From:	MacLaren, Les EMPR:EX
To:	Wieringa, Paul EMPR:EX; Rowe, Katherine EMPR:EX; Sopinka, Amy EMPR:EX
Subject:	FW: For Chris"s review
Date:	Saturday, December 2, 2017 9:53:09 AM
Attachments:	Site C Responses 1 Dec 2017 v2.docx ATT00001.htm

Info

From: O'Riley, Christopher [mailto:Chris.Oriley@bchydro.com]
Sent: Saturday, December 2, 2017 9:29 AM
To: Nikolejsin, Dave MNGD:EX; MacLaren, Les EMPR:EX
Subject: Fwd: For Chris's review
Termination rate increase put in terms of customer bills.

Sent from my iPhone

Begin forwarded message:

> **From:** "Clarke, Gareth" <Gareth.Clarke@bchydro.com>
> **Date:** December 2, 2017 at 9:15:46 AM PST
> **To:** "O'Riley, Christopher" <Chris.Oriley@bchydro.com>
> **Subject: Fwd: For Chris's review**
>
> Sorry, should be there now?
>
> Sent from my iPhone.
>
> Begin forwarded message:
>
> > **From:** "Magre, Leela" <Leela.Magre@bchydro.com>
> > **Date:** December 1, 2017 at 14:29:38 PST
> > **To:** "Clarke, Gareth" <Gareth.Clarke@bchydro.com>
> > **Subject: For Chris's review**
> >
> > Hi Gareth,
> > We've been asked to pull together some info on Site C for Gov. Could you have Chris review before the end of the day? Sorry, I know I'm not giving much time.
> > This has been approved by the relevant business groups.
> > Thanks,
> > Leela
> >
> > ---
> > **Leela Magre** | Manager, Policy & Research
> > **BC Hydro**
> > 333 Dunsmuir St, 15th floor
> > Vancouver, BC V6B 5R3
> > **P** 604 623 4008
> > **M** 236 993 0338
> > **E** leela.magre@bchydro.com
> > bchydro.com
> > **Smart about power in all we do.**

Site C Responses

1. **Examples of the impact of a 12% rate hike in terms of a typical household - ideally by region and household type.**

- If Site C is terminated and costs are recovered over 10 years, a rate impact of 12.1% means the typical residential household would pay about $1000 over the 10-year period.

    - Lower Mainland
        - A customer that lives in a single family home and has electric heat would pay $194 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $128 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $55 more in 2019.

    - Vancouver Island
        - A customer that lives in a single family home and has electric heat would pay $200 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $139 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $57 more in 2019.

    - Southern Interior
        - A customer that lives in a single family home and has electric heat would pay $193 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $116 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $73 more in 2019.

    - Northern Interior
        - A customer that lives in a single family home and has electric heat would pay $187 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $168 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $61 more in 2019.

[Supporting data follows]

			Illustrative Bill Difference with 12.1% Increase	
Region	Housing Type	Heating Type	Annual Bill	Average Monthly Bill
Lower Mainland	Single Family Dwelling	Electric Heat	$ 194	$ 16
		Non Electric Heat	$ 100	$ 8
	Townhome	Electric Heat	$ 128	$ 11
		Non Electric Heat	$ 69	$ 6
	Apartment	Electric Heat	$ 55	$ 5
		Non Electric Heat	$ 37	$ 3
Vancouver Island	Single Family Dwelling	Electric Heat	$ 200	$ 17
		Non Electric Heat	$ 104	$ 9
	Townhome	Electric Heat	$ 139	$ 12
		Non Electric Heat	$ 63	$ 5
	Apartment	Electric Heat	$ 57	$ 5
		Non Electric Heat	$ 37	$ 3
Southern Interior	Single Family Dwelling	Electric Heat	$ 193	$ 16
		Non Electric Heat	$ 103	$ 9
	Townhome	Electric Heat	$ 116	$ 10
		Non Electric Heat	$ 79	$ 7
	Apartment	Electric Heat	$ 73	$ 6
		Non Electric Heat	$ 48	$ 4
Northern Interior	Single Family Dwelling	Electric Heat	$ 187	$ 16
		Non Electric Heat	$ 98	$ 8
	Townhome	Electric Heat	$ 168	$ 14
		Non Electric Heat	$ 77	$ 6
	Apartment	Electric Heat	$ 61	$ 5
		Non Electric Heat	$ 45	$ 4

Data Source: 2014 REUS and F2015 Billing Data, as cited in 2015 RDA, BC Hydro's response to BCOAPO IR 1.59.6

Illustrative consumption is the Median Consumption of each segment

2. What would an alternative portfolio look like in a terminate scenario (renewables, capacity, transmission)? To meet 30% GHG reductions by 2030, and 80% by 2050.

- If we don't build Site C by 2030 we would need about 600 MW of wind and 1,000 MW of pumped storage by 2030 in addition to higher levels of conservation.

- 1,100 hectares of land impacts to accommodate about 200 wind turbines and one large pumped storage facility (equivalent to 3 times the size of Stanley Park).

- Meeting 2030 and 2050 GHG emission reduction targets would require more resources:

  - In 2030 with Site C – we need about 4,300 MW of wind, 5,000 MW of pumped storage capacity and three new high-voltage transmission lines:
    - 12,000 hectares of land impacts (equivalent to 30 times the size of Stanley Park covered with wind turbines and pumped storage facilities) to accommodate about 1,400 wind turbines and five large pumped storage facilities
    - 700 km of transmission corridors

  - In 2030 without Site C – we need an additional 1,600 MW of wind and 1,000 MW of pumped storage for a total of 5,900MW of wind and 6,000MW of pumped storage:
    - 9,000 total hectares of land impacts to accommodate a total of 2,000 wind turbines and six large pumped storage facilities (equivalent to 21 times the size of Stanley Park)
    - 700km of transmission corridors for three new high-voltage transmission lines (same as with Site C)

  - By 2050 (with or without Site C) – we would need an additional 9,600 MW of wind and 7,000 MW of pumped storage capacity and seven more new high-voltage transmission lines (over and above what is required in 2030):
    - 13,000 hectares of land impacts beyond the impacts above to accommodate about 3,200 more wind turbines and seven more large pumped storage facilities (equivalent to an additional 33 times the size of Stanley Park).
    - 1,700 km of transmission corridors beyond the 700 km above.

Important notes:

- The land impacts identified above are "direct" impacts only.
  - For wind, this consists of the turbine base, roads and transmission to the point of interconnection. The actual permitted size of the wind farm will be substantially larger as there is spacing among the wind turbines. Some land use (such as agriculture) can continue in this permitted but not directly impacted land.

- Our best assessment today is that wind projects will average approximately 3MW per turbine. The actual turbine size for a project would be determined after investigative and design studies, and may vary from this amount. As a result, the number of turbines and the amount of land required will vary from our estimates.

- We have made approximations for the land impact of transmission and roads required for the wind and pumped storage projects. The actual transmission and road impact would be determined after investigative and design studies, and may vary from this amount.

- This is an approximate impact that assumes wind and pumped storage continue to be the most cost effective resources.

3. The facts about flooding and agricultural impacts.

- The Site C Project will flood approximately 5,550 hectares of land resulting in a permanent loss of about 3,800 hectares of Class 1 to 5 agricultural lands.
    - *Due to moisture limitations, there is no Class 1 land in the project area, including the reservoir area.*

- About 2.7 million hectares of Class 1 to 5 lands will remain available in the Peace Agricultural Region.

- In the Peace River valley, more than 16,000 hectares (or more than 80 per cent) of Class 1 to 3 land would remain available for agricultural use including agricultural land downstream of the Site C project to the B.C. / Alberta border.

- On May 1, 2014, the Joint Review Panel submitted its report on Site C to the federal and provincial governments, as part of the independent environmental assessment process.

- The Joint Review Panel wrote (page 150): *"The Panel concludes that the permanent loss of the agricultural production of the Peace River valley bottomlands included in the local assessment area of the Project is not, by itself and in the context of B.C. or western Canadian agricultural production, significant."*

- Mitigation measures, including a $20 million agricultural compensation fund, will support agricultural programs and projects to improve production in the region.

- Other proposed mitigation measures include the implementation of individual farm mitigation plans to support the continued farm operations for farms directly affected by the project.

- On BC Hydro's proposed agricultural compensation fund, the Panel wrote (page 149): *"The current value of annual crops from the portion of the valley that would be inundated is but $220,000... The proposed $20 million agricultural investment fund, to be spent on improvements outside the inundation zone, is generous by comparison."*

From:	MacLaren, Les EMPR:EX
To:	Haslam, David GCPE:EX; Beaupre, Darren GCPE:EX; Grewar, Colin GCPE:EX
Cc:	Wieringa, Paul EMPR:EX; Rowe, Katherine EMPR:EX; Sopinka, Amy EMPR:EX
Subject:	Clean Energy Act Policies - historical background 2-7-14
Date:	Monday, December 4, 2017 5:41:08 PM
Attachments:	Clean Energy Act Policies - historical background 2-7-14.docx

You guys may finds the attached useful. I have adapted the table from a document we produced three years ago to essentially questioned whether we wanted to continue to adapt a number of policies.

When you are doing your "how did we get here" Backgrounder for Site C, and refer to self-sufficiency, you will see in this document that it first appeared in BC Hydro's service plan in 2005 (not the 2002 Energy Plan) and was included in the 2007 Energy Plan.

Hope this helps.

Les

Clean Energy Policies: Historical Background

CEA Section/Policy	History
2. *Clean Energy Act* British Columbia energy objectives:	• Continued interest in the clean energy sector in MBB mandate letter from the Premier • Staff to pull together options for Minister to take to P&P • Maintain focus on clean or renewable electricity • Desire to support clean technology • Nurture clean energy industry • Clean electricity can provide social license for other (economic) activities and infrastructure • Remove prohibition on BC Hydro investing and/or building electricity generation projects o P3 models (e.g. residual rights under design/build/finance/operate/maintain/return model) • NTD: May want to look using BC Hydro assets (e.g., telecommunications) for economic development purposes and/or new sources of revenue
(a) self-sufficiency (plus section 6)	• 2005 BC Hydro Service Plan – initial proposal • 2007 Energy Plan – policy action 10: self-sufficiency 2016 plus insurance by 2026 • Special Direction No. 10 – defined terms of self-sufficiency (critical water) • 2008 Utilities Commission Act (UCA) amendments - s. 64.01 enabled self-sufficiency regulation • *Clean Energy Act* Electricity Self-Sufficiency Regulation enacted in November 2010 (maintained critical water definition) • 2012 changes to regulation to average water and CEA amended to remove insurance requirement • 2013 Industrial Electricity Policy Task Force recommended government consider, by 2020, whether self-sufficiency policy is consistent with least cost electricity pricing
(b) 66% conservation target	• 2007 Energy Plan – policy action 1- target to meet 50% of demand growth through conservation/efficiency by 2020 • 2008 UCA amendments – s. 44.1 required BC Hydro's resource plans to show what it would take to meet 50% conservation target • BC Hydro's 2008 Long Term Acquisition Plan showed that BC Hydro could cost-effectively meet ~78% of demand growth through conservation by 2020 • 2010 Green Energy Advisory Task Force Recommendation to make energy efficiency and conservation the highest priority • *Clean Energy Act* raised target to 66% • 2013 Industrial Electricity Policy Task Force stated no need for this BC Hydro-specific measure.

