration from MF
 - Reservoir impounded to 39m
 - Startup/Commissioning, Integration of MF

LCP Schedule- key dates

- 2016- Diversion and SOBI cables
 - River diverted and reservoir impounded to 25m- Nov 2016
 - SOBI sub sea cables installed and terminated- Sept 2016
- 2017 –First Power from Labrador
 - First Power from Labrador via Muskrat Falls, commence integration testing and reduce Holyrood generation – Oct to Dec 2017
- 2018 – Startup/Commissioning /Integration from MF
 - Startup, Commissioning and Integration of MF -April to December 2018
 - First Power Fall 2018 followed by startup and integration tests



Sharing our ideas in an open and supportive manner to achieve excellence.

Teamwork

Open Communication

Fostering an environment where information moves freely in a timely manner.

Honesty and Trust

Being sincere in everything we say and do.

Relentless commitment to protecting ourselves, our colleagues, and our community.

Respect and Dignity

Appreciating the individuality of others by our words and actions.

Safety

Leadership

Empowering individuals to help, guide and inspire others.

Holding ourselves responsible for our actions and performance.

Accountability



Revised Capital Cost – Cost Growth

- Increase in anchors length
- Use of micro piles for some towers
- Additional surveys
- Additional down lead clamps
- Additional quantities of imported backfill
- Relocation of some towers due to the use of GIS in MF and CF SY
- Change in types of foundations to accommodate soil conditions

ii. Realized Savings:

The Gas Insulated Switchgear (GIS) technology was used instead of conventional Air-Insulated Switchgear (AIS) in the design of the AC substations in CF and MF. In proceeding with GIS alternative, the switchgear will be enclosed within its own building resulting in a smaller yard. As a result, there will be a reduction in the civil work requirements: (\$4M)

2.3 Labrador Island Transmission Link - \$93M

i. Design Enhancements for Geotechnical Conditions:

To adapt to geotechnical conditions of the terrain encountered on the dc line, enhancement were made to the dc line to ensure reliability: \$15M

- Increase in anchors length
- Increase in tower weight
- Additional quantities of imported backfill
- Change in types of foundations to accommodate soil conditions

Due to potential issues relating to the soil (clay, silt soils) at Muskrat Falls and size constraints in Soldiers Pond, the layout of the Converter Stations in these areas was changed. In addition to that, grounding quantities were increased after the recent resistivity testing results: \$23M

As a result of the harmonic impedance study results, it was decided that more ac filters were required in the converter filters design: \$5M

ii. Reliability Improvements:

In consideration of the extensive access requirements required for construction, due to a combination of remoteness and the size of the TL towers and hardware, all bridging, culverts and roads be left in place for post operational support, while incremental effort (e.g., abutment height) be made to have a long-term infrastructure for line survey and emergency repair: \$50M

Revised Capital Cost – Cost Growth

3. Contractor Performance and Project Management Execution:***Increase of \$ 96M with realized savings of \$15M for total increase of \$81M*****3.1 Muskrat Falls Generation – \$51M***i. Additional Contractor Management:*

Some contracts have required more direct project management from our team than others and there are additional costs associated with this work.

Increase in our cost due to additional contractor management above and beyond that which was reasonable assumed: \$22M

ii. Additional Labour Related to Contractor Performance (additional services required):

The total anticipated camp loading at MF site is higher than what was estimated, so an increase in the scope of services at MF site is required to accommodate the additional manpower requested by contractors to perform their scope of work: \$18M

Because work on the North Spur is planned to occur seasonally over three years, there are a limited number of options available to contractors to provide the medical and security services themselves. It was therefore decided to expand the contracts of these services in the existing MF site to cover the North Spur: \$3M

iii. Other Cost/Misc:

Increase in disputes final value: \$5M

- South side access road : \$2M
- Bulk excavation: \$3M

Increase in environmental costs due to additional Historic resources: \$3M

3.2 Labrador Transmission Assets – \$30M*i. Additional Contractor Management:*

Increase in our cost due to additional contractor management above and beyond that which was reasonable assumed: \$45M

ii. Savings Realized:

Recoupment of the bond value related to the terminated contract of GWF for the clearing of the AC line: (\$15M)

Fw: Presentation

Gilbert Bennett to: Paul Harrington

08/21/2015 09:19 AM

History: This message has been forwarded.

... here's the deck.

G



Gilbert J. Bennett, P. Eng., FCAE
Vice President
Lower Churchill Management Corporation
a Nalcor Energy company
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----- Forwarded by Gilbert Bennett/NLHydro on 08/21/2015 09:18 AM -----

From: Ed Martin/NLHydro
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Date: 08/18/2015 10:20 AM
Subject: Presentation

FYI

Ed



August 2015 - V3.pptx

Lower Churchill Phase 1

August 2015 Project Update

Boundless Energy



Presented by
ED & GB to
Premier, Min Finance,
J. Mulleady, C Brown,
Week of Aug. 16th 2015



PROJECT BACKGROUND AND RATIONAL

Project Background and Rational

- NL needs more power overall
- MF/LIL determined to be lowest cost option following extensive alternatives review
- Replaces Holyrood Thermal Generating Station > 45 years old
- Investment in an asset we own, returning value and cash flow in excess of \$30 billion to the people of the province
- Paying ourselves, as opposed to paying for oil to outside companies – we are “buying”, not “renting”
- Clean power; power generation in our Province will be 98% GHG free, and avoid emerging future risk of costs of carbon (Obama)
- Significant construction benefits; jobs for NL’s, and economic benefits for NL businesses

Project Background and Rational

- Interest rates locked in at historic lows
- Federal Loan Guarantee acquired in recognition of regional GHG reduction benefits from the project and national significance
 - will save > \$6 Billion over life of project financing, 35 years for MF and 40 years for LIL
- This project is a key investment in a long term revenue generating asset for current and future generations of Newfoundlanders and Labradorians, paid off in total within 35-40 years utilizing mortgage style debt retirement.
- Strategic investment opening up Energy Warehouse and establishing critical transmission access for the Province
- 65-70% of Newfoundlander and Labradorians have consistently supported the Project

PROJECT PROGRESS

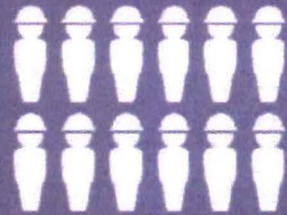
Overall Progress

- Construction underway on all components: generation, transmission and associated infrastructure
- 100 work fronts across province and around globe
- Majority of work fronts progressing as planned
- Work being performed safely, in an environmentally-responsible manner to a high quality
- Tremendous benefits to the province:
 - >3,750 NL residents working on the project, 84% of workforce
 - Approx. \$590 million in estimated wages to NL workers
 - \$870 million to NL businesses

