

From: Ed Martin <"cn=ed martin/o=nlhydro">
Sent: Wednesday, November 6, 2013 10:22 AM
To: Bev Tucker
Subject: Fw: Deck re Project Costs
Attachments: Project Update to MWH - 6-Nov-2013 - Rev 2a.pptx

Importance: High

Bev,

Please print 4 copies of this and bring it into me asap.

Ed

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Jason Kean

----- Original Message -----

From: Jason Kean
Sent: 11/06/2013 10:11 AM NST
To: Ed Martin
Cc: Brian Crawley; Gilbert Bennett; Lance Clarke; Paul Harrington
Subject: Re: Deck re Project Costs



Project Update to MWH - 6-Nov-2013 - Rev 2a.pptx

Jason R. Kean, P. Eng., MBA, PMP
 Deputy General Project Manager
PROJECT DELIVERY TEAM
 Lower Churchill Project
 t. 709 737-1321 c. 709 727-9129 f. 709 754-0787
 e. JasonKean@lowerchurchillproject.ca
 w. muskratfalls.nalcorenergy.com

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?

Ed Martin---11/06/2013 10:08:19 AM---Jason, Please send me the most current draft for review asap.

From: Ed Martin/NLHydro

To: Jason Kean/NLHydro@NLHydro,

Cc: Brian Crawley/NLHydro@NLHydro, Gilbert Bennett/NLHydro@NLHydro, Lance Clarke/NLHydro@NLHydro, Paul Harrington/NLHydro@NLHydro

Date: 11/06/2013 10:08 AM

Subject: Re: Deck re Project Costs

Jason,

Please send me the most current draft for review asap.

Ed

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Jason Kean---11/06/2013 09:13 AM NST---Done. Jason R. Kean, P. Eng., MBA, PMP

From:	Jason Kean
To:	Ed Martin
Cc:	Brian Crawley; Gilbert Bennett; Lance Clarke; Paul Harrington
Date:	11/06/2013 09:13 AM NST
Subject:	Re: Deck re Project Costs

Done.

Jason R. Kean, P. Eng., MBA, PMP
 Deputy General Project Manager
 PROJECT DELIVERY TEAM
 Lower Churchill Project
 t. 709 737-1321 c. 709 727-9129 f. 709 754-0787
 e. JasonKean@lowerchurchillproject.ca
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Ed Martin---11/06/2013 09:10:43 AM---Jason. 1. Please change Slide 7 title from"Status Update from DG3" to "Key Changes to DG3".

From: Ed Martin/NLHydro
 To: Jason Kean/NLHydro@NLHydro, Brian Crawley/NLHydro@NLHydro,
 Cc: Gilbert Bennett/NLHydro@NLHydro, Lance Clarke/NLHydro@NLHydro, Paul Harrington/NLHydro@NLHydro
 Date: 11/06/2013 09:10 AM
 Subject: Re: Deck re Project Costs

Jason.

1. Please change Slide 7 title from"Status Update from DG3" to "Key Changes to DG3".
2. Also, slide 6, in bracket after ppa revenue, add the words ", a function of revenue requirement).
3. More to come.

Ed

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Jason Kean---11/06/2013 08:10 AM NST---All, Attached is the current deck. I will continue to update and include key photos highlighting wh

From:	Jason Kean
To:	Brian Crawley
Cc:	Ed Martin; Gilbert Bennett; Lance Clarke; Paul Harrington
Date:	11/06/2013 08:10 AM NST
Subject:	Re: Deck re Project Costs

All,

Attached is the current deck. I will continue to update and include key photos highlighting what we have achieved.

JK

[attachment "Project Update to MWH - 6-Nov-2013 - Rev 1.pptx" deleted by Ed Martin/NLHydro]

Jason R. Kean, P. Eng., MBA, PMP

Deputy General Project Manager

PROJECT DELIVERY TEAM

Lower Churchill Project

t. 709 737-1321 c. 709 727-9129 f. 709 754-0787

e. JasonKean@lowerchurchillproject.ca

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Brian Crawley---11/06/2013 07:54:22 AM---What if the title was changed to "managing value" and we added a bullet or two on revenue generation

From: Brian Crawley/NLHydro

To: Jason Kean/NLHydro@NLHydro,

Cc: Ed Martin/NLHydro@NLHydro, Gilbert Bennett/NLHydro@NLHydro, Lance Clarke/NLHydro@NLHydro, Paul Harrington/NLHydro@NLHydro

Date: 11/06/2013 07:54 AM

Subject: Re: Deck re Project Costs

What if the title was changed to "managing value" and we added a bullet or two on revenue generation opportunities or something else to dilute the focus on cost?

Other option - "protecting our investment"?

Jason Kean---11/06/2013 07:36:19 AM---Ed, My rationale for this including this slide is to address the pending question of "what are you d

From: Jason Kean/NLHydro

To: Ed Martin/NLHydro@NLHydro,

Cc: Brian Crawley/NLHydro@NLHydro, Gilbert Bennett/NLHydro@NLHydro, Lance Clarke/NLHydro@NLHydro, Paul Harrington/NLHydro@NLHydro

Date: 11/06/2013 07:36 AM

Subject: Re: Deck re Project Costs

Ed,

My rationale for this including this slide is to address the pending question of "what are you doing to prevent this from growing to \$7B?". I am fully expecting for MWH to point out that our costs have grown by \$600+ million since we have used our contingency (much earlier than we had initially viewed).