CEA Section/Policy	History
(c) 93% BC generation from clean/renewable resources (plus section 19)	• 2002 Energy Plan – policy action 22 voluntary goal to acquire 50% of new supply from "BC Clean" electricity over next 10 years • 2007 Energy Plan – policy action 21 was a commitment to ensure that at least 90% of electricity generation in BC was from clean or renewable resources • By 2010, BC Hydro was confident that 93% was an achievable target • 2012 objective modified to exclude electricity associated with LNG export by ship from 93% calculation • 2013 Industrial Electricity Policy Task Force said just pick a carbon price for planning purposes and let technologies compete
(d) innovative technologies	• 2007 Energy Plan theme of investing in innovation • 2007 Energy Plan – policy action 29 to create Innovative Clean Energy Fund • 2007 ICE Fund established through legislation (funding $25M/year with electricity included and higher natural gas prices) • 2008 UCA amendments – "innovative energy technologies" one of the 5 energy objectives to be considered by the BCUC when regulating utilities • 2010 Green Energy Advisory Task Force recommendation to grow clean tech • 2013 reintroduction of levy with PST excluded electricity so revenues currently $7-8M at lower natural gas prices
(e) benefits of heritage assets and heritage contract (plus s. 14)	• 2000 legislated Heritage Contract (aka "heritage pool") established in Quebec • 2002 Energy Plan promised to establish a BC Heritage Contract to lock in the value of existing low-cost generation assets for an extended period • 2003 BCUC conducted a public Heritage Inquiry as ordered by Government • 2003 *BC Hydro Public Power Legacy and Heritage Contract Act* and Heritage Special Direction HC2 established the Heritage Contract effective April 1, 2004 – requires public ownership of heritage assets, protects ratepayers from trade risk (caps ratepayer benefit from trade at $200M, with Province assuming risk if trade income below $0) • 2007 Energy Plan – policy actions 15 and 16 to maintain public ownership of BC Hydro and its assets and to continue the Heritage Contract in perpetuity • Fall 2008 - termination provision of Heritage Contract repealed

CEA Section/Policy	History
(f) competitive rates (plus s. 8(4))	• BC Hydro rate freeze 1993 to 2003 • 2002 Energy Plan – low electricity rates and public ownership of BC Hydro one of 4 cornerstones of plan; returned BC Hydro to BCUC oversight • 2007 Energy Plan – reference to maintaining competitive advantage • 2008 UCA amendments – requires BC Hydro annual rate comparison report to BCUC • 2010 reporting requirements transferred to *Clean Energy Act* – report to Minister
(g) GHG reduction targets	• 2002 Energy Plan – policy action 24 stated that government was developing strategies to manage BC's GHG emissions and air quality in threatened air sheds • 2007 Speech from the Throne – focused on reducing GHG emissions • 2007 Energy Plan – policy actions 18, 19, 20 net zero GHG emissions from thermal generation (offset obligation), absolute zero GHG emissions from coal-fired generation (sequestration obligation) • *Greenhouse Gas Reduction Targets Act* (November, 2007) • 2008 Climate Action Plan set 2020 and 2050 targets • 2008 UCA amendments – energy objective to encourage utilities to reduce GHGs • 2008 amendments to *Environmental Management Act* (not yet in force) – requiring offsets for natural gas fired electricity generation
(h) encourage fuel switching (plus s. 1 definition of "demand-side measure" and s. 18)	• Government policy remained fuel neutral until 2010 – objective was to improve efficiency across all fuel types, although switching from oil heat was encouraged • 2009 decision by BCUC directed BC Hydro to explore "electric load avoidance DSM" (i.e., measures to reduce demand by encouraging customers to switch from electricity to natural gas) • 2010 Green Energy Advisory Task Force recommendation to shift from fossil fuels to decarbonized electricity for most energy services and grow domestic electricity demand
(i) encourage communities to reduce GHGs	• 2008 Climate Action Plan
(j) reduce waste by encouraging waste heat, biogas, biomass	• 2007 Energy Plan – policy action 30 to implement a provincial bioenergy strategy and policy action 31 required a bioenergy call for power • 2008 Bioenergy Strategy released • 2008 Bioenergy Network established • 2010 Green Energy Advisory Task Force recommendation to reduce fuel risk, improve access to biomass and enhance competitiveness of forest industry through adoption of bioenergy technologies

CEA Section/Policy	History
	• 2010 Forest tenure reforms announced - designed to improve access to forestry and logging debris
(k) encourage economic development and jobs	• 2002 Energy Plan • 2010 Green Energy Advisory Task Force recommendation
(l) FN and rural development through clean/renewable resource development	• 2010 Green Energy Advisory Task Force recommendation • 2010 creation of the First Nations Clean Energy Development Fund under the Clean Energy Act
(m) maximize value of generation and transmission assets	• 2010 Green Energy Advisory Task Force recommendation – important for trade, particularly by targeting markets with renewable portfolio standards for BC's clean electricity
(n) become a net exporter to benefit BC and reduce regional GHGs	• 1993 BC Electricity Export Policy: Long-Term Firm Exports – based on "net benefits" • 2010 Green Energy Advisory Task Force recommendation
(o) no nuclear power (note: nuclear energy is under federal jurisdiction)	• 2002 Energy Plan – "environmental responsibility and no nuclear power" one of 4 cornerstones of Energy Plan • 2007 Energy Plan – policy action 23
(p) BCUC to continue to regulate BC Hydro domestic rates, but not export expenditures	• 2010 decision by Cabinet that exports not be subsidized – identify opportunity first, then procure to meet market (Green Energy Advisory Task Force recommended regular calls to build surplus and then market that surplus)
3. BC Hydro IRP approved by Cabinet	• 1996 - BC Hydro challenged the BCUC's authority at the BC Court of Appeal – Court ruled in favour of independence of BC Hydro management in planning – BCUC's role limited to approving projects and contracts • 2008 UCA amendments to clarify BCUC's role in approving plans • 2009 BCUC rejected BC Hydro's Long Term Acquisition Plan, although approving most of the proposed expenditures it contained • 2010 Government favoured broader, collaborative public planning process rather than the narrower, more adversarial process before the BCUC
3. IRP to include long term transmission needs	• 2008 UCA amendments – section 5 provided for a long term, 30 year transmission inquiry • 2009 Inquiry suspended for 3 reasons: challenges based on the duty to consult First Nations; Government's emerging electricity export strategy; and the Green Energy Advisory Task Force

CEA Section/Policy	History
3. and 13. Restrictions on use of Burrard Thermal	• 2001 BC Liberal Platform – phase out Burrard Thermal • 2007 Energy Plan – policy action 22 supported BC Hydro proposal to replace firm energy from Burrard, retaining only for capacity after 2014 • 2009 BCUC decision directing BC Hydro to explore possibility of greater reliance on Burrard for firm energy • 2009 Direction No. 2 to the BCUC limiting the extent to which BC Hydro can rely on Burrard • *Clean Energy Act* regulation authorizing limited use of Burrard (November 2010)
4. Export projects/contracts not regulated by BCUC, ratepayers insulated from export risk	• 2003 – Heritage Contract protects ratepayers from trade risk
7. Exempt projects, programs, contracts, expenditures - general	• 2010 – regarded as the foundation for the vision of BC's future powered by clean energy that the *Clean Energy Act* was in response to • No need to duplicate/add more process in addition to environmental assessment
Northwest Transmission Line	• 2009 Federal Green Infrastructure Funding of $130M • 2010 – Altagas avoided cost contribution of $180 • Need to commence construction in 2011 to meet 2013 in-service to connect Altagas Forrest Kerr Project
Mica, Units 5 and 6, and Revelstoke Unit 6	• 2010 Green Energy Advisory Task Force recommendation to complete as early as possible
Site C	• 2010 Green Energy Advisory Task Force recommendation to move forward with Site C
Bioenergy Call	• 2007 Energy Plan – policy action 31 directed a bioenergy call for power • 2007 – Special Direction No. 10 supported contracts awarded under bioenergy call • Extensive Cabinet debate on structure of Bioenergy Phase 2 call for power s.13,s.17
Integrated Power Offer	• 2010 - Federal black liquor subsidy to pulp mills for clean power generation and energy efficiency • Cost-effective opportunity for BC Hydro to acquire new supply
Clean Power Call	• 2002 Energy Plan – greater role for the private sector – one of the 4 cornerstones of the Energy Plan • 2002 exemption – IPPs not regulated as public utilities

CEA Section/Policy	History
	• 2007 Energy Plan – policy action 26 to continue to improve procurement process for electricity • 2008 – launch Clean Power Call – delays due to court ruling on First Nations consultation and election
Standing Offer Program	• 2007 Energy Plan – policy action 11 • 2008 UCA amendments – section 64.03 • 2010 Green Energy Advisory Task Force recommendation to expand the standing offer program • 2010 Regulation to increase maximum project size from 10 to 15 MW • 2011 BC Hydro re-launch with pricing linked to 2008 Clean Power Call and more flexibility on technology
Feed in Tariff	• 2010 Green Energy Advisory Task Force recommendation to implement a technology-specific feed-in tariff • 2010 – Consultation Paper – over 100 responses from stakeholders and the public
Smart Meters/Grid	• 2006/07 BC Hydro's service plan – meters only • 2007 Premier's address to UBCM – promised smart meters by 2012 • 2008 Speech from the Throne – confirmed commitment to install smart meters – BC Hydro Service Plan included both meters and grid • 2008 UCA amendment – s.64.04 - BC Hydro to install smart meters by 2012 • 2010 provision placed in *Clean Energy Act*, regulation defining "smart meter" enacted in December
9. Domestic long-term sales contract	• 2010 Green Energy Advisory Task Force recommendation • Proposed by the Ministry of Science, Technology and Economic Development – rate certainty for new investors – still requires BCUC approval to show no subsidy
Part 2: 10, 11 2 Rivers Policy – prohibited projects	• WAC Bennett policy from 1960s to focus hydroelectric development on the Peace and Columbia Rivers • Site C OK, but large hydro in other basins excluded (including those named in Schedule 2 of the *Clean Energy Act*)
12. Prohibited acquisitions from protected areas	• 2010 Green Energy Advisory Task Force recommendation
Utility Emission Reduction Programs (fuel switching)	• 2010 Green Energy Advisory Task Force recommendation • Support for Climate Action Plan
First Nations Clean Energy Business Fund	• 2010 Green Energy Advisory Task Force recommendations to expand revenue sharing and establish an

CEA Section/Policy	History
	equity fund to increase First Nations participation in the green economy
Re-integration of BCTC into BC Hydro	• 2002 Energy Plan – announced the establishment of BCTC separate from BC Hydro to improve ability to participate in regional wholesale power markets • 2003 *Transmission Corporation Act* established BCTC, whose assets continued to be owned by BC Hydro but with a separate board of directors • By 2010 became clear that regional transmission organizations were not required, allowed for integrated generation/transmission/marketing utilities • 2010 Green Energy Advisory Task Force Recommendation to examine need for separate transmission corporation • Re-integration driven by estimated savings of $25M per year
Renewable and Low Carbon Fuels	• 2007 Energy Plan – policy actions 32 and 33 committed to implementing a 5% renewable fuel standard, support federal actions to increase ethanol content in gasoline and adopt quality parameters for all renewable fuels and fuel blends in cooperation with other North American jurisdictions • 2007 Throne Speech - British Columbia will establish a low-carbon fuel standard. It will reduce the carbon intensity of all passenger vehicles by at least 10 per cent by 2020. These new standards will be developed in recognition of what is already mandated in California, to ensure they are viable and achievable. • 2008 Throne Speech - Standards for low-carbon fuel content will be adopted to reduce the carbon intensity of motor vehicle fuels by 10 per cent by 2020. • 2008 *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act* and 2009 Renewable and Low Carbon Fuel Requirements Regulation

Energy Efficiency Act	• Enacted in 1990, amended in 1993 and 1996
	• Recent *Energy Efficiency Act* regulations:
	  ○ June 2006: standards for commercial boilers, windows, gas furnaces (new construction), thermostats, gas fireplaces (labeling)
	  ○ June 2008: standards for gas furnaces (replacement units), fluorescent ballasts.
	  ○ September 2009: standards for light bulbs, residential water heaters, industrial motors.