Muskrat Falls: Our Project, Our Benefits



> 13M hours
worked since start
of construction



Approximately
4,400 people
working on the
project at peak

> 502 women
from NL



3,752
NL residents
working on
the project

84%
of project workforce

477 Aboriginal
NL residents

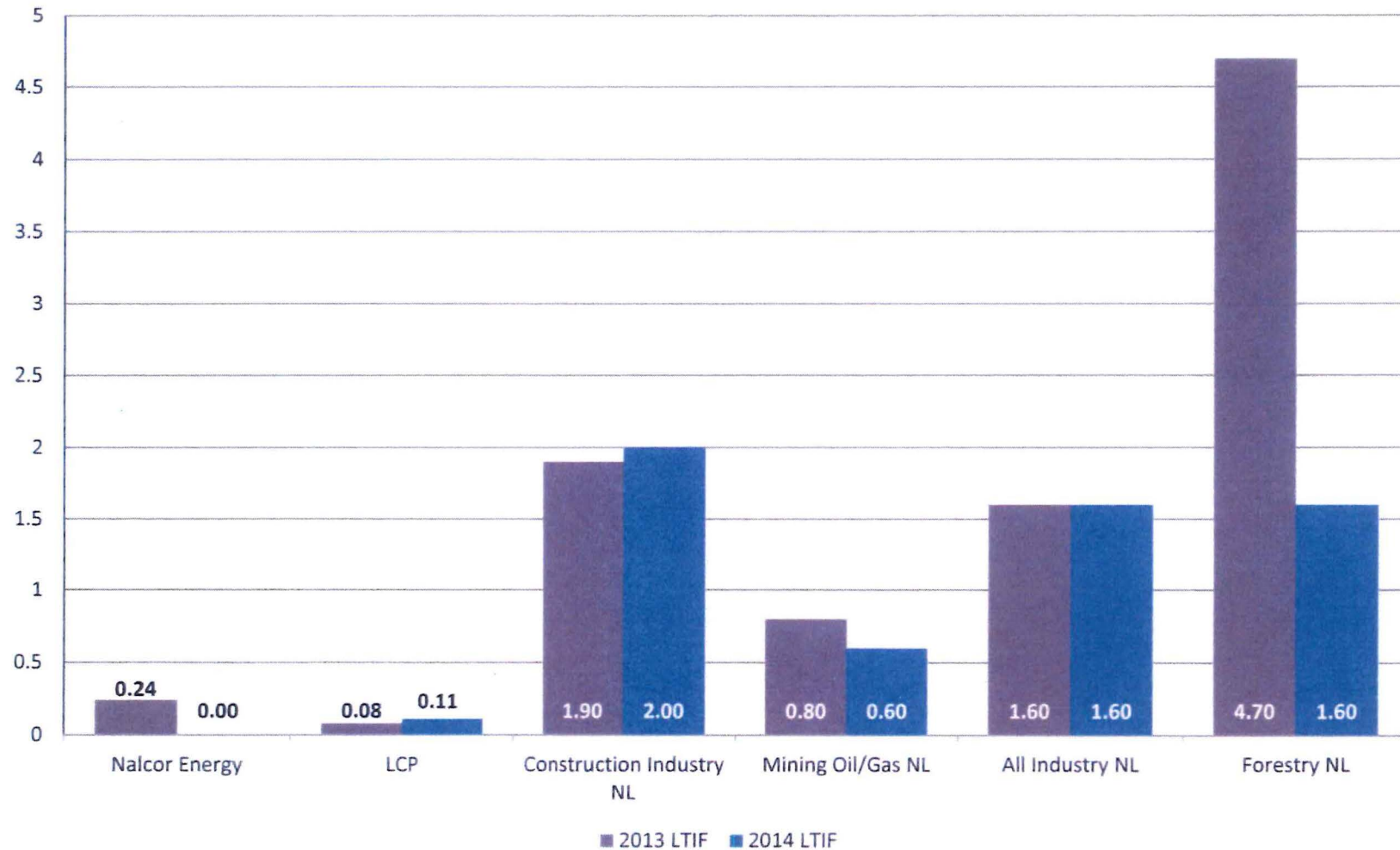


\$870M invested
in NL business since
start of project
construction

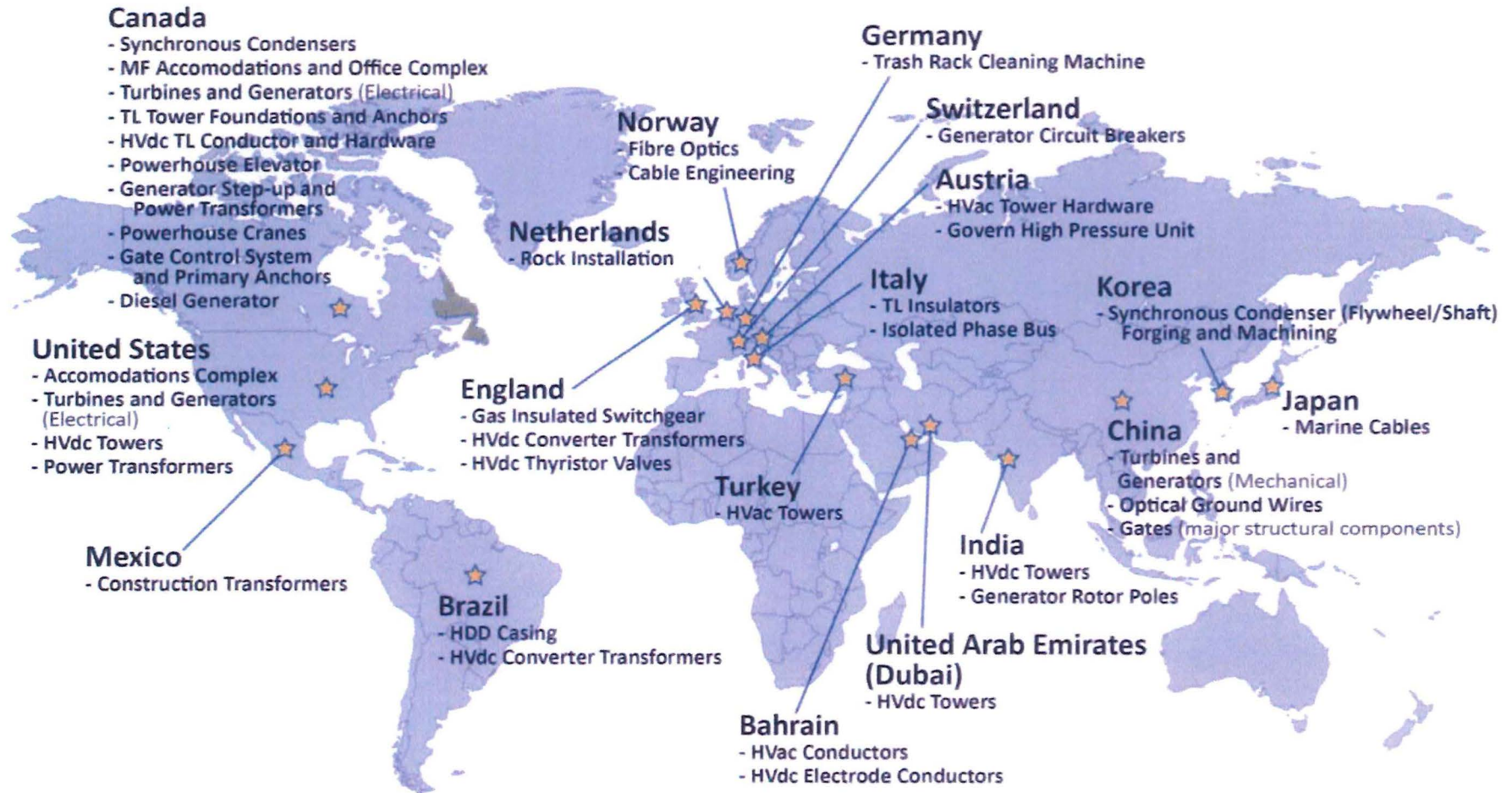
\$590M in
estimated wages
to NL residents

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

LTIF Comparison – Lower Churchill



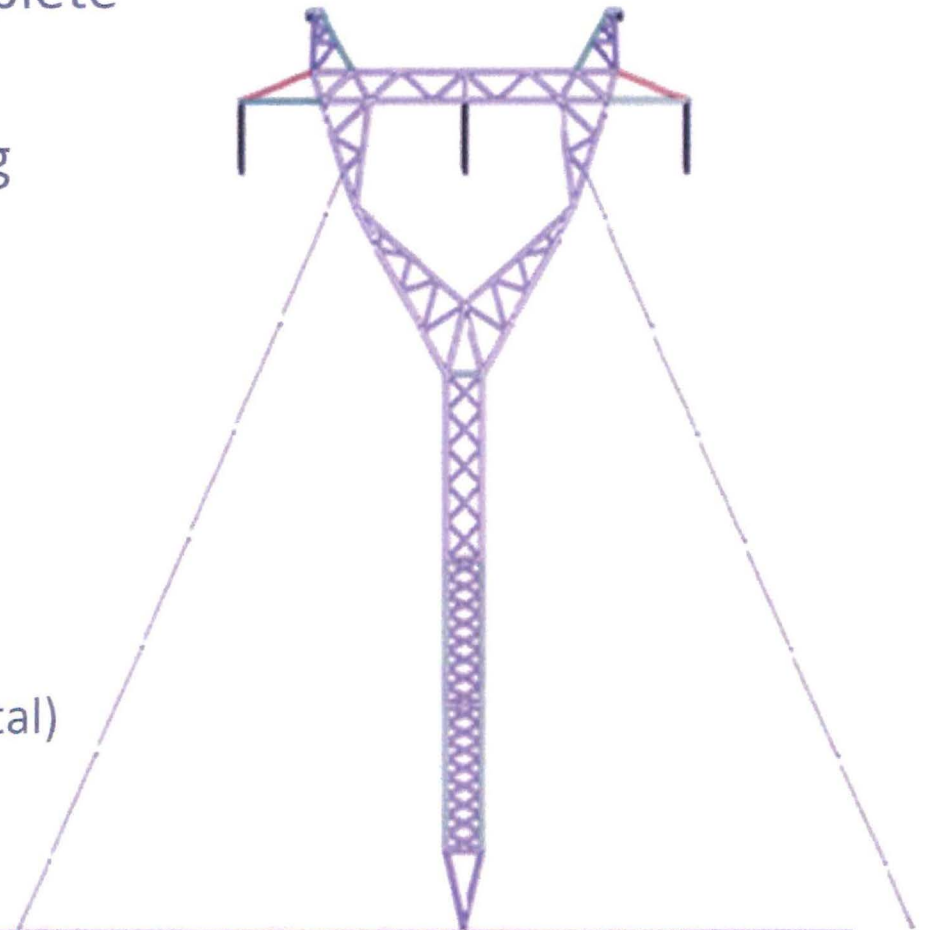
Lower Churchill Project Global Reach



January 2015

AC Transmission: Muskrat to Churchill Falls

- Clearing for right-of-way complete
 - 2,450 hectares
- Towers and foundations being assembled and erected
 - Approx. 54% of towers erected
 - 72% of towers assembled
 - 92% of foundations installed
- Conductor stringing ongoing
 - Approx. 32% complete
 - 78 km completed (of 490 km total)
- Work will be substantially complete in 2015