Paul and I would prefer to maintain the slide and leverage it to respond to this anticipated question.

JK

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Deputy General Project Manager
PROJECT DELIVERY TEAM
Lower Churchill Project
t. 709 737-1321 c. 709 727-9129 f. 709 754-0787
e. JasonKean@lowerchurchillproject.ca
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Ed Martin---11/05/2013 10:30:22 PM---We should consider removing Slide 14 - too defensive? Just talk too it maybe if questioned? This

From: Ed Martin/NLHydro

To: Jason Kean/NLHydro@NLHydro, Brian Crawley/NLHydro@NLHydro, Gilbert Bennett/NLHydro@NLHydro, Paul Harrington/NLHydro@NLHydro, Lance Clarke/NLHydro@NLHydro,

Date: 11/05/2013 10:30 PM

Subject: Re: Deck re Project Costs

We should consider removing Slide 14 - too defensive? Just talk too it maybe if questioned?

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Ed Martin---11/05/2013 09:50 PM NST---A few quick comments - probably more tomorrow morning; Slide 12 - category 2 - add some more info on

From:	Ed Martin
To:	Jason Kean; Brian Crawley; Gilbert Bennett; Paul Harrington; Lance Clarke
Date:	11/05/2013 09:50 PM NST
Subject:	Re: Deck re Project Costs

A few quick comments - probably more tomorrow morning;

Slide 12 - category 2 - add some more info on things on or better than budget, such as SOBI, site clearing, turbine/gen sets, etc

Slide 14 - change title from "Minimizing Future Cost Growth" to "Ongoing Cost Management" (or any other suggestions?)

Slide 15 - Remove the word risk throughout the slide, including the title.

Ed

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Jason Kean---11/05/2013 09:25 PM NST---All, Attached is the deck inclusive of some slides re the specific growth items.

From:	Jason Kean
To:	Ed Martin; Brian Crawley; Gilbert Bennett; Paul Harrington; Lance Clarke
Cc:	
Date:	11/05/2013 09:25 PM NST
Subject:	Deck re Project Costs

All,

Attached is the deck inclusive of some slides re the specific growth items.

Photos to come in the AM.

JK

[attachment "Project Update to MWH - 6-Nov-2013.ppt.pptx" deleted by Ed Martin/NLHydro]

Jason R. Kean, P. Eng., MBA, PMP

Deputy General Project Manager

PROJECT DELIVERY TEAM

Lower Churchill Project

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Draft – Rev 2

Project Update

6-Nov-2013

Boundless Energy



Confidential and Commercially Sensitive



Agenda

- Safety Moment
- Background Information
- Value Update
 - Cost
 - Revenue
 - Quality
 - Status update from DG3

Take a
MOMENT
for Safety



IF ONLY ALL HAZARDS WERE THIS OBVIOUS

Whether it's skinning wires or opening a new box of office paper, protect your hands by using the right tool in the right way. And always wear protective gloves.

Take a
MOMENT
for Safety



Background Information

- Project Engineering >90% complete
 - Detailed engineering completed by year end
- Procurement
 - ~2/3 of total value awarded/ready to be awarded
 - LNTP issued for both major MF civil works and hydro mechanical equipment
 - Award of AC transmission line construction imminent
- Construction
 - Productivity generally aligned with expectations
 - Bulk excavation critical milestone achieved

CH0006



Bulk Excavation

Contract Award:	09-Nov-2012
Cofferdams Complete:	01-Nov-2013
Spillway Excavation Completed:	02-Sept-2013
Powerhouse Excavation Completed:	25-Oct 2013
Substantial Completion;	31-Dec-2013