From:	MacLaren, Les EMPR:EX
To:	Sanderson, Melissa EMPR:EX; Nikolejsin, Dave MNGD:EX
Cc:	Wieringa, Paul EMPR:EX; Rowe, Katherine EMPR:EX; Sopinka, Amy EMPR:EX
Subject:	187451 - Info Note Site C and ALR
Date:	Tuesday, December 5, 2017 1:18:30 PM
Attachments:	187451 - Info Note Site C and ALR.DOCX

GCPE asked AGRI for a note on replacing ALR lands being flooded by Site C. Attached is their response.
Les

Ministry of Agriculture
BRIEFING NOTE FOR MINISTER FOR INFORMATION

Ref: 187451 Date: December 4, 2017

Issue: Addressing the loss of land from Site C in the Agricultural Land Reserve in the Peace Region.

Background:

The development of Site C in the Peace Region is estimated to permanently displace approximately 3,800 hectares of Class 1 to 5 agricultural lands (land capable of crop production) in the Agricultural Land Reserve (ALR). An Environmental and Land Use Committee Order-in-Council was passed to remove the identified lands from the Agricultural Land Reserve.

The environmental assessment of Site C concluded that an adequately funded and properly administered agricultural compensation fund would mitigate the Site C Project effects on agricultural production and agricultural economies.s.13
s.13

Discussion:

More than 99 percent of Class 1 to 5 agricultural lands in the Peace Agricultural Region will not be affected by Site C. It is estimated that about 2.7 million hectares remains available in the Peace Agricultural Region.

s.13

s.13

Contact: Lorie Hrycuik, Corporate Governance, Policy and Legislation, 250-356-8299

ED LH ADM _____ DM _____

From:	MacLaren, Les EMPR:EX
To:	Grewar, Colin GCPE:EX
Cc:	Rowe, Katherine EMPR:EX; Beaupre, Darren GCPE:EX; Sovka, David GCPE:EX; Haslam, David GCPE:EX
Subject:	RE: NR and Three Backgrounders
Date:	Wednesday, December 6, 2017 2:25:38 PM
Attachments:	Backgrounder 3_Site C New Direction_Dec04_602pm_BCH edits LM.docx Backgrounder 2_Climate Action_Dec04_558pm_BCH edits LM.docx Backgrounder 1_Impact on Rates_Dec04_542pm_BCH edits.docx image001.jpg

Some tracked suggestions

Les

From: Grewar, Colin GCPE:EX
Sent: Wednesday, December 6, 2017 8:45 AM
To: MacLaren, Les EMPR:EX
Cc: Rowe, Katherine EMPR:EX; Beaupre, Darren GCPE:EX; Sovka, David GCPE:EX; Haslam, David GCPE:EX
Subject: FW: NR and Three Backgrounders

Hi Les: I note that you have reviewed backgrounder 4 (including BC Hydro's suggested edits) as attached. Wondering if you'd had a chance to review backgrounders 1,2 and 3 yet.

Thanks,

Colin

Colin Grewar
Public Affairs Officer
Government Communications and Public Engagement
Ministry of Energy, Mines and Petroleum Resources
Phone: 250-952-0650
Colin.Grewar@gov.bc.ca

From: Grewar, Colin GCPE:EX
Sent: Monday, December 4, 2017 6:12 PM
To: MacLaren, Les EMPR:EX
Cc: Rowe, Katherine EMPR:EX; Haslam, David GCPE:EX; Beaupre, Darren GCPE:EX; Sovka, David GCPE:EX
Subject: FW: NR and Three Backgrounders

Hi Les: Further to our phone conversation with David this afternoon, please find attached for your review the four backgrounders.

Backgrounders 1, 2 and 3 have been reviewed by BC Hydro.

Backgrounder 4 (How We Got Here) was drafted by GCPE HQ.

Colin

Colin Grewar
Public Affairs Officer
Government Communications and Public Engagement
Ministry of Energy, Mines and Petroleum Resources
Phone: 250-952-0650
Colin.Grewar@gov.bc.ca

From: Magre, Leela [mailto:Leela.Magre@bchydro.com]
Sent: Monday, December 4, 2017 2:58 PM
To: Haslam, David GCPE:EX; MacLaren, Les EMPR:EX; Rowe, Katherine EMPR:EX
Cc: Beaupre, Darren GCPE:EX; Grewar, Colin GCPE:EX; Sovka, David GCPE:EX; Sauer, Darwin
Subject: RE: NR and Three Backgrounders

Hello all,

Attached are the backgrounders fact checked with notes tracked. Thank you for the opportunity to

review.

A few things:

- Backgrounder 1: We are still confirming our recommendation on how the rate impact should be stated

s.13

- Backgrounder 2: We cannot confirm the information highlighted in green. I'm going to have the Energy Planning team calculate this for us and will send through the info ASAP.

Thank you,

Leela

Leela Magre | Manager, Policy & Research
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Smart about power in all we do.

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

Finishing Site C will keep rates affordable

Keeping rates affordable for residents, businesses and industry was Government's primary focus in reviewing the Site C project.

The provincial government's extensive analysis clearly shows rates will be kept low with Site C moving forward.

Finishing Site C:

There is no effect on today's BC Hydro rates from Site C.

Costs of the project do not impact customer rates until the project begins generating electricity around 2025. This ensures that the costs for Site C are paid by the ratepayers who are benefiting from the project.

In accordance with accounting rules, the cost of Site C will be amortized over the expected useful life of the asset (approximately 70 years) to ensure that the costs for Site C are paid by the ratepayers who are benefiting from the project.

Site C will improve predictability in customer rates, compared to implementing an alternative portfolio of sources of power. Operating costs will be stable and predictable because the majority of costs are incurred during construction. Site C will bring savings to ratepayers over the long-term as the upfront capital costs of the project are repaid and financing costs decrease, and because Site C is lower cost than alternative power sources.

BC Hydro's proposal for smoothing out the costs of Site C anticipates incremental rate impacts of 1.1~~0.5~~% in fiscal 2025, and 1,1~~0.5~~% in fiscal 2026, then decreasing. [FACT CHECK PENDING - FINANCE]

Cancelling Site C:

Alternatively, cancelling Site C would mean BC Hydro would need to recover up to $4 billion in sunk, termination and remediation costs starting in 2019, and over a shorter period of time – likely 10 to 30 years. A shorter timeframe is expected because future ratepayers should not pay for a benefit they are not receiving. The recovery period would be determined by the BC Utilities Commission.

Ratepayers not even born yet should not have to pay for the costs of terminating Site C. Whereas for Site C, the costs can be spread over 70 years because future generations will benefit from the power provided by Site C and the revenue it generates.

If sunk and termination costs of $4 billion were recovered over a 10-year period, a 12.1% rate increase would need to be added to every BC Hydro bill for 10 years. A rate impact of 12.1% means the typical residential household would pay almost $1,300 more over the 10-year period. For example, in the Lower Mainland:

- A customer that lives in a single family home and has electric heat would pay $194 more in 2019.
- A customer that lives in a townhome and has electric heat would pay $128 more in 2019.
- A customer that lives in an apartment and has electric heat would pay $55 more in 2019.

Even if sunk and termination costs were recovered over a longer, 30-year amortization period it would mean rate increases of about 6% on every bill for 30 years.

Cost of Site C vs. Alternative Portfolio:

When sunk and termination costs are included in the calculations, Site C is significantly less costly for ratepayers when compared to the costs of termination and developing alternative sources of generation (wind, pumped storage) regardless of how quickly the costs of termination are recovered.

Also, Site C has a lower unit energy cost than alternatives when sunk and termination costs are factored in.

For example, based on calculations provided by the BCUC (assuming Site C costs are amortized over 70 years):

- When sunk and termination costs are recovered over 20 years, an alternative portfolio:
  - Costs $883 million more than Site C, and
  - The unit energy cost of alternatives is $70 per megawatt hour (MWh) compared to $57 per MWh for Site C.

Additionally, it's important to note that the numbers above assume a low-load forecast for demand which does not account for extra electricity supply to serve low-carbon electrification, and assumes that BC Hydro would develop energy projects in the alternative portfolio at its lower rate of capital financing instead of independent power producers (IPPs). Alternatively:

- In a mid-load forecast assuming IPPs develop the projects, the costs of an alternative portfolio increase $512 million.
- In a high-load forecast, assuming IPPs develop the projects, the costs of an alternative portfolio increase $710 million.

- In a low-load forecast assuming IPPs develop the alternative projects at their higher rate of capital financing, the cost of an alternative portfolio increases an additional $212-million.

Taken together, including sunk and termination costs that are recovered over 20 years, and assuming a more likely mid-load forecast and that IPPs develop and finance alternative energy projects at their cost of capital, finishing Site C instead of cancelling the project and pursuing alternatives will save ratepayers approximately$1.4 billion.

Additional actions to keep rates affordable:

Working with BC Hydro we are developing further actions to help British Columbians reduce their electricity bills and help us achieve a clean energy future, including:

- The rate freeze currently before the BCUC for a decision.
- A comprehensive review of BC Hydro to find savings to pass along to ratepayers.
- Continuing to offer incentives to customers to help them reduce their electricity consumption and lower their power bills.
- Additional measures to be announced early in the new year.

Contact:
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Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

Site C supports climate action

Site C supports British Columbia's fight against climate change by providing firm, reliable power that can be used for low-carbon electrification – the transition from using fossil fuels to power our vehicles, homes and buildings, businesses and industries to using clean, renewable electricity to reduce greenhouse gas (GHG) emissions.