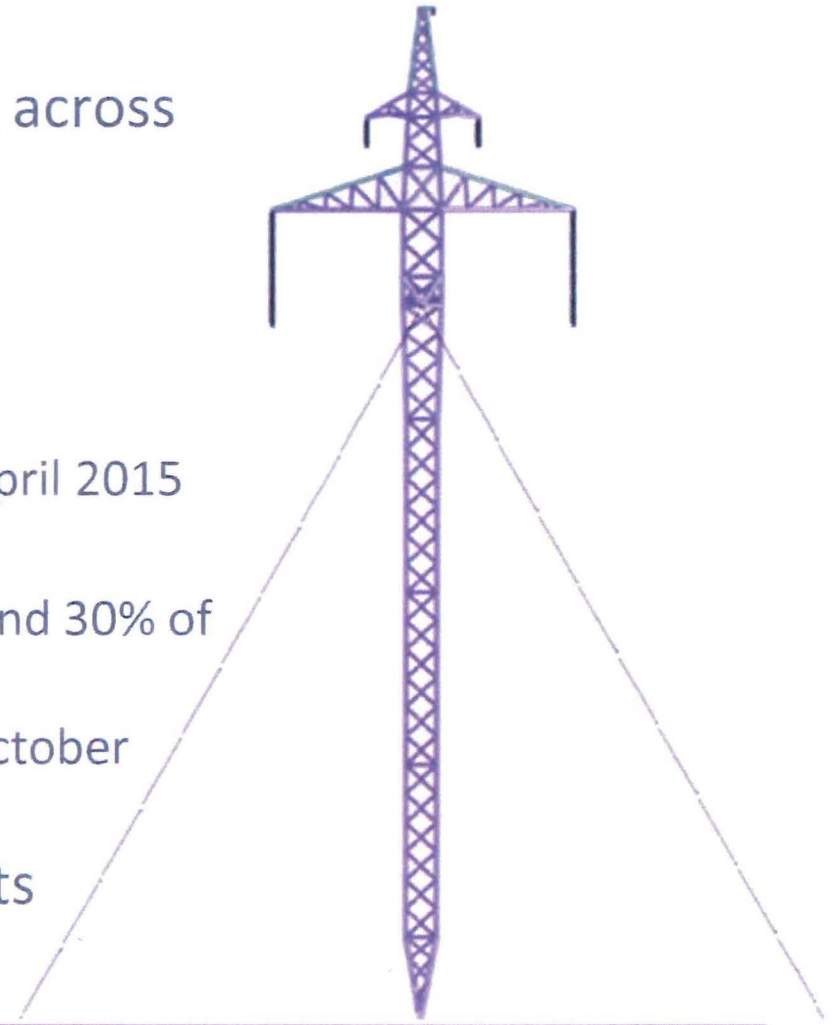






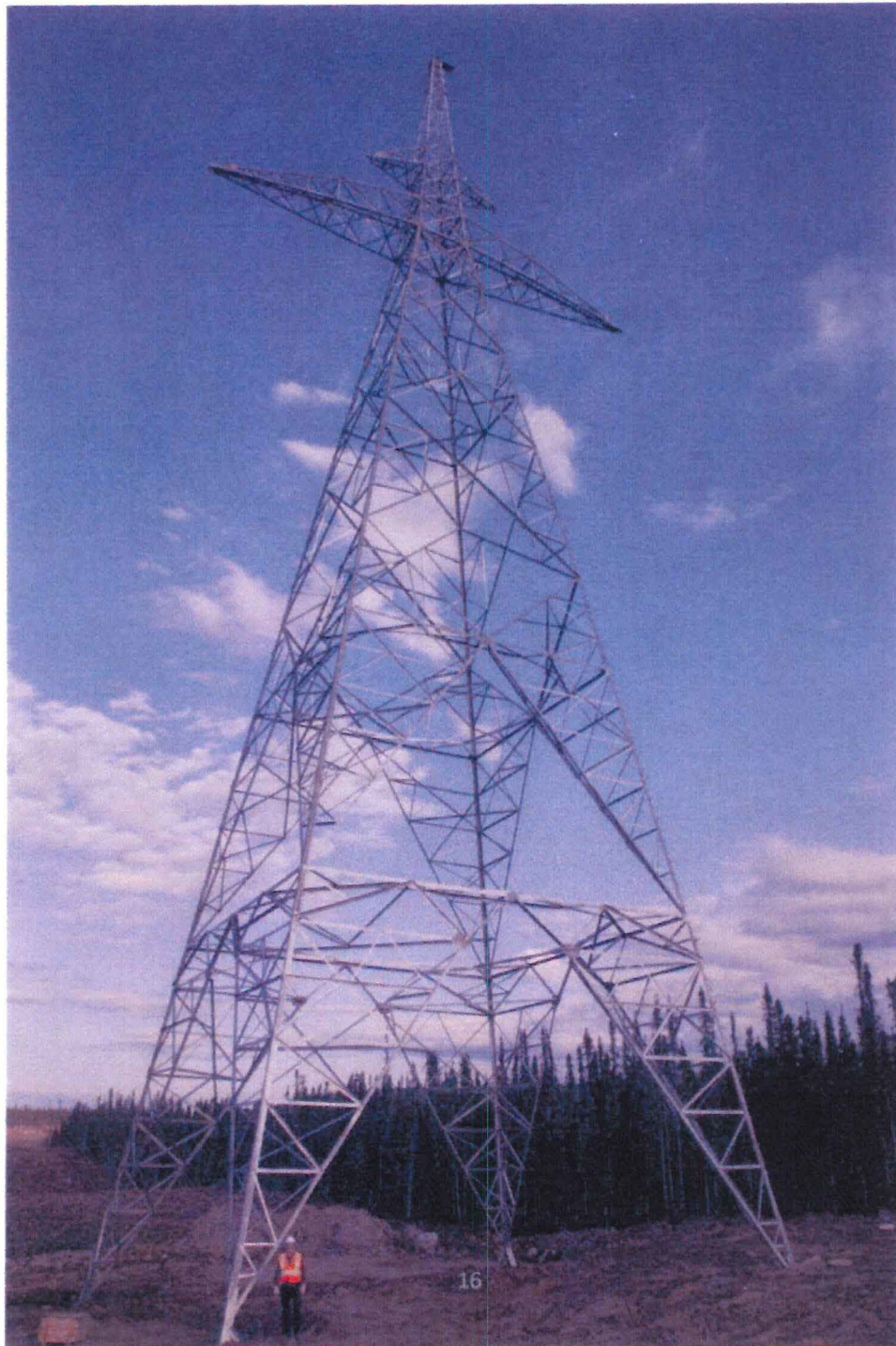
DC Transmission: Labrador-Island Link

- Clearing for right-of-way ongoing across province
 - Approx. 67% cleared in Labrador
 - 32% cleared on the island
- Towers and foundations
 - First tower erected in Labrador in April 2015
 - 79 towers erected in Labrador
 - Approx. 35% of towers assembled and 30% of foundations installed in Labrador
 - Start tower assembly on island in October 2015
- Remaining ROW clearing contracts under evaluation









HVdc Specialties

- Civil construction works underway for Synchronous Condenser facility at Soldiers Pond, HVdc Converter Stations at Soldiers Pond and Muskrat Falls, and ac Substations at Soldiers Pond, Muskrat Falls and Churchill Falls
- Construction of grounding sites at Dowden's Point and L'Anse au Diable well advanced with breakwater construction scheduled for completion in 2015
- Manufacturing of all power transformers (7 units for Churchill Falls, 4 units for Soldiers Pond, and 2 units for Muskrat Falls) complete. All units scheduled for delivery in September/October 2015