Powerhouse Excavation January 2013

CIMFP Exhibit P-02206

Page 14



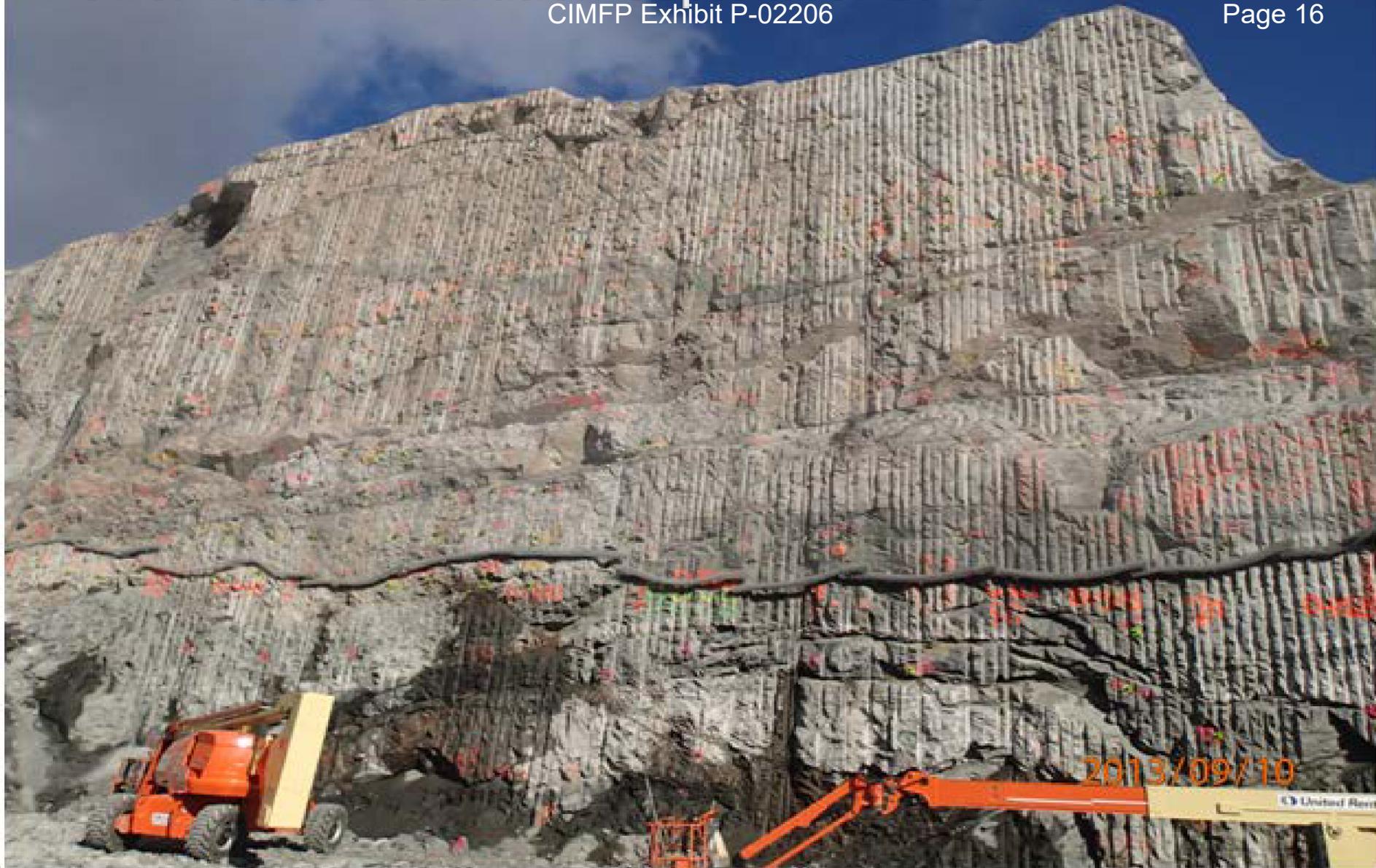
Power house Excavation- General View Looking Downstream



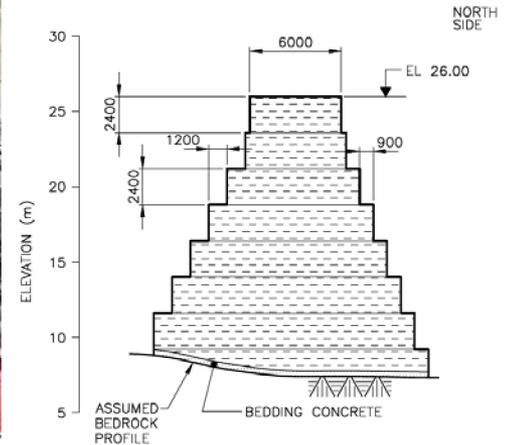
Powerhouse Excavation September 2013

CIMFP Exhibit P-02206

Page 16



CIMFP Exhibit P-02206
RCC COFFERDAM



Critical Milestone Achieved

Riverside RCC Cofferdam Completion 31-Oct-2013



Muskrat Falls – Switchyard & Converter Earthworks (Site Grading)

MF Infrastructure



Churchill Falls - Switchyard Earthworks (Site Clearing)