Low-carbon electrification is required to meet aggressive climate action goals. For example:

- The Province is planning on legislating an interim target of 40% overall reduction in carbon emissions from 2007 levels by 2030 to set it back on course to meet a reduction target of 80% by 2050.
- The City of Vancouver has set a target to reduce community-based GHG emissions by by at least 80% below 2007 levels before 2050, and to derive 100% of the energy used in Vancouver from renewable sources before 2050.
- The Pan Canadian Framework on Clean Growth and Climate Change agreed to by Canada's First Ministers calls for a 30% reduction in GHG emissions by 2030 from 2005 levels.
- As a signatory to the Paris Climate Agreement, Canada committed to reduce GHG emissions to 30% below 2005 levels by 2030.

British Columbia's electricity supply is already 98% clean. The joint federal-provincial environmental review of Site C confirmed that the project will produce the lowest greenhouse gas emissions per unit of energy of any resource option except nuclear, maximizing the greenhouse gas reductions associated with low-carbon electrification.

However, currently over 60% of total energy consumption in B.C. is still ~~gasoline~~ petroleum or natural gas, so meeting GHG targets requires aggressive electrification and ~~a lot of electrical capacity (the maximum amount of electricity that can be supplied on demand)~~new electricity generation.

To put it into context:

- To reduce GHG emissions by 30% by 2030 could require about 19,000 gigawatt hours more new energy, the equivalent output of about three and a half Site Cs, or Site C plus about 25 wind farms (150 megawatts) with 1,300 turbines (plus backup resources to ensure the energy is available when needed).

- To reduce GHG emissions by 80% by 2050 could require about 34,000 gigawatt hours more new energy, the equivalent output of about six and a half Site Cs, or Site C plus about 55 wind farms with 2,800 turbines plus backup resources.

- ~~Switching 30% of fossil fuel use to electricity by 2030 could require about 12,500 gigawatt hours of new power, the equivalent energy output of three Site Cs, or Site C plus 24 windfarms with 480 turbines.~~
- ~~Switching 80% by 2050 could require about 34,000 gigawatt hours of new power, the equivalent of seven Site Cs, or Site C plus 110 wind farms with 2,200 turbines.~~

Reliable electric capacity from Site C means the Province working with BC Hydro can:

- Ramp up efforts to get more electric vehicles on the road and more charging stations around B.C., and electrify ports, ferries, airports and mining operations.
- Provide clean energy to help carbon-emitting industries like the upstream natural gas sector and LNG facilities switch to electricity to run their operations
- Satisfy the energy needs of a rapidly growing innovation and technology sector
- Integrate more generation from alternative sources like wind and~~,~~ solar, ~~and geothermal~~which are intermittent.

The fight against climate change is a race against time. The annual global temperature record has been broken five times since 2005, including the last three years.

Site C provides British Columbia with the means to drive the province's electrified, low carbon economy moving forward.

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Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

New directions for B.C. energy

The decision to proceed with the Site C project paves the way for British Columbia to tackle the challenges of climate change. Protecting B.C.'s environment means making tough decisions, finding solutions and getting to work creating good jobs and a sustainable, clean energy economy that puts people first. The government will turn Site C into the driver for a clean energy economy solution, beginning with a strategic approach to address concerns identified in our review of Site C.

Project Oversight

- An independent expert project assurance team will work with BC Hydro to ensure that the project is completed by November 2024, at a total cost not to exceed $10.7 billion.

Launch an Electrification Strategy

- The Ministry of Energy, Mines and Petroleum Resources will:
  - Examine opportunities for further electrification as a strategy to achieve the Province's greenhouse gas (GHG) emission targets as part of the upcoming review of BC Hydro; and
  - Work with BC Hydro to embed an electrification strategy within the energy roadmap that the Ministry is developing, and the climate action strategy the Ministry of Environment and Climate Change Strategy is developing.

Treaty 8 First Nations and other Indigenous people

- BC Hydro and the Ministry of Transportation and Infrastructure will work with Treaty 8 First Nations and others to re-design the Highway 29 re-alignment at Cache Creek to reduce impact on potential burial sites and sacred places.

s.13,s.17

- The Ministry of Indigenous Relations and Reconciliation and BC Hydro will continue engage Treaty 8 First Nations to seek additional solutions to mitigate the adverse impacts of Site C, and to advance reconciliation.

s.12,s.13

Agricultural, Communities, Environmental and other interests

- The Ministries of Agriculture, Jobs, Trade and Technology and Forests, Lands, and Resource Operations and Rural Development will explore the potential for a Peace River Legacy Fund, and/or Northern Agricultural Centre of Excellence, in consultation with Peace Valley and provincial agricultural producers, Treaty 8 First Nations, Peace Valley residents and local governments, and interested stakeholders,s.12,s.13

s.12,s.13

Comment [LM1]: I am not sure whether this landed.

Workers and Jobs

- BC Hydro will implement ~~a~~ project labour agreements for all new Site C procurements, to ensure opportunities for BC's skilled labour trades.
- The Ministry of Advanced Education and Skills and Training will review existing training and apprenticeship programs in the northeast, and address any deficiencies as soon as possible, and within existing budget allocations.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

From: MacLaren, Les EMPR:EX
To: Haslam, David GCPE:EX; Lloyd, Evan GCPE:EX
Cc: Nikolejsin, Dave MNGD:EX; Wieringa, Paul EMPR:EX; Rowe, Katherine EMPR:EX; Sopinka, Amy EMPR:EX; Foster, Doug FIN:EX
Subject: Rate Impact of Site C
Date: Friday, December 8, 2017 6:45:36 AM
Attachments: image002.png

I received the following from BCH yesterday. I spoke with Don W about this yesterday afternoon, and we need to work this into the materials for Monday.

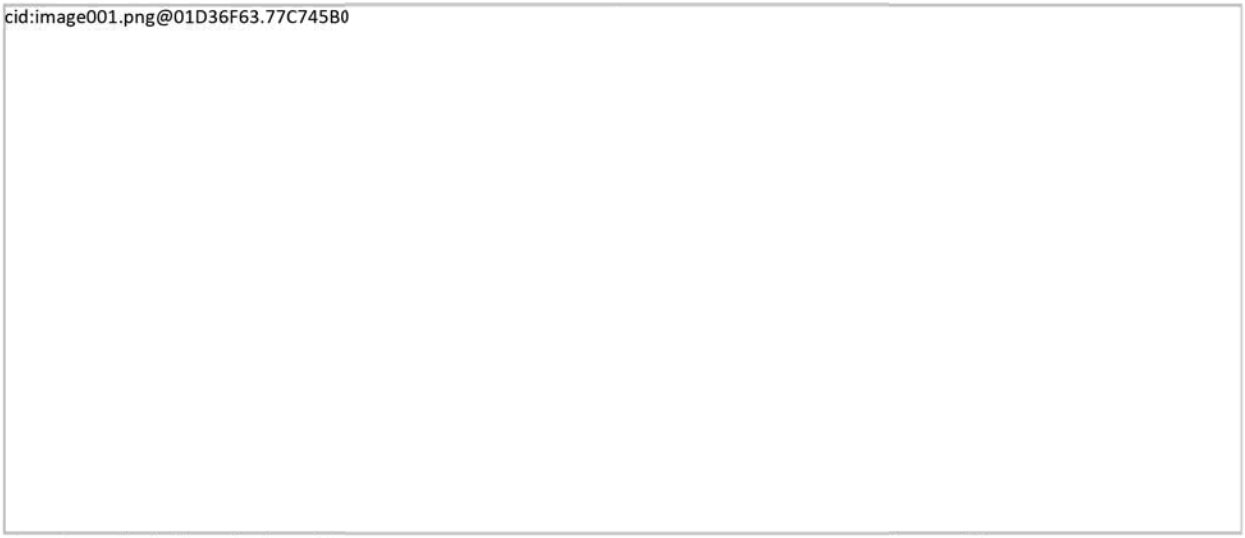
- The rate impact chart utilizes the method developed for the Joint Review Panel to provide up-front, absolute rate impacts of adding Site C into rates on a smoothed and un-smoothed basis. This analysis only describes the rate impact of Site C. Other rate increases to recover other capital and operating cost increases would be separate.
    - Assumes 100% of project is debt financed (conservative – capital is financed with a combination of debt and cash flow)
    - Assumes Weighted Average Cost of Debt (conservative – 50% of borrowing to 2024 has been locked in at lower rates with a hedge)
- Note that amortization has been done using a straight-line 70 year amortization period. In reality Site C will be subdivided into several different assets with different amortization periods. The 70-year period is a reasonable simplification as it represents the weighted average amortization period.

$10.7 B PROJECT COST SUMMARY

- All costs and borrowing (including interest during construction) are capitalized until Site C comes into service in 2024.
- When the estimated $10.7 billion Site C project comes into service in fiscal 2025, BC Hydro is expected to be in a surplus energy position. Site C energy would thus be sold into energy markets as surplus sales.
- Over time as domestic customer load grows, Site C energy begins to be used more and more to serve this domestic customer load. Site C would completely serve domestic customer load by about fiscal 2035.
- The table below shows the costs related to Site C that must be collected in rates, such as amortization of the assets, finance charges (interest on borrowings), operating costs to run the asset, etc.
- Note that Year 1 includes some partial year effects (Fall 2024 in service). Year 2 is a full year.

	Year 1 (F2025)	Year 2 (F2026)	Comments
Costs			
Finance charges	364	359	$10.7B borrowings with interest at BC Hydro's weighted average cost of debt
Amortization	153	153	$10.7B w/ straight line amortization over 70 years
Operating Costs	15	40	Year 1 operating costs lower as not all units operational for full year
Total Financing Costs	**532**	**552**	
Revenues			
Power Sales	140	256	Not all units operational for full year 1 Year 1 sales: ~3,100 GWh Year 2 sales: 5,286 GWh
Rate Increase	392	296	one time rate increase of **6.5**% in year 1 to close the gap, followed by rate decreases over time
Total Revenues	**532**	**552**	

- To bring Site C into rates, one option is to have a one-time rate increase related to Site C costs of about **6.5**% in fiscal 2025 after the project completes. There would be rate decreases after that, with Site C's impact on rates decreasing as more and more of the energy serves domestic load. The project becomes positive to rates (revenues more than covering project costs) by about fiscal **2033**. The blue line in the chart below shows this.



- Another option is shown by the red dotted lines in the chart above. This option involves smoothing the impact of the project into rates. This would avoid the one-time increase of **6.5**% noted above. One way of smoothing the impact into rates could be over a 10 year period. This would see an estimated rate increase of about 1.1% in the first year (fiscal 2025), and an additional about 1.1% rate increase in the second year (fiscal 2026). No further incremental rate increases would be needed related to Site C costs for the remaining 8 years of the 10 year smoothing period. At the end of the smoothing period, there would be a decrease in rates. This is also seen in the chart above.
- Rate increases, and the use of any smoothing approach, would be proposed by BC Hydro but would be subject to BC Utilities Commission review ard approval.