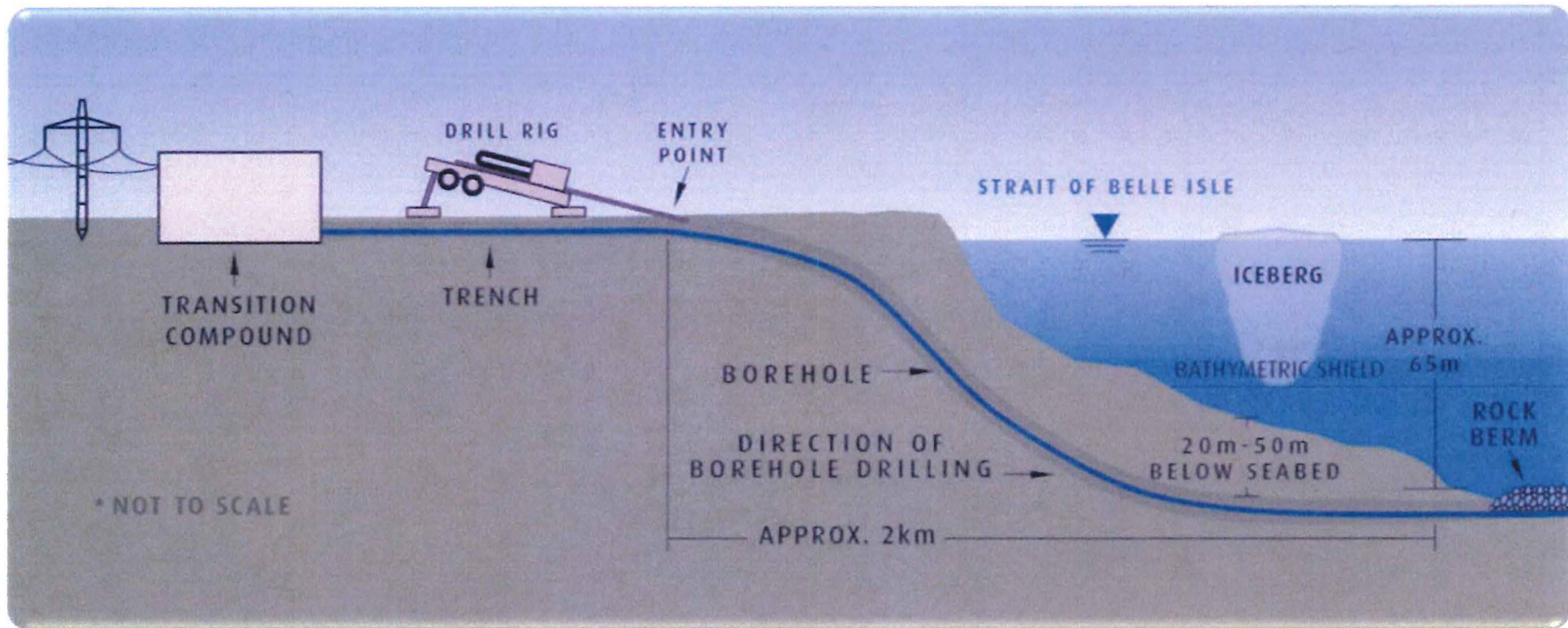


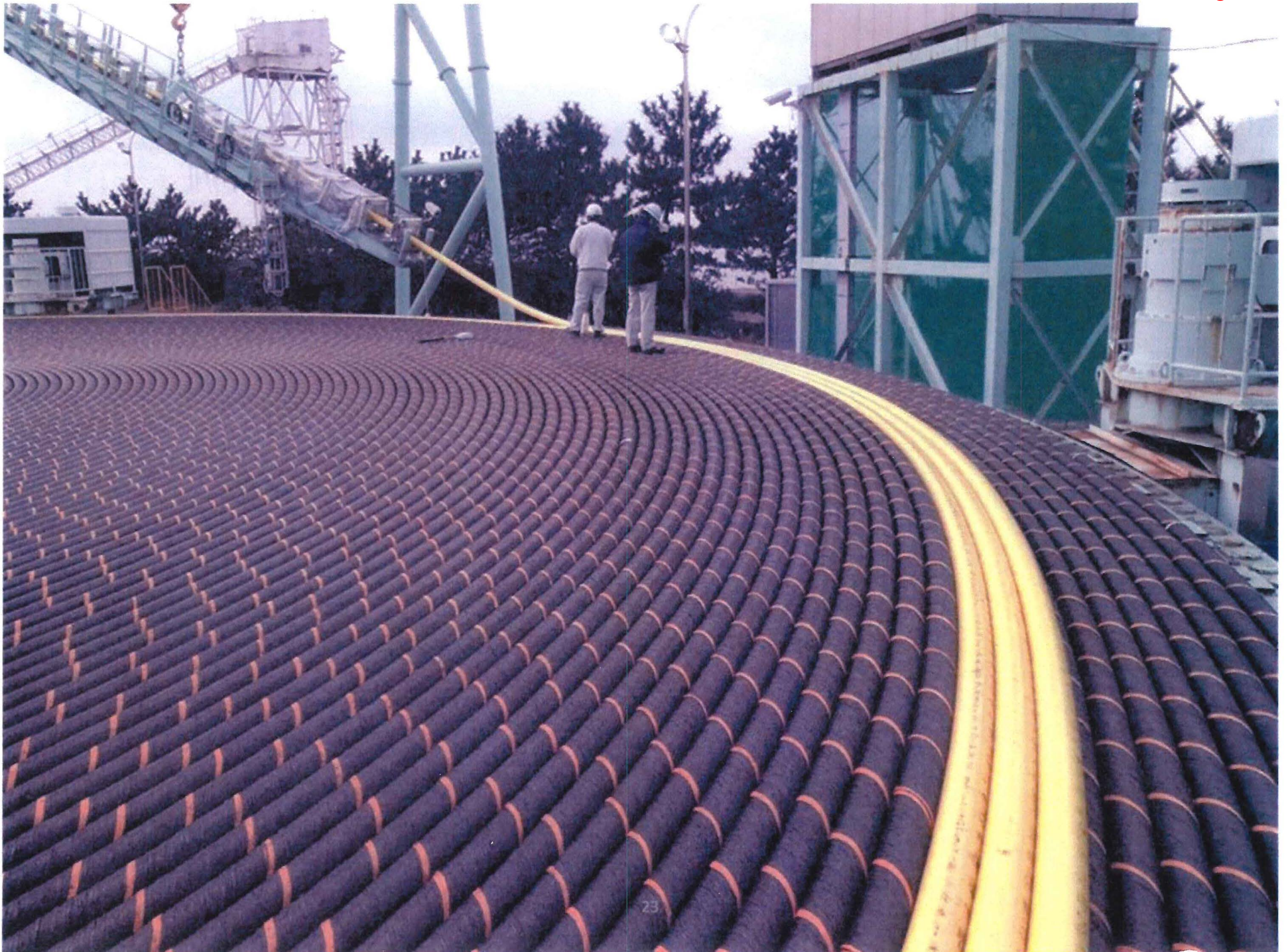


Strait of Belle Isle Marine Cable Crossing

- First land cables will be installed in September
- Marine cable manufacturing underway in Japan; last of three cables expected in September each 30 kms in length
- Successfully completed horizontal directional drilling (HDD) program; longest landfall application in world
- On track for marine cable installation across the Strait next year

Horizontal Directional Drilling





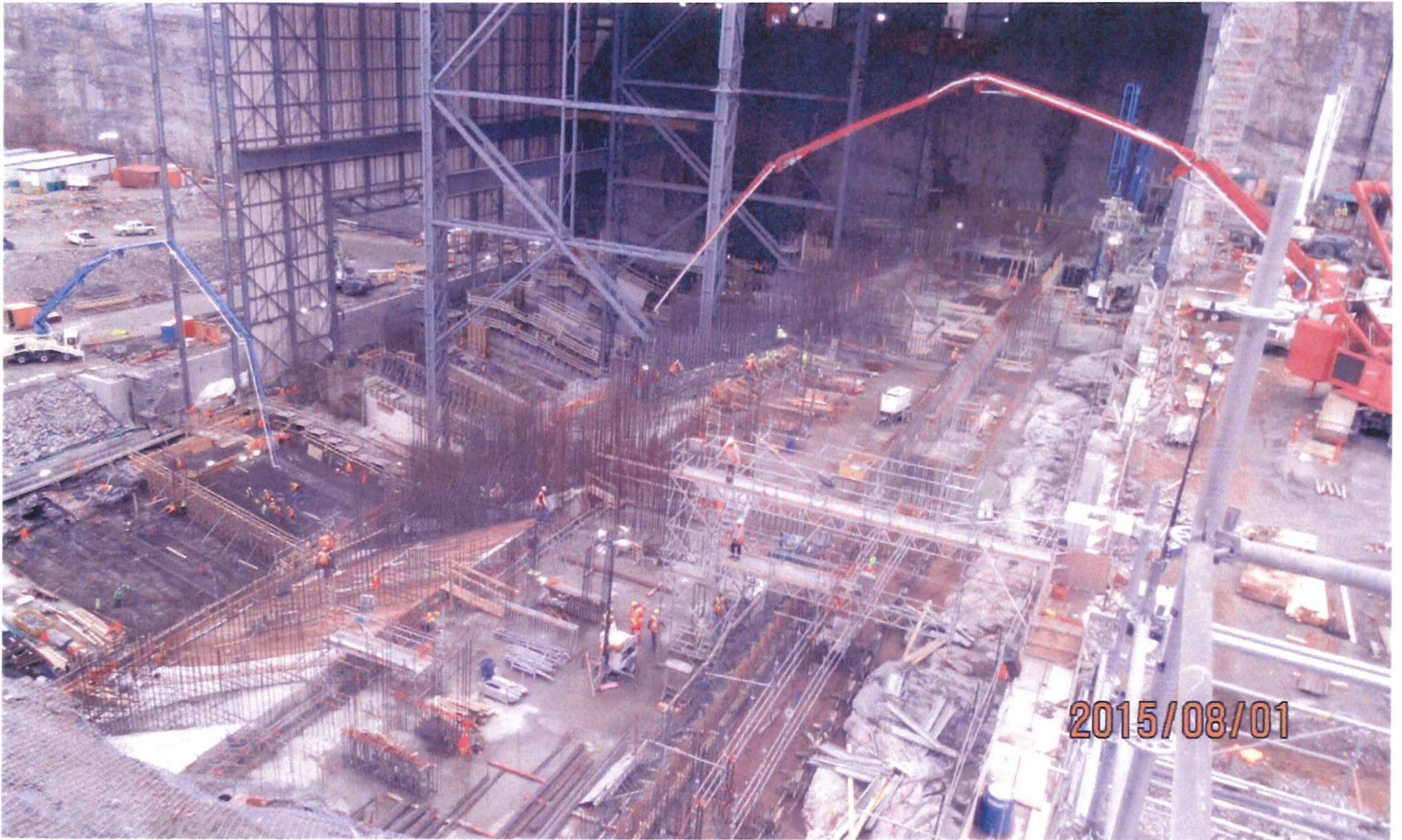
Muskrat Falls Generating Facility

- Stabilization work progressing well at North Spur; geotechnical conditions as expected
 - Concrete for spillway piers and slabs nearing completion, moving toward starting installation of gate guides & gates this fall
 - River diversion thru spillway on track for 2016
 - Concrete placement in powerhouse tripled since May 2015
 - Turbines and generators as well as gates being manufactured in China, equipment being delivered to Muskrat Falls
 - Reservoir clearing advanced ahead of schedule with opportunity for contractor and workers to be utilized on transmission right-of-way
-