SOBI Cable Manufacturer

Stranding



Paper Lapping



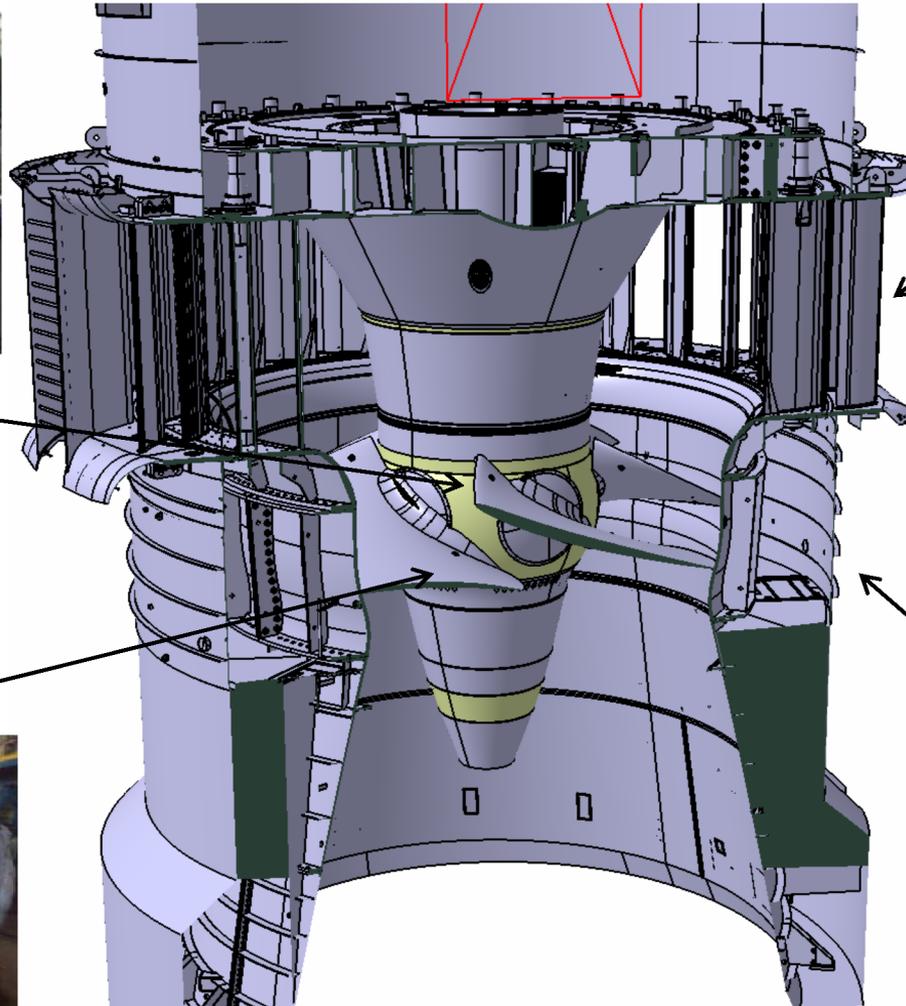
Drying and Impregnation Vessel



Turbine Fabrication



Runner Hub

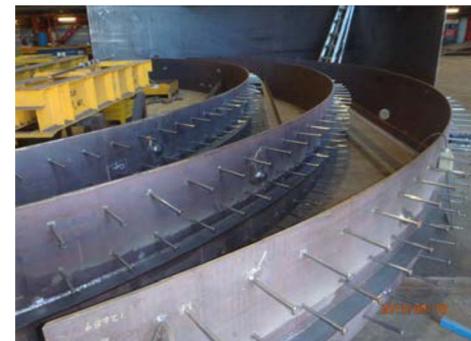


Runner Blades



Stay Ring

Circular Passage Liner



AC Right of Way Clearing



AC TL Towers Arriving in Goose Bay



Background Information

- Safety
 - Relentless commitment to safety
 - Positive safety culture emerging at work sites
 - ~4.0 million person hours worked, 1 LTI
- Quality
 - Positive geotechnical conditions combined with prudent execution resulting in high quality excavated surfaces
 - Design progression has resulting in selective enhancements to improve overall reliability
 - Infrastructure enhancements implemented to drive labour productivity

Background Information

- Labour
 - Collective agreements negotiated and implemented
 - Project workforce = 1,500. No issues with recruitment
- Aboriginal
 - IBA procurement commitments exceeded
 - >100 Innu working on site
 - 20% of Labrador workforce = aboriginal
- NL and Canadian Benefits
 - NL engineering commitments satisfied
 - 76% of project workforce = NL residents
 - 20% NL workforce = female

Components of Project Value

- Overall project value is a function of revenue, cost, quality/reliability, schedule
- Costs are comprised of three main categories:
 - Facilities capital (incl. in CPW analysis)
 - Operating costs (incl. in CPW analysis)
 - Financing costs (incl. in CPW analysis)
- Revenue comprised of:
 - PPA revenue (incl. in CPW analysis, a function of revenue requirement)
 - value from excess power sales and other storage/transmission opportunities (not incl. in CPW analysis)

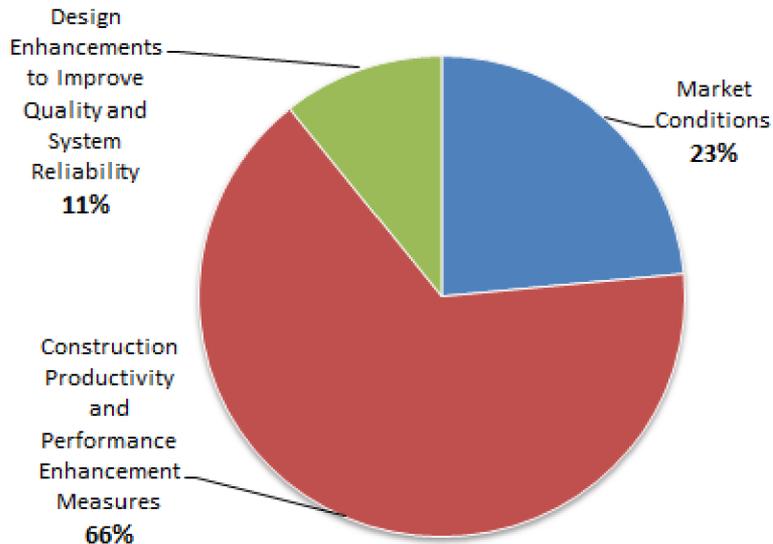
Key Changes from DG3

- Facilities capital cost (+5%) ~ + \$300mm
- Financing costs (NPV) ~ - \$300mm
- Excess sales/other value ~ + \$100mm
- Quality/Reliability
 - enhanced from DG3
- Schedule
 - 2017 power achievable
 - Focus continues on optimization for resource leveling and execution effectiveness