Les MacLaren
Assistant Deputy Minister
Electricity and Alternative Energy Division
BC Ministry of Energy, Mines and Petroleum Resources
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Cell: 250-889-3479
Energizing BC—clean, sustainable and productive

From:	Haslam, David GCPE:EX
To:	Nikolejsin, Dave MNGD:EX; MacLaren, Les EMPR:EX
Cc:	Rowe, Katherine EMPR:EX; Cutler, Scott EMPR:EX; Grewar, Colin GCPE:EX; Plummer, Glen GCPE:EX; Sovka, David GCPE:EX; Giles, Alison GCPE:EX; Dalal, Suntanu GCPE:EX
Subject:	Site C materials
Date:	Monday, December 11, 2017 8:20:23 AM
Attachments:	s.13 Backgrounder 3 Site C Termination Implications for BC Hydro Customers and BC Taxpayers - Dec10V1.docx Backgrounder 2 Site C -From Private Power to Site C Dec10-V1.docx Backgrounder 1 Site C Mitigation Elements - Dec10V2.docx s.13 SiteC-NR-Dec10V2.docx

All – attached are the final Site C materials. Please note: This is still unofficial in that these have not gone through Writing & Editorial services yet. s.13

s.13 Just an FYI. Secondly, we're re-working the QA s.13

s.13 Colin Grewar is working on it. Glen Plummer (cc'd) is getting the materials thru the editors and will send finals. Thanks - David

Page 30 to/à Page 33

Withheld pursuant to/removed as

s.13

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
Dec. 11, 2017

Site C Quick Facts & Mitigation Elements

Quick Facts:

- The Site C project is already two years into construction.
- To date, $2.1 billion has already been spent; it's estimated that another $1.8 billion would be needed for site remediation (which, even then, would not restore the site to its previous condition).
- The $4 billion in Site C termination costs is equivalent to $860 for every British Columbian, or eliminating taxpayer-supported capital projects:
    - 66 secondary schools ($60 million each); or,
    - 11 hospital projects similar to the North Island Hospitals (Province's share $365 million); or,
    - 12 highway projects similar to the Okanagan Valley Corridor Project (Province's share $ 330 million); or,
    - 3 Pattullo Bridges ($1.3 billion each).
- 99 per cent of Class 1-5 agricultural lands (capable of crop production) in the Peace Agricultural Region will not be affected by Site C. Permanent loss of approximately 3,800 hectares of class 1-5 agricultural lands leaves approximately 2.7 million hectares of Class 1 to 5 lands available for agricultural production in the Peace Agricultural Region.

New Management Direction

- A new Project Assurance Board – made up of BC Hydro, independent experts and government representatives - will provide enhanced oversight to future contract procurement and management, project deliverables, environmental integrity, and quality assurance – all within the mandate of delivering the project on time and budget. Based on current projections, BC Hydro has revised the budget to $10.7 billion.
- *EY Canada* has been retained by BC Hydro to provide dedicated budget oversight, timeline evaluation and risk assessment analysis for the duration of the project.

Agriculture

- Activate the $20 million agricultural compensation fund established to offset lost sales and stimulate agriculture enhancements in the Peace region.
- Government will establish a new dedicated BC Food Security Fund – based on Site C revenues – dedicated to supporting farming and enhancing agricultural innovation and productivity across BC.

Community Benefits

- New Community Benefits Programs will be established with a mandate to ensure that project benefits flow to local communities, and increase the number of apprentices and First Nations workers hired onto the project.

- The Peace River Legacy Fund will be used to implement solutions to longer-term environmental, social and economic issues.

- Government will explore options for relocating Site C worker accommodations, post completion, to a local skills-training institution.

First Nations

- As a component of the comprehensive review of BC Hydro, the Province and BC Hydro will consider the development of a new procurement stream for smaller scale renewable electricity projects where Indigenous Nations are proponents or partners to create local employment and commercial opportunities throughout B.C. as well as environmental benefits with the replacement of diesel or fossil fuel-based energy installations. The Ministry of Energy, Mines and Petroleum Resources and the Ministry of Finance will bring these proposals to government by fall 2018.
- BC Hydro and the Ministry of Transportation and Infrastructure will work with Treaty 8 First Nations and others to redesign the Highway 29 realignment at Cache Creek to reduce impact on potential burial sites and sacred places. BC Hydro will invite proposals from Treaty 8 First Nations for this roadbuilding work.
- The Ministry of Indigenous Relations and Reconciliation and BC Hydro will continue to engage Treaty 8 First Nations to seek additional solutions to mitigate the adverse impacts of Site C, and to advance reconciliation.
- The Province will continue recent direct government engagement with First Nations to seek input into the design of a Peace River Legacy Fund and establish a collective Treaty 8 project advisory committee.
- Work will continue in addressing cultural concerns, enhancing business opportunities, and retaining funding/land transfers and contract opportunities.

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Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
Dec. 11, 2017

From Private Power to Site C: Bad Decisions that Shaped B.C.'s Electricity Policy

Government's decision to proceed with the completion of Site C was driven, in large part, by a series of bad energy policy decisions made over the past decade and a half that put politics ahead of people. These decisions significantly increased the Province's intermittent electricity energy supply and forced upward pressure on electricity rates.

In 2002, the previous government introduced the Energy Plan that mandated that all new power generation opportunities were reserved for private power producers. Through the extensive use of electricity purchase agreements, the board of BC Hydro made long-term commitments to purchase a large supply of new intermittent power, primarily through run-of-river power projects, at prices considerably higher than produced by BC Hydro's heritage hydroelectric assets.

The board of BC Hydro committed to more than 135 contracts with an average term of 28 years. And while power generated by BC Hydro's heritage assets cost $32 per MWh, power from IPPs cost $100 per MWh. Today these contracts represent future financial commitments of over $50 billion.

The Energy Plan also changed the structure of BC Hydro and established a standalone BC Transmission Corporation to allow private power producers to access the transmission system and to sell directly to large consumers.

At the same time that BC Hydro was directed to accommodate this new supply of intermittent power, the previous government also instructed BC Hydro to decommission its Burrard Generating Station in Metro Vancouver to address growing concerns about local air pollution and greenhouse gas emissions.

As BC Hydro lost needed electrical capacity to backstop its new intermittent power supply, it was forced to seek new capacity or "firm" power, the type traditionally provided by hydroelectric facilities like Site C.

In 2010, the old government introduced the Clean Energy Act, which exempted a number of BC Hydro projects and power procurement activities from independent review by the BC Utilities Commission including Site C, the Clean Power Call, the Smart Metering Program and the Northwest Transmission Line.

The former government then compounded the financial problems at BC Hydro by directing the corporation to pay dividends to the province from funds BC Hydro had to borrow. The cost of this debt is a direct cost to BC Hydro ratepayers.

Between 2001 and 2017, the old government directed BC Hydro to increase its liabilities held in regulatory accounts from $116 million to $5.597 billion. These costs will have to be recovered from ratepayers in the future.

As a result of these earlier policy decisions, the old government saddled BC Hydro with a new supply of long-term expensive intermittent power, without the electrical capacity to maintain reliable service to its customers.

Faced with challenges of its own making, the old government decided to push ahead with Site C without allowing review by B.C.'s independent regulator, the BC Utilities Commission.

Contact:
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250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
Dec. 11, 2017

Site C Termination Implications for BC Hydro Customers and BC Taxpayers

The decision to proceed with construction of Site C was primarily driven by a determination that British Columbians should not have to take on $4 billion in debt with nothing in return for the people of this province and, even worse, with massive cuts to the services they count on.

Analysis conducted by the Ministry of Finance, Ministry of Energy, Mines and Petroleum Resources, and external experts on the BC Utilities Commission (BCUC) report concluded that completing Site C will be significantly less costly to British Columbians than cancelling the project.

In its report, the BCUC estimated that BC Hydro would need to spend an additional $1.8 billion for termination and site remediation costs if it were to cancel the project. This is in addition to the $2.1 billion of sunk construction and planning costs that will have been spent by the end of December 2017.

Faced with an immediate and unavoidable $4 billion debt, the Province would have to recover these costs from either BC Hydro customers or taxpayers. As a regulated utility, BC Hydro is obligated to file a plan with the independent BCUC who would ultimately determine which course of action it deemed most appropriate.

The BCUC did not take a position with respect to the options for debt recovery, however, government conducted extensive analysis of the fiscal and rate implications of likely debt recovery options.

If the BCUC determined that BC Hydro could recover the nearly $4 billion in Site C costs from its customers, the Commission would then have to decide what the repayment period should be:

- Under a 10-year recovery period, BC Hydro customers could face a one-time 12.1% rate increase that would last for the next decade. This would be in addition to any other rate increases required to cover BC Hydro's ongoing debt servicing and other operating costs, including recovery of its rate deferral accounts.
- Under a longer recovery period of 70 years, customers would not face short-term rate impacts. Such a move would, however, force future generations to pay for a valueless asset from which they never receive benefits. This course of action would also increase the risk that provincial bond rating agencies would bring into question BC Hydro's financial sustainability, thus increasing the risk that BC Hydro's entire debt load becomes viewed as non-commercial. This would place significant pressure against the Province's AAA credit rating and annual borrowing costs.

If the BCUC decided that BC Hydro should not recover the $4 billion of Site C debt from its customers, the corporation and the Miniser of Finance would face two options that would significantly impact BC taxpayers.

If BC Hydro retained the $4 billion debt:

- It would first be obligated to write off the Site C costs as unrecoverable thus causing BC Hydro and the Province to slip into significant deficits. The corporation would then face an even higher risk of no longer being viewed by rating agencies as self-supporting and having its entire debt reclassified as non- commercial.
- Such a move would significantly risk the Province losing it's AAA rating with a resultant increase in borrowing costs, thus reducing the annual budget available for key priority spending areas.

If government itself chose to assume the nearly $4 billion of Site C debt – thus safeguarding BC Hydro:

- It would immediately increase B.C.'s level of taxpayer-supported debt from about $44.6 billion to $48.6 billion.
- This increase would also erode the Province's key fiscal sustainability debt-to-revenue ratio by 7-8 percentage points – a measure critically assessed by provincial bond-rating agencies and ultimately determines the Province's borrowing and debt-servicing costs.
- Taking on the Site C debt into government taxpayer-supported debt would likely eliminate planned increases in provincial capital spending over the next two years. For context, $4 billion in assumed Site C debt could pay for the equivalent of:

    - 66 secondary schools ($60 million each); or,
    - 11 hospital projects similar to the North Island Hospitals (Province's share $365 million); or,
    - 12 highway projects similar to the Okanagan Valley Corridor Project (Province's share $ 330 million); or,
    - 3 Pattullo Bridges ($1.3 billion each).

- This additional taxpayer-supported debt load would also increase operating costs in the provincial budget by $120 million to $150 million annually – putting at risk the services British Columbians count on.