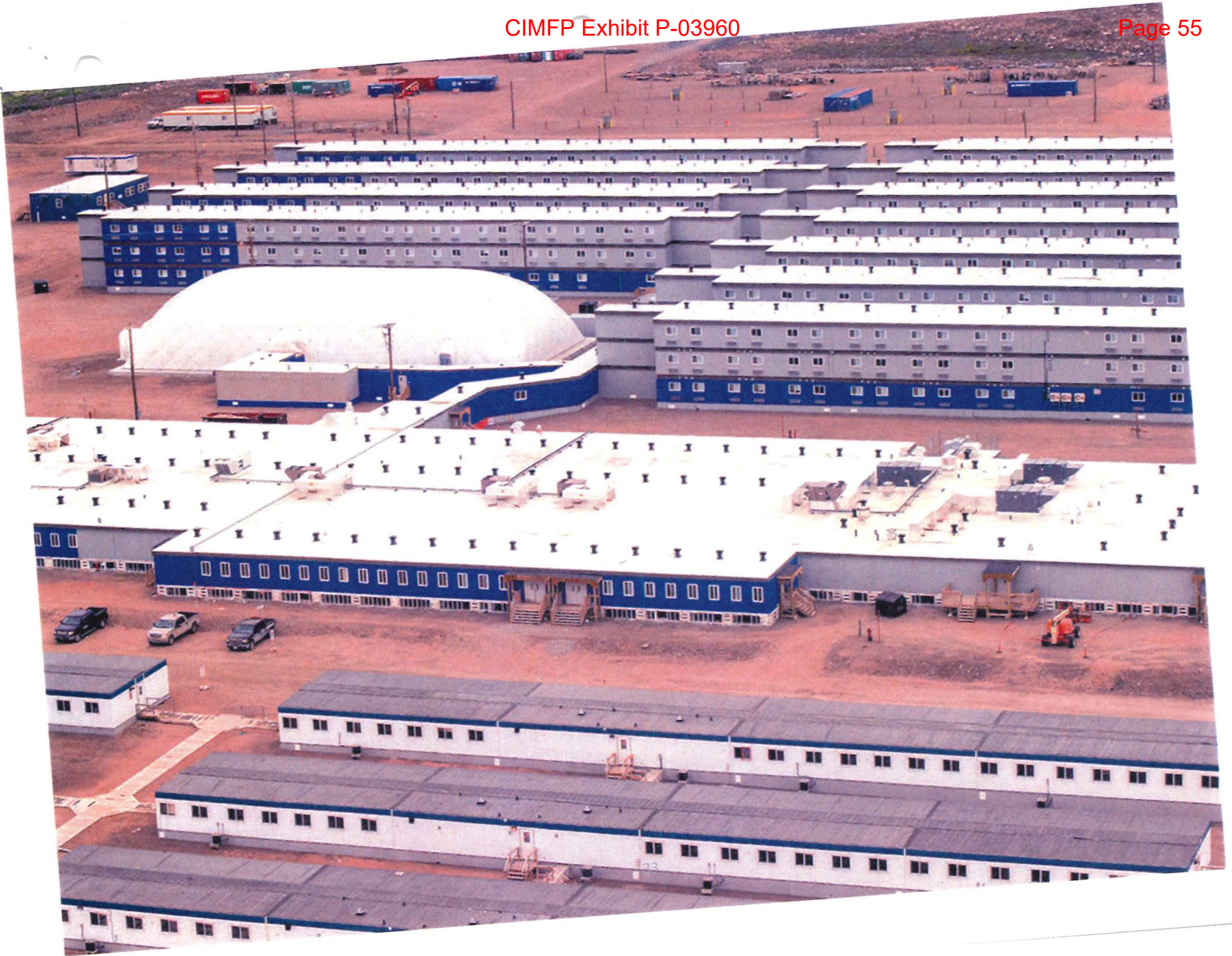












Project Now Progressing On All Fronts

- With recent Astaldi performance improvement, all aspects of the Project are now progressing effectively – LIL, LTA, SOBI, North Spur, North/South Dams, the Powerhouse, Maritime Link, and associated equipment and materials.
- Nalcor leadership has been critical in successfully addressing Astaldi performance issues, and Astaldi now delivering strong performance
- Safety, environmental, and quality performance remain on track, and performance is strong.

Nalcor Actions to Address Astaldi Issues

- Engagement at highest levels of Astaldi and Nalcor continuously over last 12-18 months
- Nalcor support and leadership in implementing performance improving initiatives and organizational improvements
- Nalcor provided key Construction Management personnel to Astaldi
- Nalcor Site Team augmented with senior Project Management personnel to provide on site decision making and support to Astaldi
- Current Status
 - Astaldi concrete production rate vastly improved and Construction management team fully functional.
 - Nalcor continues to provide support, guidance and leadership

COST UPDATE

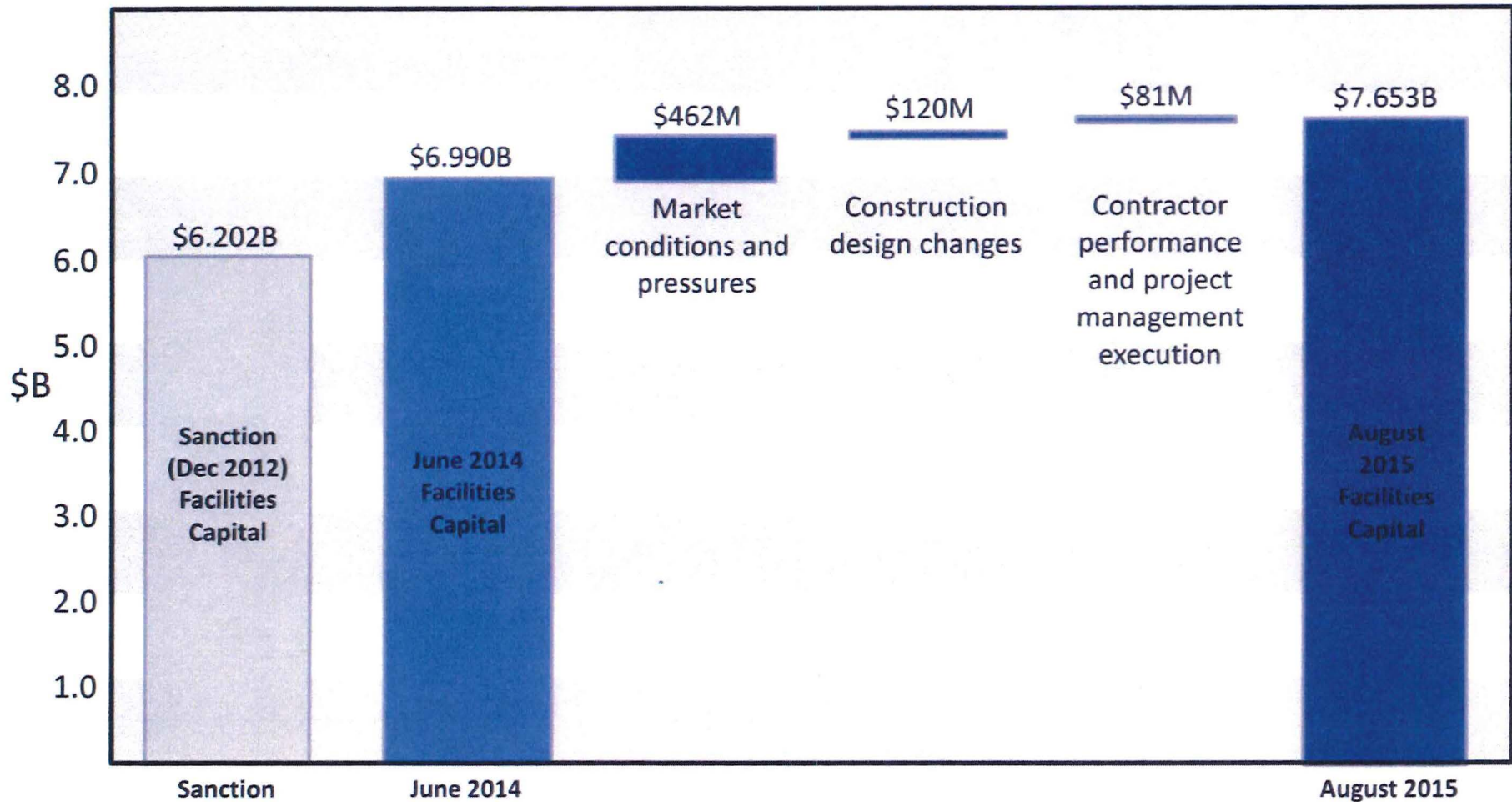
Key Messages (cont'd)

- Facilities capital costs are currently projected to grow by an additional 10.6%, (total since sanction including this 10.6% is 23%)
 - the 10.6% includes a contingency allowance representing 4% of remaining expenditures.
 - $\$6,990\text{M} + \$473\text{M} + \$187\text{M Contingency} = \$7,650\text{M}$
- Although the following amounts are not a part of “facilities capital”, they are partial offsets to overall value of the project which have occurred since sanction, equating to 13% (nominal) of facilities capital;
 - 8% (nominal) - \$500M nominal lower than budgeted financing costs, and
 - 5% (nominal) - \$300M nominal higher than budgeted revenue from excess electricity sales

Key Messages (cont'd)

- Procurement of material and supplies, and selected NL execution work (such as SOBI drilling) comprising >50% (\$3.2B) of total facilities capital are overall within 2.5% of budgeted amounts
- Increase of 23% in facilities capital since sanction (excluding offsets) are primarily related to execution of work in Newfoundland and Labrador, comprised of 3 main categories;
 - Market conditions and pressures
 - Construction design changes
 - Contractor performance and project management execution