Capital Cost Update

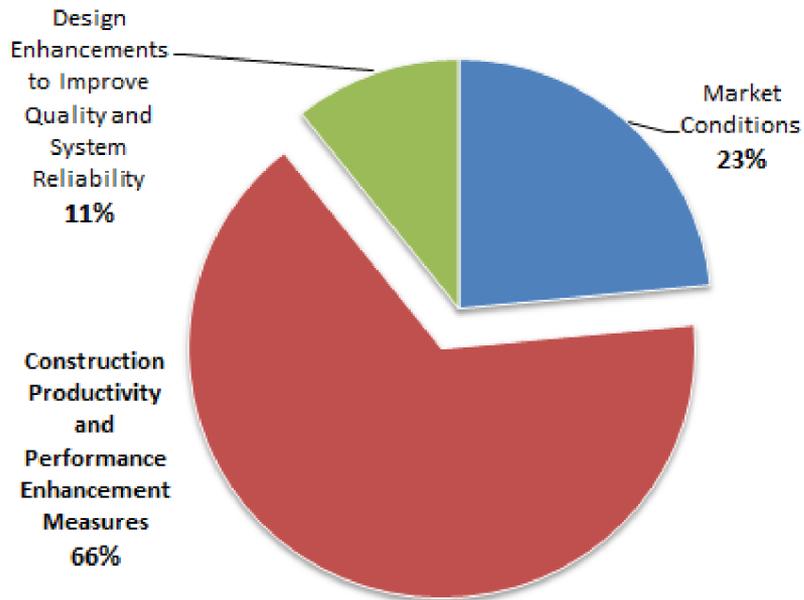


Cost Growth – 3 Categories



- >2/3 of total cost growth used in investments related to Construction Productivity and Performance Enhancement in order to mitigate construction execution challenges
- Significant investment in design enhancements to improve system reliability
- Market Conditions reflective of current buoyant local / national market.

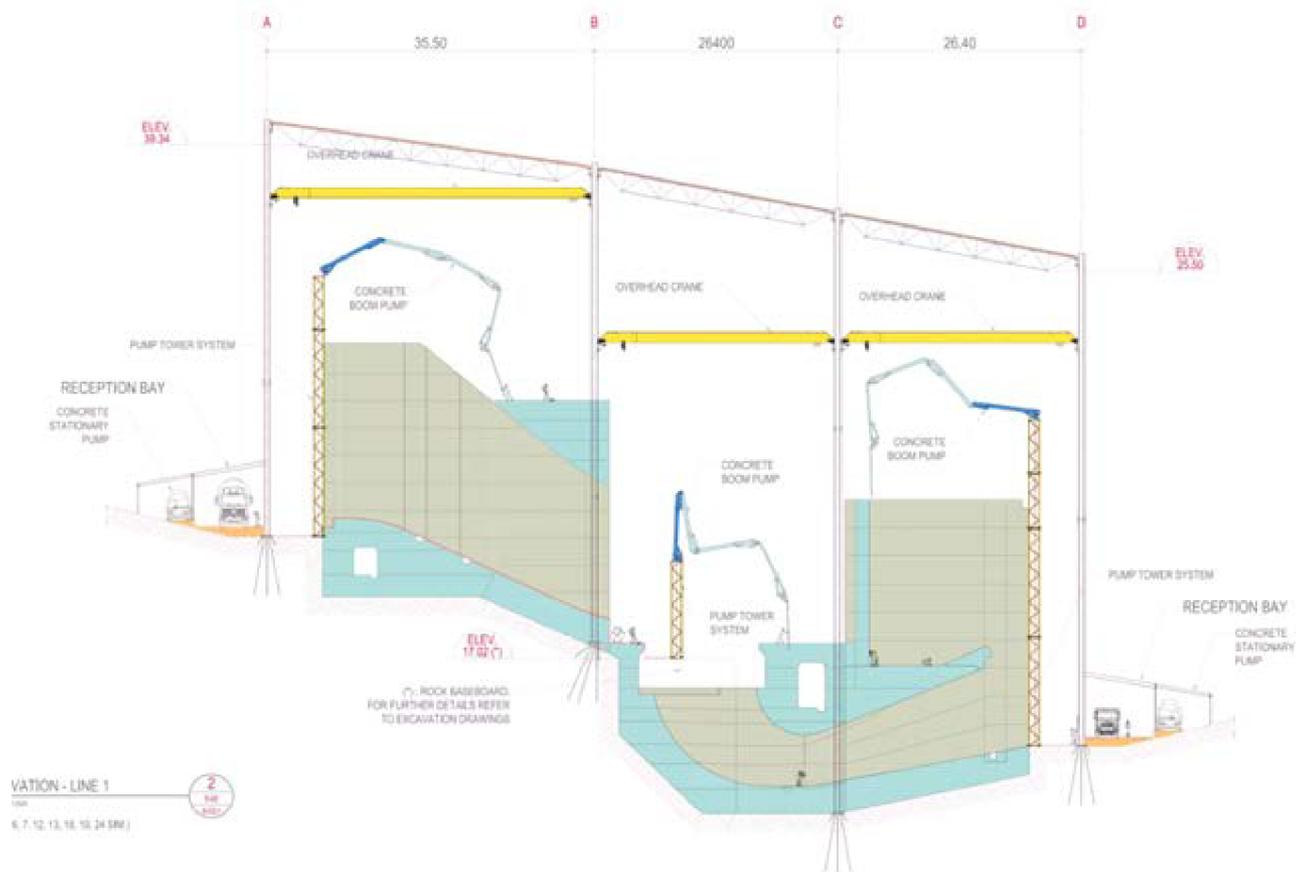
Category 1: Construction Productivity and Performance Enhancement Measures