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Page 40 to/à Page 42

Withheld pursuant to/removed as

s.13

BRITISH COLUMBIA

NEWS RELEASE

For Immediate Release
[release number]
Dec. 11, 2017

Office of the Premier

Government will complete Site C construction

Will not burden taxpayers or Hydro customers with previous government's debt

VICTORIA – The B.C. government will complete construction of the Site C hydroelectric dam, saying that to do otherwise would put British Columbians on the hook for an immediate and unavoidable $4-billion bill – with nothing in return – resulting in rate hikes or reduced funds for schools, hospitals, and important infrastructure.

"Megaproject mismanagement by the old government has left B.C. in a terrible situation," said Premier John Horgan in making today's announcement. "But we cannot punish British Columbians for those mistakes and we can't change the past, we can only make the best decision for the future.

"It's clear that Site C should never have been started. But to cancel it would add billions to the province's debt – putting at risk our ability to deliver housing, child care, schools and hospitals for families across B.C. And that's a price we're not willing to pay," said Horgan.

Had government decided to cancel Site C, it would have taken on the project's $3.9 billion in debt, made up of $2.1 billion already spent and another $1.8 billion in remediation costs. As public debt, it would become the responsibility of BC Hydro customers or taxpayers.

"We will not ask British Columbians to take on $4 billion in debt with nothing in return for the people of this province and, even worse, with massive cuts to the services they count on.

"The old government recklessly pushed Site C past the point of no return, committing billions of dollars to this project without appropriate planning and oversight. Our job now is to make the best of a bad deal and do everything possible to turn Site C into a positive contributor to our energy future."

The premier says that in moving forward with the project, his government will launch a Site C turnaround plan to contain project costs while adding tangible benefits. The plan will include:

- A new Project Assurance Board that will provide enhanced oversight to future contract procurement and management, project deliverables, environmental integrity, and quality assurance – all within the mandate of delivering the project on time and budget. Based on current projections, BC Hydro has revised the budget to $10.7 billion.
- Establishing new Community Benefits Programs, mandated with making sure that project benefits assist local communities, and increasing the number of apprentices and First Nations workers hired onto the project.
- A new BC Food Security Fund – based on Site C revenues – dedicated to supporting farming and enhancing agricultural innovation and productivity across BC.

In addition to funding for provincewide food security initiatives, the turnaround plan will:

- Ensure the Peace River Legacy Fund implements solutions to longer-term environmental, social and economic issues.
- Activate the $20-million agricultural compensation fund to offsets lost sales and stimulate long-term productivity enhancements in Peace Valley agriculture.

"We're taking the steps the previous government showed no interest in: a solid budget, enhanced review and oversight, community benefits, and an eye to the future," said Horgan.

"We're putting an end to the years of energy policy that put politics ahead of people – where government forced BC Hydro into costly contracts, hiking rates for homeowners and renters, and delivering dividends to government it simply couldn't afford."

Horgan adds his government will also be pursuing an alternative energy strategy to put B.C more firmly on the path to green, renewable power that helps the province exceed its climate goals.

"I respect and honour the commitment of people who oppose Site C, and share their determination to move B.C. to a clean, renewable energy future and to embrace the principles of reconciliation with Indigenous communities," said Horgan, who acknowledged that Site C does not have the support of all Treaty 8 First Nations. "We know this decision is not what some First Nations wanted. Their voices were heard and their perspectives were an important part of the deliberations on a very challenging decision."

"As we move forward, I welcome ideas from across our province as we define an energy strategy that protects our environment, delivers on our climate responsibilities, powers future generations, and creates jobs and opportunities for all British Columbians."

- 30 -

Media contact:
Jen Holmwood
etc

From: MacLaren, Les EMPR:EX
To: Rowe, Katherine EMPR:EX; Grewar, Colin GCPE:EX
Cc: Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
Subject: RE: Mitigation Elements
Date: Monday, December 11, 2017 8:55:42 AM
Attachments: image001.jpg

Just clarified with GCPE HQ (Evan and Eric) that:

- Community Benefit Programs is existing community agreements plus more concerted effort to get apprentices training on the job
- Food Security Fund would be a share of the Provinces water rentals (amount TBD) after project is in operation
- Peace River Legacy Fund is the existing Peace Valley Agreement

---

- $20M AGRI mit/comp is already in the project

Please adjust QAs accordingly.
Les

- **From:** Rowe, Katherine EMPR:EX
  Sent: Monday, December 11, 2017 8:49 AM
  To: Grewar, Colin GCPE:EX
  Cc: MacLaren, Les EMPR:EX; Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
  Subject: RE: Mitigation Elements

Hi Colin – I've provided some answers, below. I am not familiar at all with the BC Food Security Fund – this is the first time I've heard of that. GCPE Central, or the Ministry of Agriculture may know more?

From: Grewar, Colin GCPE:EX
Sent: Monday, December 11, 2017 8:16 AM
To: Rowe, Katherine EMPR:EX
Cc: MacLaren, Les EMPR:EX; Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
Subject: Mitigation Elements

Morning Katherine: I'm thinking Les is busy over at the Leg this morning. I was hoping you could answer the following questions related to the mitigation elements included in the announcement this morning:

Q. What is the Peace River Legacy Fund? Is it a new program or already in existence? How is it (will it be funded)?

This fund is not yet established. It is intended to be a dedicated initiative, potentially modelled after the Columbia Basin Trust, and could be used to

- enhance and amplify current provincial efforts to promote local food production and distribution under the "Growing Forward" strategy and other initiatives (unless this is also the intent of the BC Food Security Initiative?), and/or
- empower Peace region residents to develop and implement local solutions to longer-term local issues, including local environmental/habitat restoration projects, and gaps in community needs not being met through the Peace Valley Agreement and/or the NDIT.

It is now yet known how the Peace Valley Legacy Fund would be funded. MEMPR will coordinate with AGRI, JTT, FLRNORD and other ministries as appropriate to consult with Peace Valley residents and local governments, First Nations, stakeholders and others to bring recommendations for a man

Q. Are the new Community Benefits Programs in addition to the community benefit agreements that BC Hydro has already signed with communities and the Peace River Regional District? How will these programs be funded and administered? How much

funding has been set aside for them?

These are the same agreements that BC Hydro has already signed with communities and the PRRD. There is no change to how they will be funded and administered.

Q. How is the new dedicated B.C. Food Security Fund different than the Agriculture Mitigation and Compensation Plan (and $20 million compensation fund) already in place?

Sorry, I don't know the answer on this one. It wasn't part of the mitigation strategies that EMPR put forward as part of the Site C Cab Sub.

I'd like to include these questions in the QA we are working on.

Thanks,

Colin

Colir Grewar
Publ c Affairs Officer
Government Communications and Public Engagement
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From: Buchanan, Jack EMPR:EX
To: Wingfield, Irene EMPR:EX; EMPR Electricity and Alternative Energy Division
Subject: RE: one Link for today"s Site C announcement - FYI
Date: Monday, December 11, 2017 11:35:03 AM

Press release is here...

https://news.gov.bc.ca/releases/2017PREM0135-002039

From: Wingfield, Irene EMPR:EX
Sent: Monday, December 11, 2017 9:30
To: EMPR Electricity and Alternative Energy Division
Subject: one Link for today's Site C announcement - FYI

Hi

Here is one link for the decision announcement happening today for anyone interested:

https://www.cheknews.ca/fate-of-site-c-to-be-announced-monday-how-to-watch-on-chek-396542/

From: Rowe, Katherine EMPR:EX
To: MacLaren, Les EMPR:EX; Grewar, Colin GCPE:EX
Cc: Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
Subject: Updated: Mitigation Elements
Date: Monday, December 11, 2017 9:54:00 AM
Attachments: image001.jpg

Hi Colin – here are some updated responses based on the info Les just sent through

1. The Peace Valley Legacy Fund

The Peace Valley Legacy Fund will replace the existing Peace Valley Agreement (formerly known as FairShare), which is administered by the Ministry of Municipal Affairs and Housing.

This agreement, between the Province and Peace region local governments, was signed in 2015 in recognition that the Northeast is a major contributor to the economic development of the province through the oil, gas, and forest industries. The Northeast is home to nearly half of the province's rural property assessment for utilities and industry (Property Classes 2, 4 and 5). Most of this assessment is outside the taxing jurisdiction of the local governments in the region. To address this inequity, the Province provides the eight local governments in the region with annual funding under the Peace Valley Legacy Fund.

Annual funding under the agreement is $50 M a year over 20 years (2015-35) with a 2% annual inflator commencing in 2020; with a total value of $1.1 B over the 20-year term. The money is allocated to the eight local governments based on a formula set in the agreement. Roughly about 80% of the funding goes to the two largest regional centres (Dawson Creek and Fort St. John); 6% goes to the Peace River Regional District (PRRD); and the remaining 14% goes to the smaller municipalities (Chetwynd, Hudson's Hope, Pouce Coupe, Tumbler Ridge, and Taylor). The funds are to be used to upgrade, maintain, and expand the local government services and infrastructure necessary to facilitate the economic expansion of industry in the Peace River region (especially oil, gas, and forest products), with an emphasis on capital investments, asset management, and planning.

2. The Community Benefits Agreements

Existing Community Benefits Agreements between BC Hydro and Peace Valley communities will be enhanced, to bring forward benefits for workers and others as construction on Site C continues.

To date BC Hydro has reached agreements with the PRRD, the District of Chetwynd, District of Taylor and the City of Fort St. John that will provide lasting benefits for residents of the Peace region. A regional legacy benefits agreement between BC Hydro and the PRRD will provide $2.4 M annually to the PRRD and its member communities for a period of 70 years, starting when Site C is operational. The funding will be indexed to inflation.

In addition to these existing agreements, BC Hydro will work with its contractors, and labour organizations, to redouble efforts to create apprenticeship opportunities during construction, to ensure that workers from the Peace Valley and other parts of BC receive the on-the-job training and experience they need to complete their training in high skill, high demand trades.

3. The BC Food Security Fund

This is a new initiative, to be put in place in early 2025, once Site C is operational. A portion of

the water rentals paid by BC Hydro for Site C will be used to establish a fund to promote food production and distribution in the Peace River Valley, and across BC. The Province will consult with Peace Valley residents and local governments, First Nations, agricultural produces and others stakeholders and others to inform the design and implementation of this new program.

From: MacLaren, Les EMPR:EX
Sent: Monday, December 11, 2017 8:56 AM
To: Rowe, Katherine EMPR:EX; Grewar, Colin GCPE:EX
Cc: Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
Subject: RE: Mitigation Elements

Just clarified with GCPE HQ (Evan and Eric) that:

- Community Benefit Programs is existing community agreements plus more concerted effort to get apprentices training on the job
- Food Security Fund would be a share of the Provinces water rentals (amount TBD) after project is in operation
- Peace River Legacy Fund is the existing Peace Valley Agreement

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- $20M AGRI mit/comp is already in the project

Please adjust QAs accordingly.
Les

- **From:** Rowe, Katherine EMPR:EX
  Sent: Monday, December 11, 2017 8:49 AM
  To: Grewar, Colin GCPE:EX
  Cc: MacLaren, Les EMPR:EX; Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
  Subject: RE: Mitigation Elements

Hi Colin – I've provided some answers, below. I am not familiar at all with the BC Food Security Fund – this is the first time I've heard of that. GCPE Central, or the Ministry of Agriculture may know more?