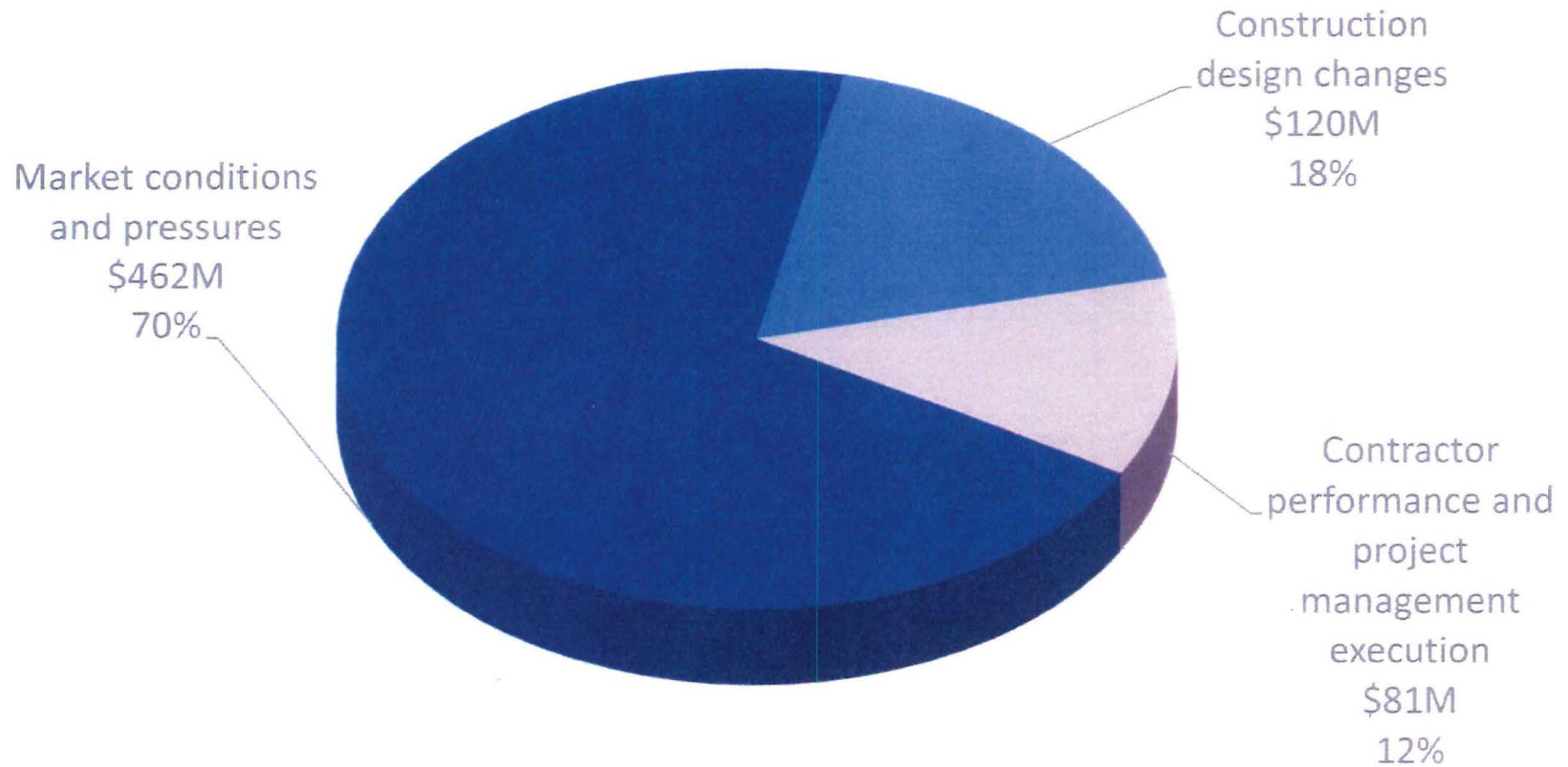
Cost growth contributors since sanction



Changes from DG3, June 2014 and August 2015

Project Component	DG3 Cost Estimate	June 2014 Cost Estimate	August 2015 Cost Estimate
Muskrat Falls Generating Facility	\$2,901	\$3,372	\$3,686
Labrador Transmission Assets	\$691	\$832	\$878
Labrador-Island Transmission Link	\$2,610	\$2,786	\$3,089
TOTAL	\$6,202	\$6,990	\$7,653

Facilities Capital Changes (since June 2014)



Marketplace Conditions

- 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 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

Other Project Experience

In-Province Hebron Topsides (Gross \$MCAD)	Project Sanction Base Estimates (including allowances)	Original AFE Contingency %	Total Sanction Estimate (including contingency and allowances)	Hebron (Exxon) Forecast inc. Contingency Apr-15	Hebron (Exxon) % Over AFE with Contingency Inc.	Nalcor Forecast w/Contingency Jun-15	Nalcor Estimate % Over AFE inc. contingency
DSM	214	15%	245	438	79%	439	79%
Ancillaries	34	25%	43	45	5%	45	5%
LQ EPC / Site Infrastructure	287	10%	316	409	29%	415	31%

Hebron GBS (Gross \$MCAD)	Project Sanction Base Estimate (including allowances)	Original AFE Contingency %	Total Sanction Estimate (including contingency and allowances)	Hebron (Exxon) Forecast inc. Contingency Apr-15	Hebron (Exxon) % Over AFE with Contingency Inc.	Nalcor Forecast w/Contingency Jun-15	Nalcor Estimate % Over AFE inc. contingency
GBS Base Costs	3,195	12.7%	3,603	4,326	20%	4,422	23%

White Rose Wellhead Platform Argentia (Gross \$MCAD)	Project AFE Base Estimate (including allowances)	Original AFE Contingency %	Total Sanction Estimate (including contingency and allowances)	Husky Forecast inc. Contingency May-15	Husky % Over AFE with Contingency Inc.	Nalcor Forecast w/Contingency Jul-15	Nalcor Estimate % Over AFE inc. contingency
Graving Dock Construction	66	7.4%	71	101	42%	101	42%

Korean Topsides (Gross \$MCAD)	Project Sanction Base Estimates (including allowances)	Original AFE Contingency %	Total Sanction Estimate (including contingency and allowances)	Hebron (Exxon) Forecast inc. Contingency Apr-15	Hebron (Exxon) % Over AFE with Contingency Inc.	Nalcor Forecast w/Contingency Jun-15	Nalcor Estimate % Over AFE inc. contingency
UPM (incl bulks)	495	15%	569	683	20%	695	22%
DES	36	15%	41	68	66%	70	71%

Construction Design Changes

- Design enhanced for some tower anchors, weight and type of foundations required for geotechnical conditions
 - Geotechnical constraints identified during 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
 - Very severe weather conditions last winter impacting worker productivity, driving need for more workers/hours
 - Constructing permanent transmission infrastructure in challenging terrain and remote areas – bridges, roads
- Additional costs upfront, but long-term value and reliability such as long term access for maintenance, and more robust towers adding to long term reliability



Construction Productivity & Performance Enhancement Measures

- 200+ contracts managed by the LCP project team
- Majority of contracts tracking on schedule, 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, environment, general project management – ultimately benefits outcome

SCHEDULE UPDATE

Key Messages

- The ability to transfer electricity to the island remains on track for 2017, and Churchill Falls recall power and market purchase of power are available to displace Holyrood in 2017 and beyond.
- LIL, LTA, SOBI, North and South dams, North Spur, transition dams, Spillway and river diversion, and material and equipment deliveries remain on schedule.
- The Powerhouse is behind due to Astaldi slow start, and first power from Muskrat Falls will be delayed from 2017, with the revised timeframe under review.
- Additional costs and potential cost offsets and reductions associated with the powerhouse delay are also under review.

Looking Ahead

- SOBI marine cables installed in 2016
- On track for power from Churchill Falls to the island on new transmission lines in 2017
- First time island connected to North American grid in 2017
- Begin commissioning and startup facilities in 2017
- Conduct start up and performance testing of integrated systems; teams now in place planning to bring units online
- Gradually bring power from Labrador to island customers in 2017 with Muskrat Falls units in 2018
- Maritime Link planned to be ready, working with Emera to integrate into our system

HOW WE MANAGE RATES IS A CRITICAL SUCCESS FACTOR

Rate Mitigation

- *“With much of the country’s electricity infrastructure nearing the end of its life expectancy, investing in grid renewal and modernization today will be essential to ensuring a reliable, cost-effective and sustainable power supply tomorrow. The costs of doing so will be high—at least \$350 billion in capital investments over the next 20 years—but will be necessary to address the deteriorating condition of utility assets.”*
- *“Fortunately, the investments being made by utilities across Canada are providing a much needed short-term boost to the economy through economic stimulus and job creation.”*