Strategic Investments Include:

- Enclosure of Powerhouse to provide safer working conditions, increased productivity, longer continued employment opportunities for workforce
- Enhanced camp and recreational complex as well as catering to increase worker attraction and retention
- Starter camp to support Bulk Excavation
- Change diversion window from 2015 to 2016 to reduce weather window risk on spillway construction
- Significant site infrastructure upgrades – e.g. laydown area expansion to increase overall efficiencies and productivities
- Extensive investment in environmental mitigations to reduce risk of construction delays
 - Site Water Controls
 - Historical Resource Recovery
- Catering

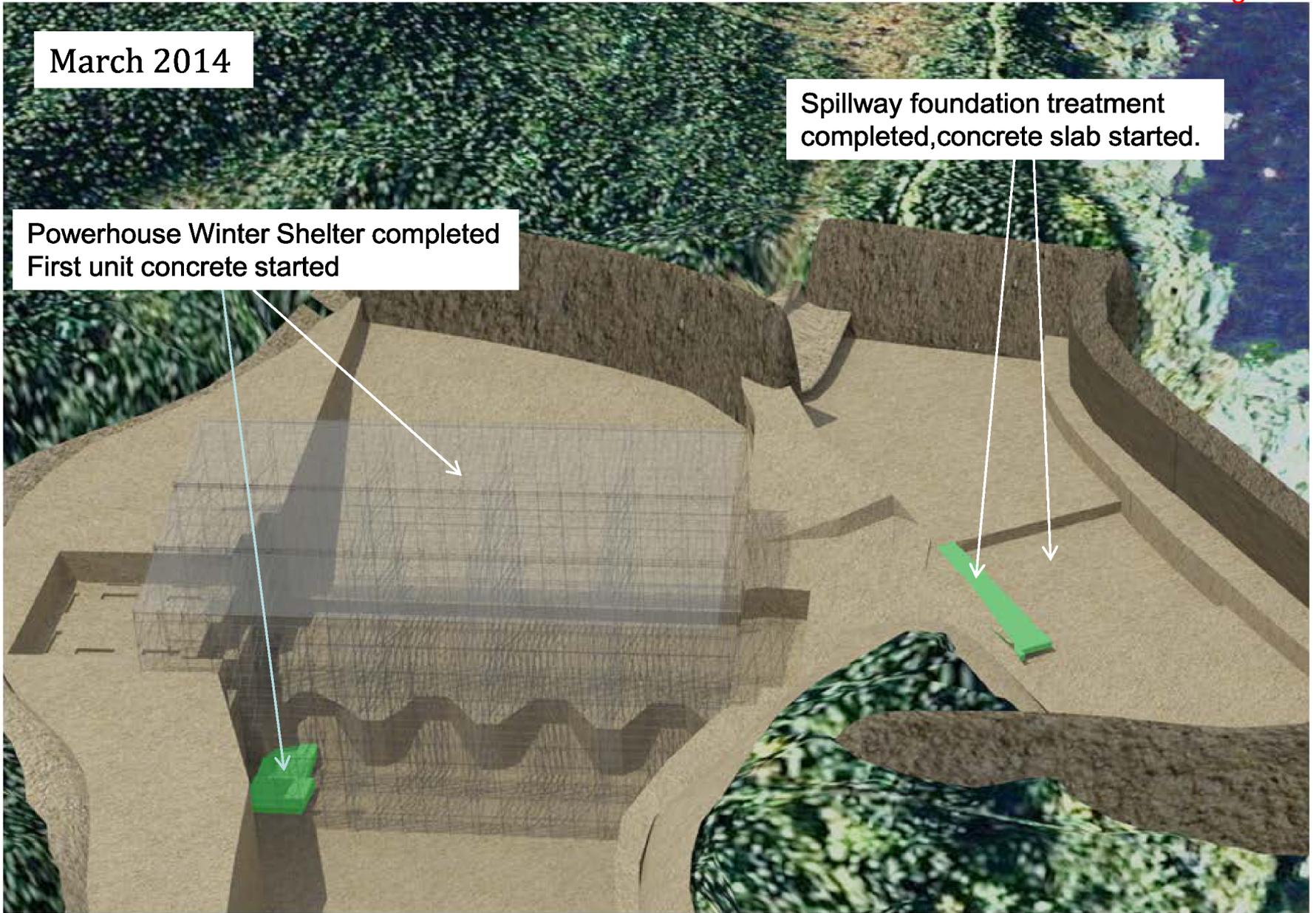
Astaldi's Integrated All-Weather Cover System



March 2014

Spillway foundation treatment completed, concrete slab started.