From: Grewar, Colin GCPE:EX
Sent: Monday, December 11, 2017 8:16 AM
To: Rowe, Katherine EMPR:EX
Cc: MacLaren, Les EMPR:EX; Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
Subject: Mitigation Elements

Morning Katherine: I'm thinking Les is busy over at the Leg this morning. I was hoping you could answer the following questions related to the mitigation elements included in the announcement this morning:

Q. What is the Peace River Legacy Fund? Is it a new program or already in existence? How is it (will it be funded)?

This fund is not yet established. It is intended to be a dedicated initiative, potentially modelled after the Columbia Basin Trust, and could be used to

- s (unless this is also the intent of the BC Food Security Initiative?), and/or
- empower Peace region residents to develop and implement local solutions to longer-term local issues, including local environmental/habitat restoration projects, and gaps in community needs not being met through the Peace Valley Agreement and/or the NDIT.

It is now yet known how the Peace Valley Legacy Fund would be funded. MEMPR will coordinate with AGRI, JTT, FLRNORD and other ministries as appropriate to consult with Peace Valley residents and local governments, First Nations, stakeholders and others to bring recommendations for a man

Q. Are the new Community Benefits Programs in addition to the community benefit agreements that BC Hydro has already signed with communities and the Peace River Regional District? How will these programs be funded and administered? How much

funding has been set aside for them?

These are the same agreements that BC Hydro has already signed with communities and the PRRD. There is no change to how they will be funded and administered.

Q. How is the new dedicated B.C. Food Security Fund different than the Agriculture Mitigation and Compensation Plan (and $20 million compensation fund) already in place?

Sorry, I don't know the answer on this one. It wasn't part of the mitigation strategies that EMPR put forward as part of the Site C Cab Sub.

I'd like to include these questions in the QA we are working on.

Thanks,

Colin

Colin Grewar
Public Affairs Officer
Government Communications and Public Engagement
Ministry of Energy, Mines and Petroleum Resources
Phone: 250-952-0650
Colin.Grewar@gov.bc.ca

Site C
Technical Briefing

Don Wright
Deputy Minister to the Premier
December 11, 2017

BRITISH COLUMBIA

After review by BCUC, meeting with Treaty 8 First Nations, advice from independent experts and lengthy deliberation

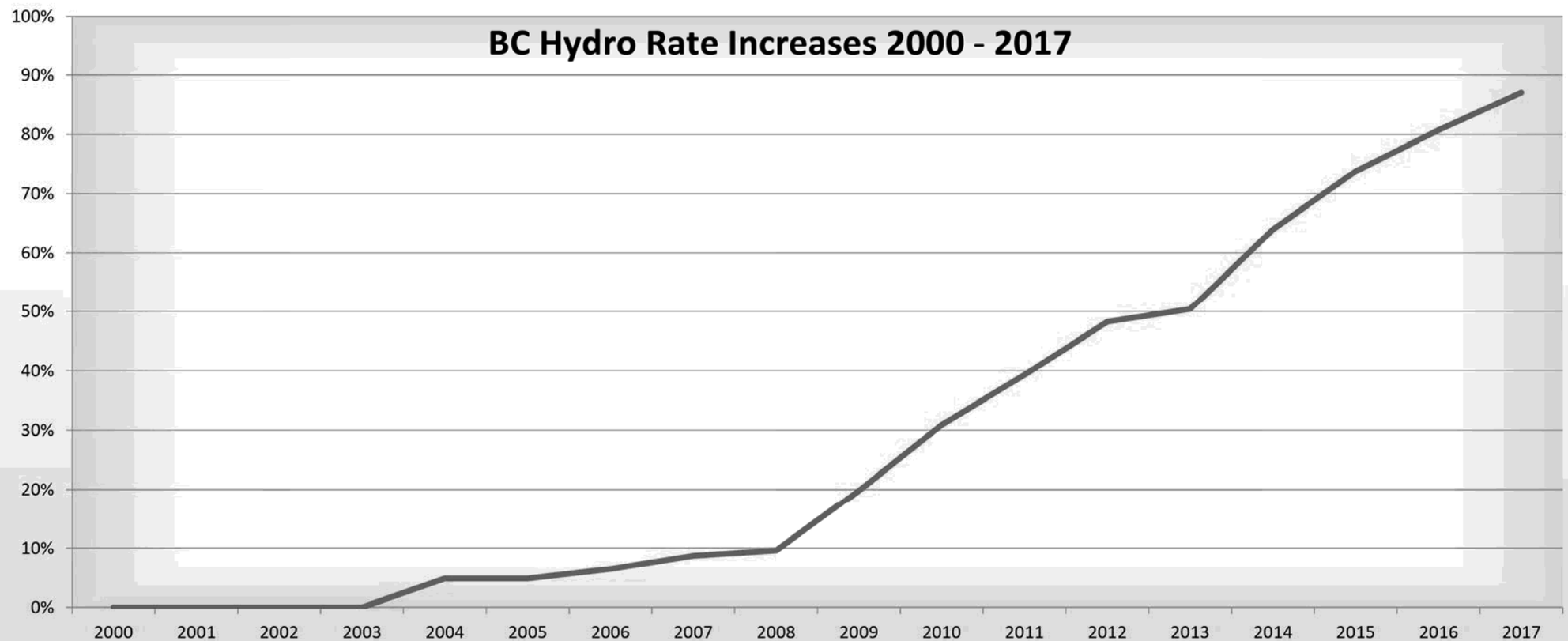
Cabinet has made the difficult decision to complete Site C construction

Outline of Technical Presentation

I. Historical Context
II. Government's Decision Criteria
III. Revised Cost Estimates
IV. Ratepayer Impacts
V. Fiscal Impacts/Risks
VI. Concluding Comments

I. Historical Context

Hydro Rates Have Been Rising Significantly Since 2003

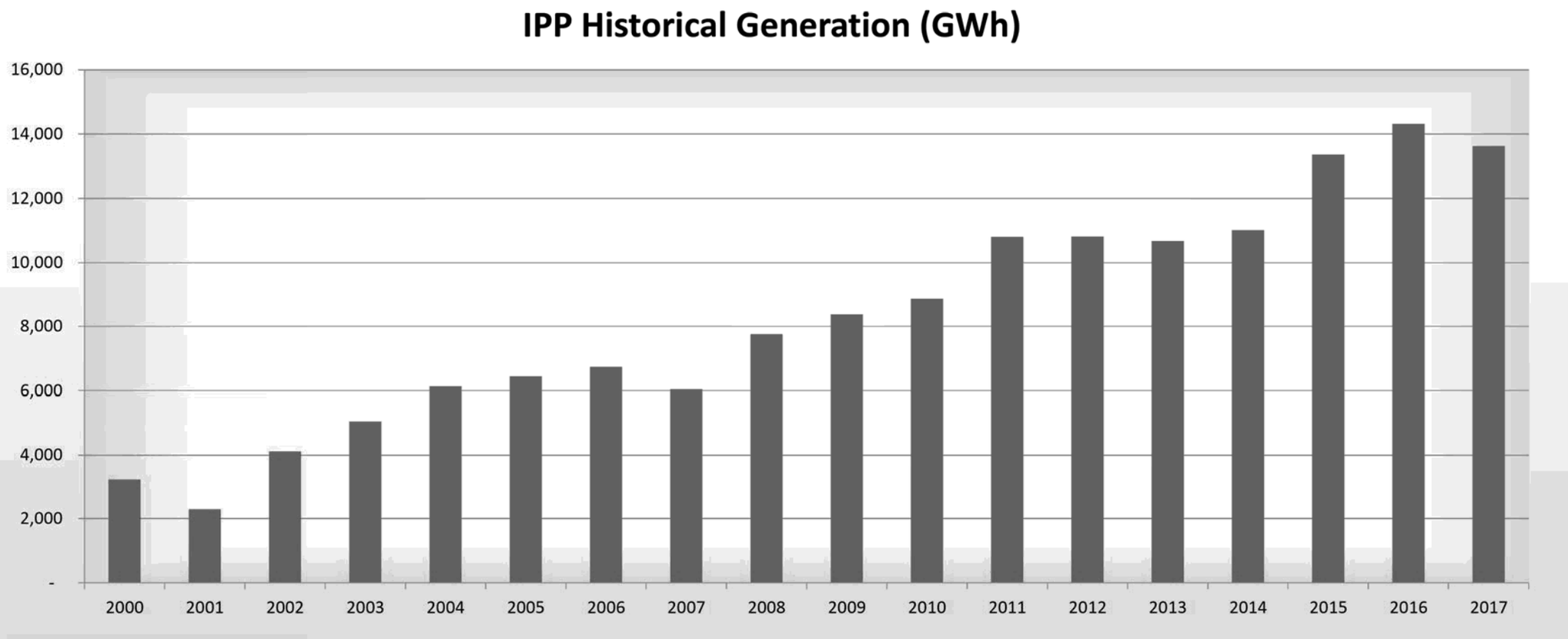


BRITISH COLUMBIA

New Power More Expensive Than Heritage Assets

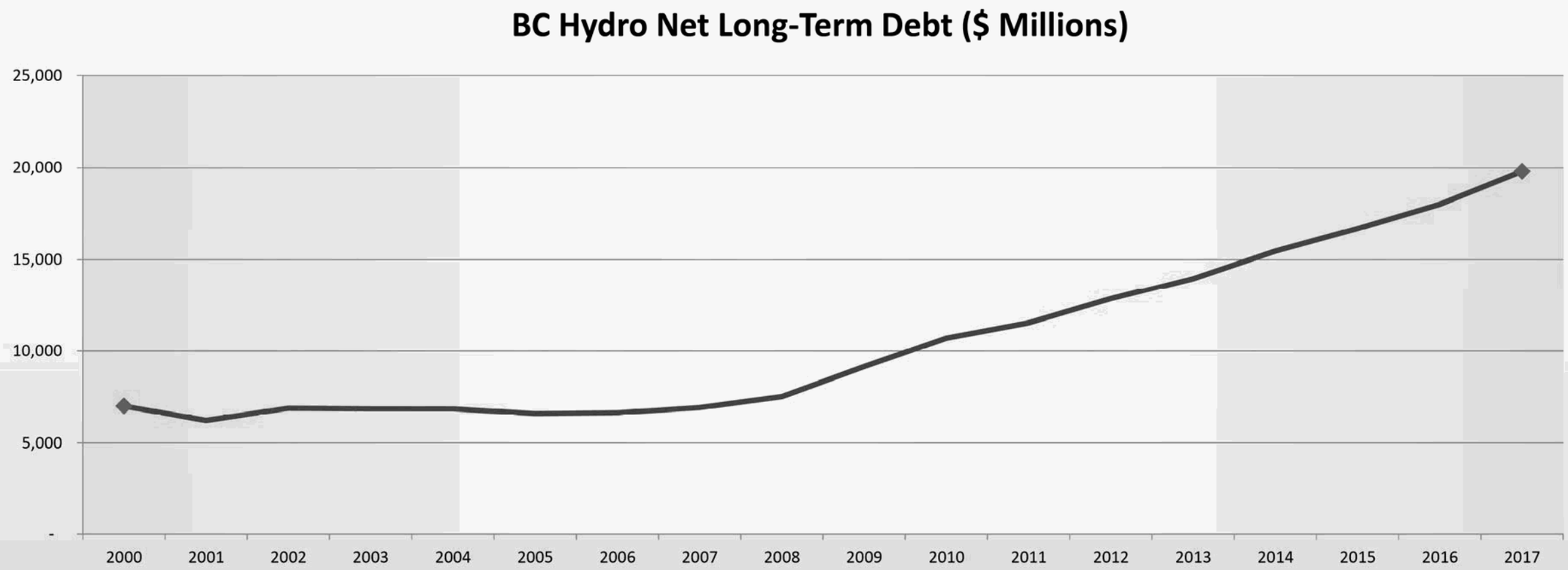
Heritage Assets	Average of IPP	Projected Site C
$32 / MWh	$100 / MWh	$60 / MWh