Canadian Electricity Association, 2015 Report

ELECTRIC UTILITY INNOVATION - TOWARD VISION 2050

Rate Smoothing in Other Jurisdictions

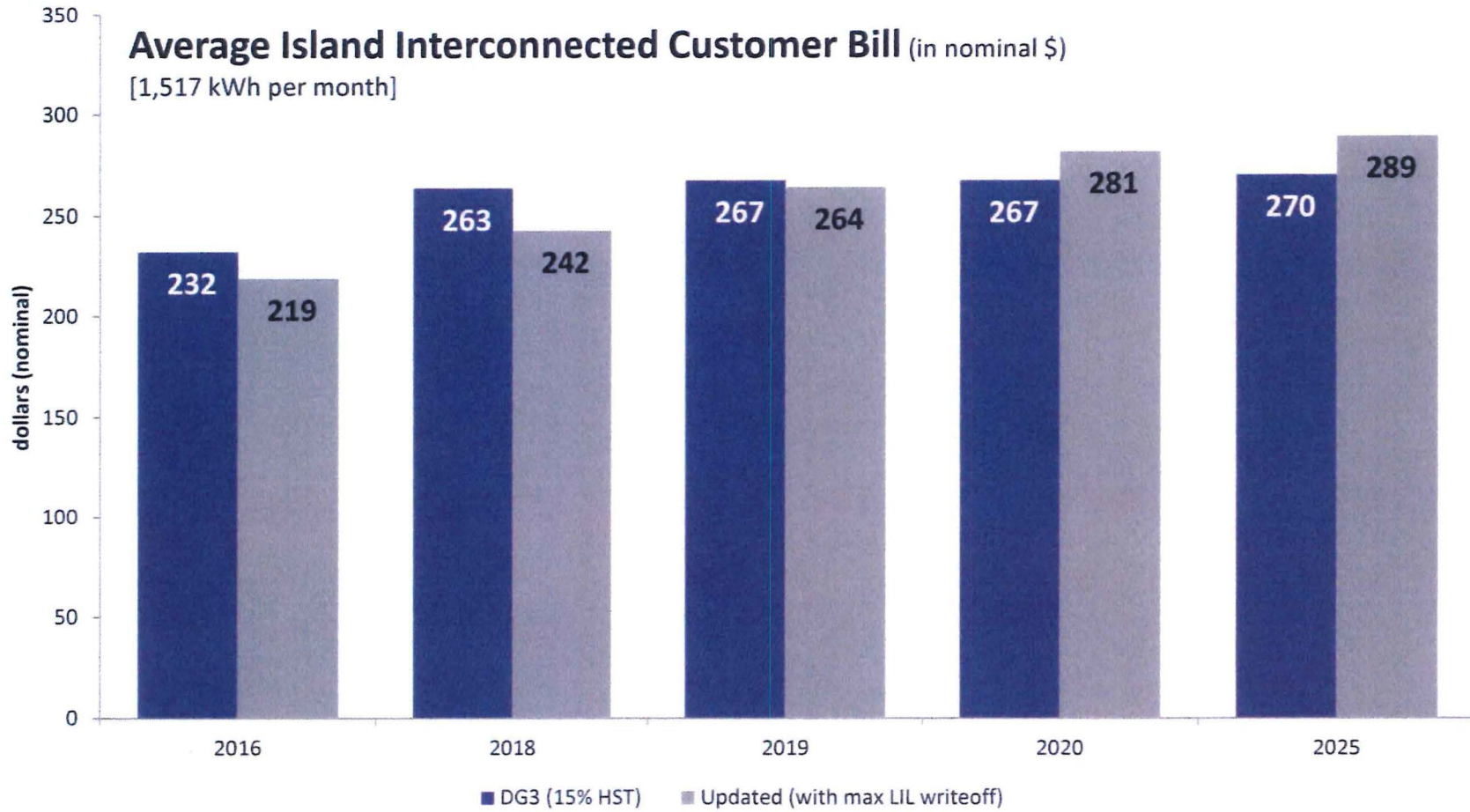
- It is common in some other Canadian and US jurisdictions that specific actions are taken by regulators to smooth the rate impacts from large capital investments
- Manitoba and Ontario are two Canadian jurisdictions where such provisions have been addressed
- Several examples in the United States where relevant legislation was passed in the 2006-8 time frame

Rate Mitigation

- Impact on NL Customer rates can be mitigated by utilizing available funds from
 - \$3B excess electricity value, an amount that was never included in the economics
 - return on MF/LIL/LTA equity cash flow, and
 - other Nalcor cash flow, based on principle of investing an appropriate portion of current non-renewable revenue into renewable infrastructure for future generations
- Approximate total available funds from Nalcor from now until 2042 estimated at \$15 billion, of which assuming \$3-4 Billion equity injection into Nalcor, yields a remaining \$11-\$12 Billion during this time frame
- These amounts do not consider the significant additional, growing revenue post 2042 from MF ROE, Upper Churchill or Oil and Gas

Suggested Rate Mitigation Program

- Goal is to limit customer rates to within 5% or less of an increase (not including HST change made by Government) as compared to DG3 projections up to a point to where the curves intersect.
- One suggested methodology is to assume \$655 million of equity already injected into LIL by the Province is structured as a Contribution In Aid of Construction (CIAC), not requiring a return on equity.
- The net impact would be a small fraction of the available total of \$15 Billion over time.



RISK ASSESSMENT GOING FORWARD

Many Milestones Completed

- Environmental Approvals
- Innu “New Dawn” and the IBA arrangements
- Federal Loan Guarantee in place
- Debt Financing locked in at low rates with \$5B borrowed cash on deposit
- Emera and Nova Scotia arrangements
- Engineering
- Camp and catering in place and operating
- MF site roads, site power and laydown areas
- Bulk excavation of the Powerhouse and Spillway

Many Milestones Completed

- Completion of Spillway civil works this fall, on track for river diversion next year
- Turbines and Generators Unit 1 and 2 on track to ship this fall
- Subsea drilling SOBI complete
- SOBI subsea cables - 2 manufactured, 1 in final stages
- SOBI land cables manufactured and en route to NL
- Tower steel, conductor and hardware
- Significant reservoir and transmission line clearing
- LTA Transmission from MF to CF significant progress, expected completion this year

Many Milestones Completed

- LIL Transmission commenced, expected to be out of Labrador by year end
- Significant progress on North Spur
- Significant site work preparation for transition infrastructure (switchyards, converters, electrodes)
- All major contracts now awarded or bids received

Key Remaining Risks

- With all PO and Contract costs contracted there will be limited further Market Risk
- Risk exposure will be narrower and will shift to execution:
 - Labour Productivity of Time and Material type contracts
 - Key Contractor performance
 - Potential Claims
 - Potential union unrest
 - Aboriginal unrest
 - Geotechnical risk of N Spur and North Dam construction
 - Commissioning and Startup
- There are risk mitigation plans in place and being actioned

Current Project Summary

Transmission ~ 30% \$2.2 B	DC ~ 15% \$1.2 B	Other ~ 15% \$1.2 B	Muskat Falls ~ 40% \$3.0 B
<p>AC Line ~ \$.4 B (MF-CF)</p> <ul style="list-style-type: none"> • Clearing • Tower steel • Hardware • Construction 	<p>Converter ~ \$.5 B</p> <ul style="list-style-type: none"> • Muskrat • Soldiers 	<ul style="list-style-type: none"> • EA • IBA • Engineer • Legal • Owners • Community • Etc. 	<p>Civil ~ \$.8 B (10%)</p> <ul style="list-style-type: none"> • Reservoir • North Spur • Bulk Excavation • Dams
<p>DC Line ~ \$1.4 B (MF-SP)</p> <ul style="list-style-type: none"> • Clearing • Tower steel • Hardware • Construction 	<p>Switch yards ~ \$.4 B</p> <ul style="list-style-type: none"> • Muskrat • Soldiers • Churchill 		<p>Electro Mechanical ~ \$.6B (8%)</p> <ul style="list-style-type: none"> • Turbines & Generators • Gates • BOP
<p>SOBI – Subsea ~ \$.3B</p> <ul style="list-style-type: none"> • Subsea cable • Land drilling • Cable protection 	<p>Synchronous condenser ~ \$.2 B</p> <ul style="list-style-type: none"> • Sync @ Soldiers • Electrodes • Telecoms 		<p>Site Infrastructure & Services ~ \$.5 B (7%)</p> <ul style="list-style-type: none"> • Camp and catering • Roads
			<p>Astaldi</p> <ul style="list-style-type: none"> • Mob, site ~ \$.2 B (3%) • Spillway/transition dams ~ \$.2 B (3%) • Powerhouse– non-labour ~ \$.2 B (3%) <p>Astaldi</p> <ul style="list-style-type: none"> • Powerhouse labour ~ \$.5 B (6+%)

LOOKING AHEAD

Our Project, Our Benefits

- Muskrat Falls remains the best option to meet NL electricity needs
- Hydro developments are long-term investments, risk/capital intensive up front
- 100+ year asset will generate clean, renewable energy – ahead of future carbon capture requirements
- Enhanced reliability and stable rates for electricity customers
- Provide significant value and cash flows to NL – >\$30B in nominal value over life of project
- GHG cost impacts and potential sales value not included in project economics
- Manage our own energy and economic future
- We have the right team to make it happen

BACK UP SLIDES

CONTRACTOR INTERFACE CONSIDERATIONS

Contractor and Commercial Interface

- We have to be extremely sensitive and highly coordinated on publically available information to prevent unnecessary significant value loss
- Contractors will seek any available information and/or inconsistency in messaging to attempt to make a claim case
- All interactions should be through single point of contact within the Project Team

Things That Impact Rates

Add'l Benefits That Do Not Impact Rates

DG3 Rate Projection

Debt Interest \$4.5 – 5B

Return on Equity
\$25 – 30B

Facilities Capital
\$6.2B

Not Currently In Rate Proj.