Powerhouse Winter Shelter completed
First unit concrete started



MF Laydown Area Expansion



MF Accommodations / Administration Complex



New Accommodations Camp - Churchill Falls



TL Material Marshalling Yard



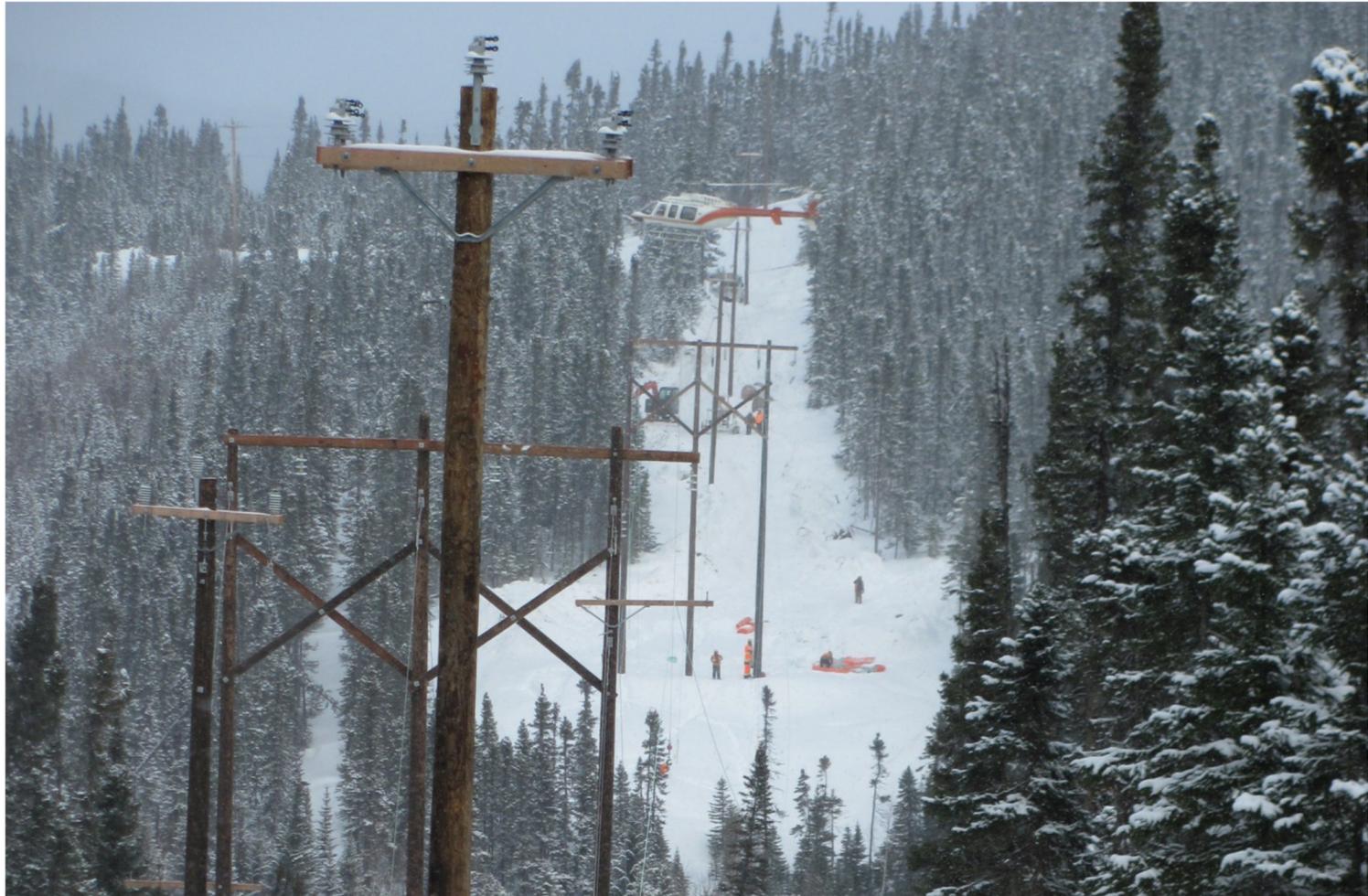
Site Water Controls



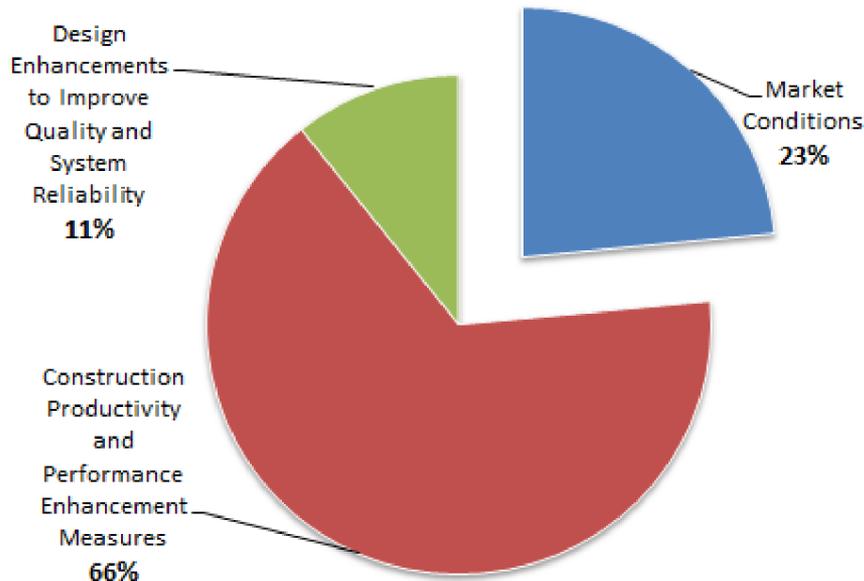
Historic Resources Recovery



Churchill River 25kV Line Crossing

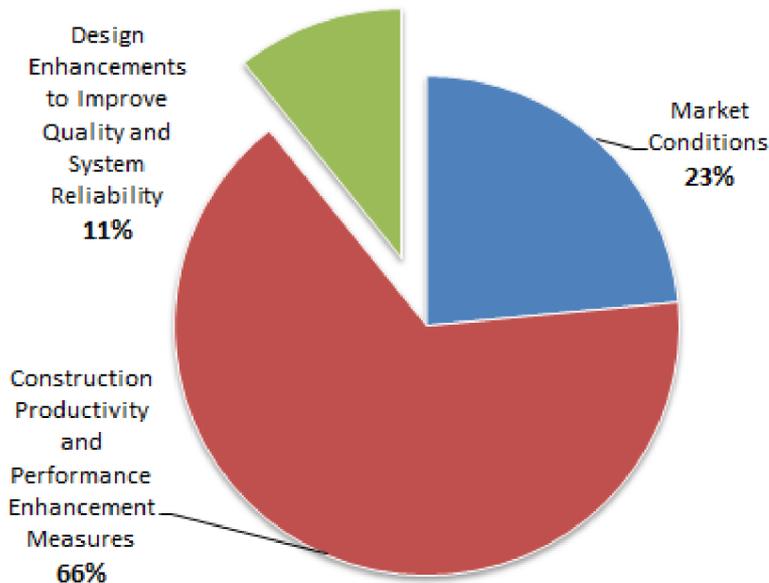


Category 2: Market Conditions



- Increased contractor margins and risk premiums driven in-part due to contractor's negative views on labor productivity and performance
 - Influenced by the Vale Long Harbour experience
 - Industry trends in
 - We are actively managing this perception
- In
- Permanent plant equipment and material supply cost have been either better or comparable than DG3 estimate, including:
 - SOBI Cable
 - Turbine and Generators
 - Transmission Hardware
 - Powerhouse Crane

Category 3: Design Enhancements to Improve Quality and System Reliability



Substantiate Design Enhancements:

- Use of 5 low-level vertical gates in spillway to improve winter operation reliability
- Spillway discharge channel concrete liner to remove risk of potential erosion
- North Spur cut-off wall extension
- Procurement of additional critical operational spares
- Addition of 2nd service bay on North Side of Powerhouse to provide operational flexibility
- Increased reliability in TL beyond initial design return period expectations
 - Use of low temperature steel for HVdc TL
 - Additional foundation corrosion protection
 - Higher utilization factor for AC TL towers

315kV Tower Type "D" Prototype Testing



Protecting Our Investment

- Lump sum or unit price contracts
 - Contractor holds performance accountability
- Category 1 investments to reduce execution risk (Schedule, labor, infrastructure)
- Capped labor exposure with Astaldi using Lmax
- Framework negotiated with Astaldi to expand scope to include N. Spur and Dams
 - Target Price reduces by \$40 million
 - Home overhead, Indirect and equipment cost covered within CH0007
 - Fixed Profit
- Expanding the traditionally local civil subcontractor marketplace for EPC contractors to avail of

Construction Management Update

- H&S Management
 - Maintaining relentless commitment to Zero Harm – Nobody Gets Hurt
 - New initiatives including rollout of Nalcor’s “Take a Moment for Safety” program
- Contractor Performance Management
 - Tier 1 contractors, with “A Execution Teams” identified through comprehensive prequalification and bid evaluation
 - Performance accountability of contractors maintained through fixed and firm or unit price arrangements
- Labor Management
 - Positive experience to-date – good productivity, minimal grievances
- Interface and Integration Management
 - Strong Project Delivery Team in-place actively managing key interfaces

Backup Material



Benefits of value enhancement decision making

- Increased reliability in transmission line construction beyond initial design return period expectations
- Increased reliability = revenue certainty
- Enclosure of Powerhouse, parts of spillway to provide safer working conditions, increased productivity, longer continued employment opportunities for workforce
- Strategic and select use of alternative commercial models – Target price and KPIs

Benefits of value enhancement decision making

- Surplus
- Export sales
- Net benefits analysis