- + Greater debt financing savings than planned - \$0.5B (\$0.3B NPV)
- + Value of excess sales >\$3B
- + Holyrood displacement value potential re early LIL (TBD)
- + Use of portion of MF/LIL ROE as CIAC
 - + COREA
 - + Other
- + Non-renewable to renewable CIAC (oil dividends)

TOTAL AVAILABLE

> \$15 - 20B

- Facilities Capital cost increases \$6.2 to \$6.99 to \$7.35 + 0.30 Cont = \$7.65
- Potential delay costs

- + Direct and induced business and employment income (>\$5B)
- + Direct and induced provincial treasury benefits (\$2B)
- + Own vs Renting an asset
 - + Pay ourselves to own the asset forever, as opposed to paying outside entities for thermal fuel
- + Reliability Improvements
- + GHG reduction
 - + 98% GHG electricity production in NL
- + Connection to North America for 1st time

Key Messages (cont'd)

- Increase of 23% in facilities capital cost since sanction are comprised of 2 main categories;
 - 12% - increases resulting from considered decisions
 - 5% to enhance the design and long term quality and operating performance of the Project
 - 7% to address productivity and cost containment opportunities during construction
 - 11% - market forces, as well as impact due to severe weather and productivity related to unknown geotechnical conditions on LIL
- Offsets to these increases since sanction equating to 8% (15% nominal) of facilities capital comprised of ;
 - 5% (8% nominal) - lower than budgeted financing costs,
 - 2% (5% nominal) higher than budgeted revenue from excess electricity sales, and
 - 1% (1-2% nominal) - Holyrood displacement potential during construction

Market Forces

- Although Nalcor's budget and expected productivity estimates were solid, and in several cases supported/supplemented by assessments from independent sources, bids on many key contracts for work in NL came in significantly higher than budgeted
- Key reasons for this;
 - Similar experience to other construction jobs in NL, Canada, and internationally, driven by extremely active construction industry which in turn causes prices to increase in a "seller's market"
 - In addition, bidders increased their bids in response to their perception that labor productivity would be impacted by perceived difficulty in working with the unions, apparently basing their perception on activities at other NL projects, Vale, Hebron and Astaldi slow start
 - In context of North Spur, perceived geotechnical risk (more than reasonable allowance driven in no small part by the public discourse/focus re North Spur

Project Background and Rational

- Benefits are inter-generational – 100+ year benefits – benefits future generations
- Clean power; power generation in our Province will be 98% GHG free, and avoid emerging future risk of costs of carbon (Obama)
- Significant construction benefits; jobs for NL's, and economic benefits for NL businesses
- Creates surplus power for NL needs and export – export revenue for people of province
- Both Labrador and the Island are connected 2 ways to North America markets for first time in history
- Significant improvement in system reliability as the island is now connected to neighbors

Project Background and Rational

- 65-70% of Newfoundlander and Labradorians have consistently supported the Project
- This is a legacy Project, internationally recognized and an example of regional leadership and cooperation within Canada, addressing a key national initiative to address climate change across the country, and into our neighbors to the south, the United States, as well as laying the groundwork for future development of Newfoundland's energy warehouse.

Impact of Mitigation

Assuming \$655M portion of the equity the shareholder will have injected into the LIL asset for increased facilities capital is structured to not attract a return of or return on equity, however all remaining equity ("original" and "additional", except for the \$655M) will attract a return of and return on equity, then the following is the outcome:

- a) Even after excluding the \$655M, the Province will receive more dividends overall than shown in the recent budget documents - due to higher equity being injected for increased facilities costs being recovered and earning ROE

Impact of Mitigation

- b) The additional higher dividends above help cover the \$655M reduction in recovered facilities capital costs so that the net dividends to the Province will be cumulatively the same as presented in the recent budget documents

- c) If the government chooses to factor in their cost of financing the \$655M, the net dividends will be reduced approximately by the \$500M-\$1 billion however the impact will look negligible over time in the context of \$15 billion in Nalcor returns

Rate Smoothing in Other Jurisdictions

- It is common in some other Canadian and US jurisdictions that specific actions are taken by regulators to smooth the rate impacts from large capital investments:
 - cost of a major asset is sometimes collected in rates prior to the asset being in service in order to smooth the known upcoming rate increase
 - Smoothing is normally achieved by allowing some of the construction financing costs to flow through to the revenue requirement prior to the in-service of the new facilities
 - Also decoupling rates and costs does occur in other jurisdictions under performance-based rate making, for example, rates can be tied to an escalation factor or number of customers

Manitoba Example

- Manitoba Hydro is spending about \$20 billion over the next decade. The most significant projects include Bipole III, at a cost of \$4.6 billion, the Keeyask generating station at \$6.5 billion, maintenance and upgrading of existing facilities at \$5.9 billion, and energy efficiency programs at \$0.7 billion
- Recently Manitoba's Public Utilities Board approved a rate increase, a portion of which will be held in a deferral account to offset future rate increases from Bipole III, a major transmission project scheduled to come in service in 2018, to account for collection of revenues prior to the project coming in service

Ontario Example

- In a 2010 report on the regulatory treatment of infrastructure investment the OEB states the including Construction Work in Progress (CWIP) in rate base provides two principal benefits:
 - First, it provides a smoothing, or phased-in, effect on rates and thereby mitigates the rate impact that might otherwise take place when large new plant is placed into service
 - Second, it can reduce borrowing costs. Permitting a utility to recover CWIP funding can also reduce a project's total net present value cost
 - The Board will allow utilities to apply to include up to 100 percent of prudently incurred CWIP costs in rate base.
 - This approach allows utilities to recover the interest costs on debt and a return on equity (i.e., the weighted cost of capital) during the construction period.
 - The depreciation or return of the investment will continue to be recovered once the project goes into service.
 - The Board may also consider: a) applying a cap on the CWIP amount allowed or b) allowing the CWIP amount into rate base on a staged basis as construction proceeds.

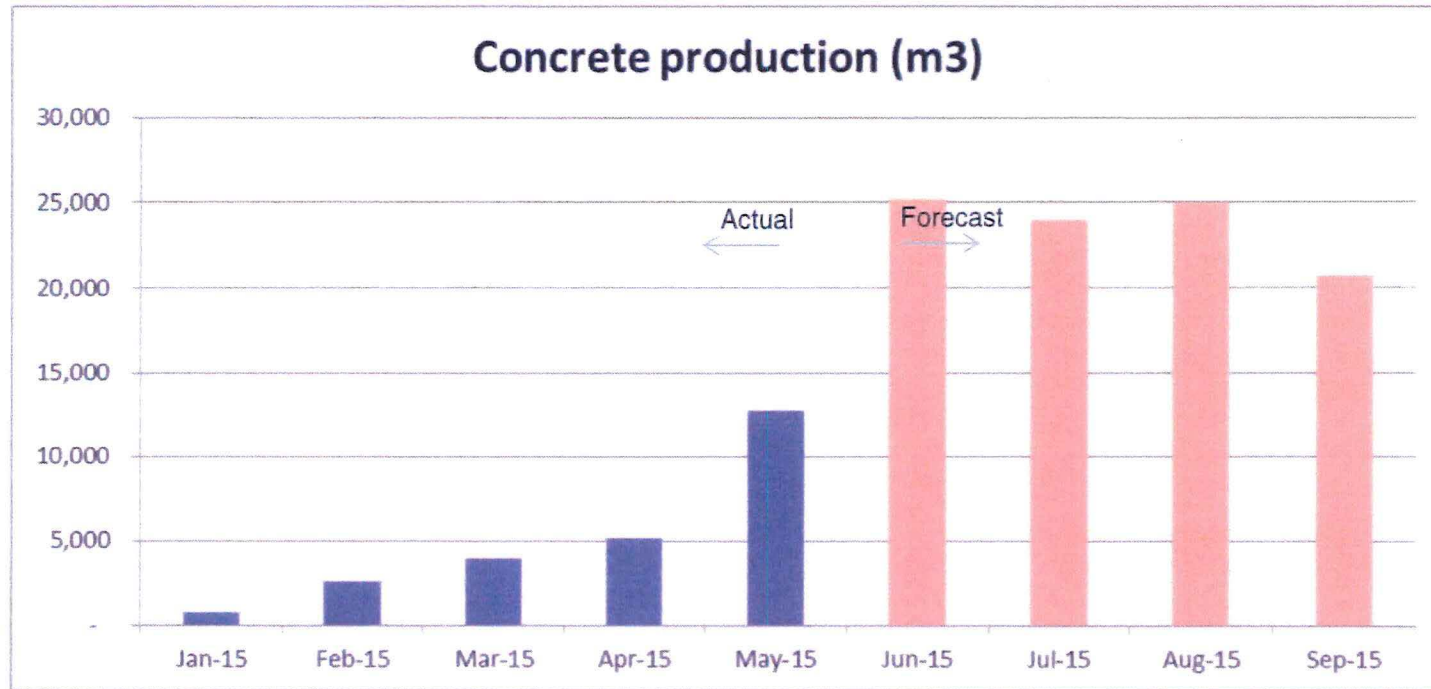
U.S. Jurisdictions Treatment of CWIP

State	Project Specific or Blanket?	Supporting Legislation and Regulations?	CWIP Recovered in Rates	Notes
Florida	Nuclear	Both	CWIP financing costs Pre-construction costs Plant-related transmission	June 2006 and June 2008 legislation, Feb. 2007 regulations
Georgia	Nuclear	Legislation	CWIP financing costs	April 2009 legislation
Kansas	Nuclear	Legislation	CWIP financing costs Pre-construction costs Construction costs	May 2008 legislation
Louisiana	Nuclear	Regulations	CWIP financing costs	Adopted May 2007
Mississippi	Nuclear	Legislation	CWIP financing costs Pre-construction costs	May 2008 legislation
Michigan	Large Capital Investments	Legislation	CWIP financing costs	October 2008 legislation
North Carolina	Coal and Nuclear	Legislation	CWIP financing costs Pre-construction costs	August 2007 legislation
South Carolina	Coal and Nuclear	Legislation	CWIP financing costs	May 2007 legislation
Virginia	Nuclear	Legislation	CWIP financing with ROE	April 2007 legislation





Astaldi Concrete Production



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