IPP Share of Supply Growing



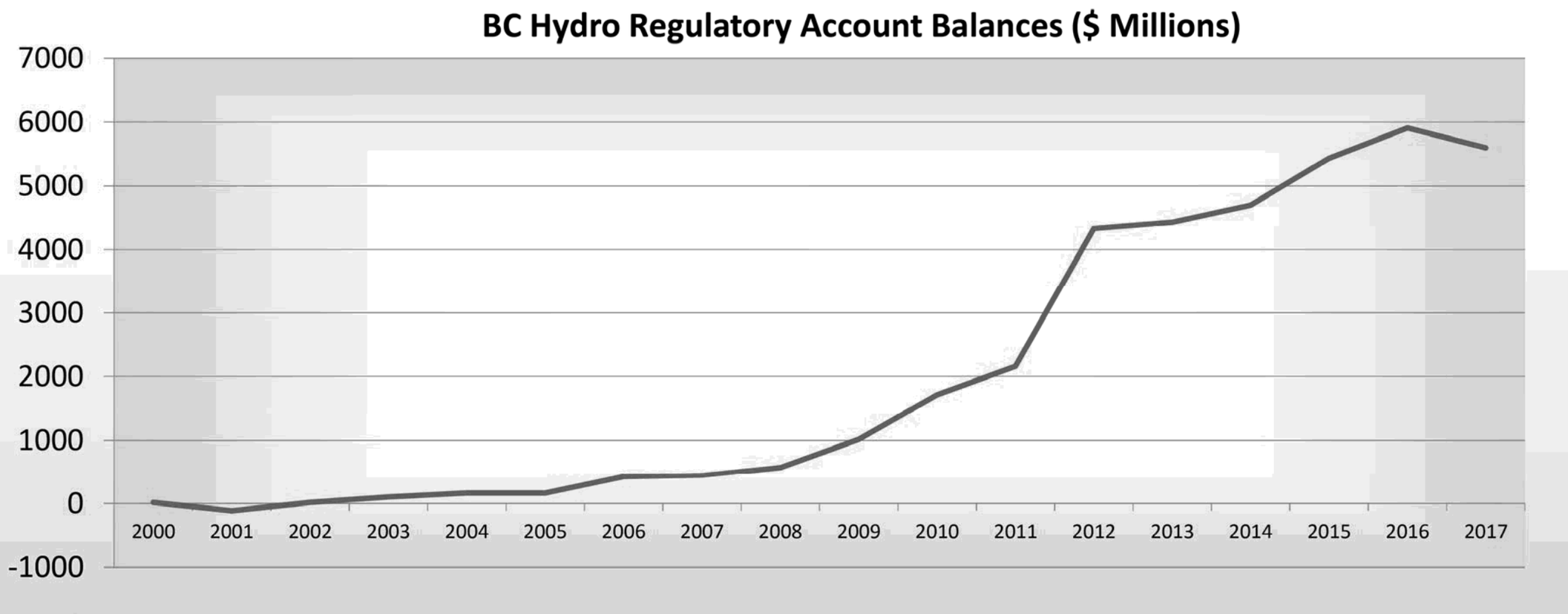
BRITISH COLUMBIA

BC Hydro Debt is Growing



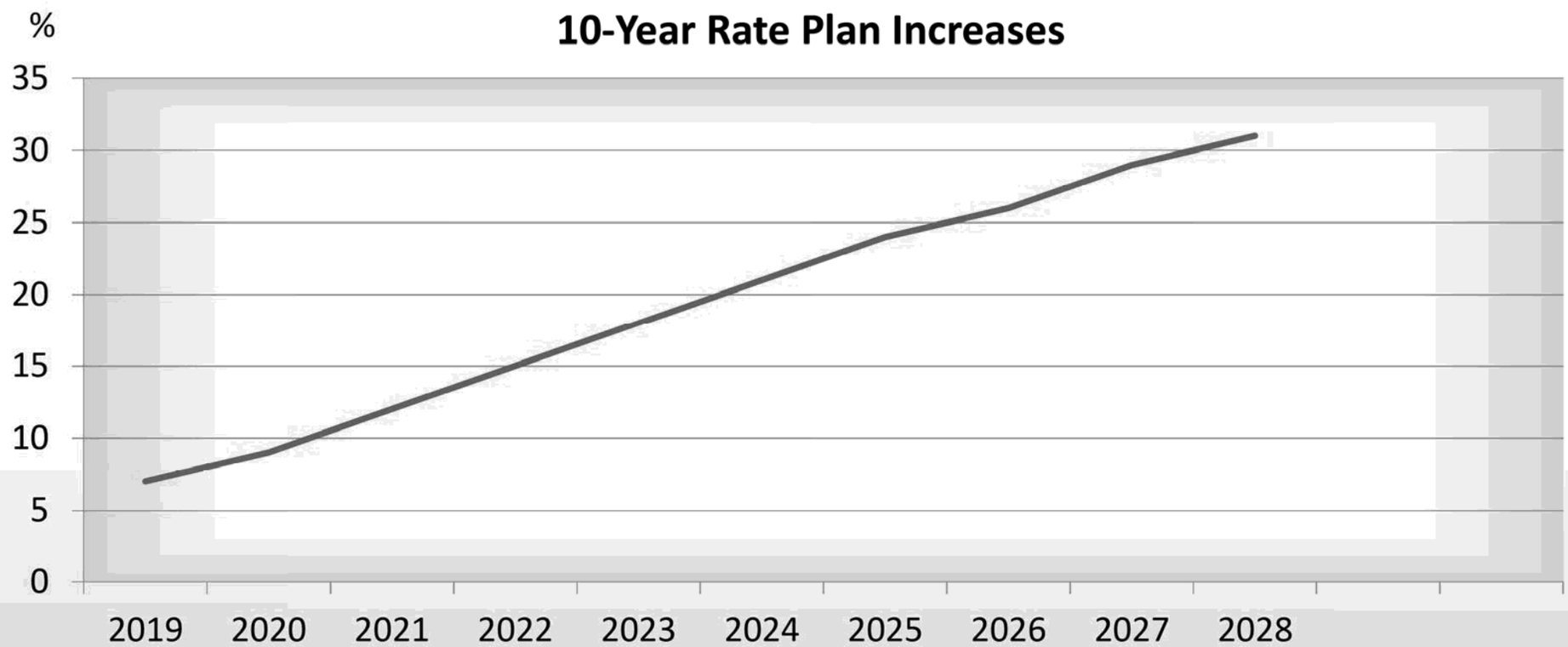
BRITISH COLUMBIA

BC Hydro's Regulatory Account Balance Is Growing



BRITISH COLUMBIA

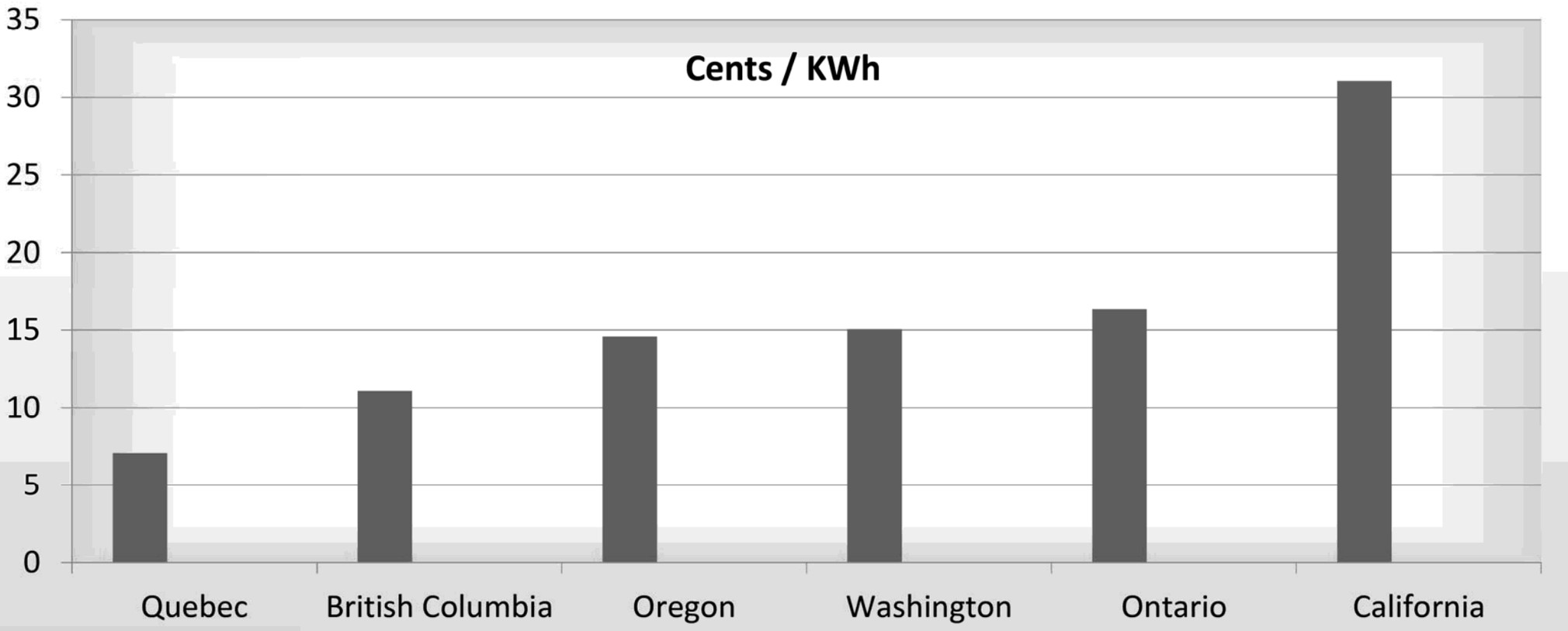
Current 10-Year Rate Plan Schedules Further Increases



BRITISH COLUMBIA

How Our Rates Compare, Residential

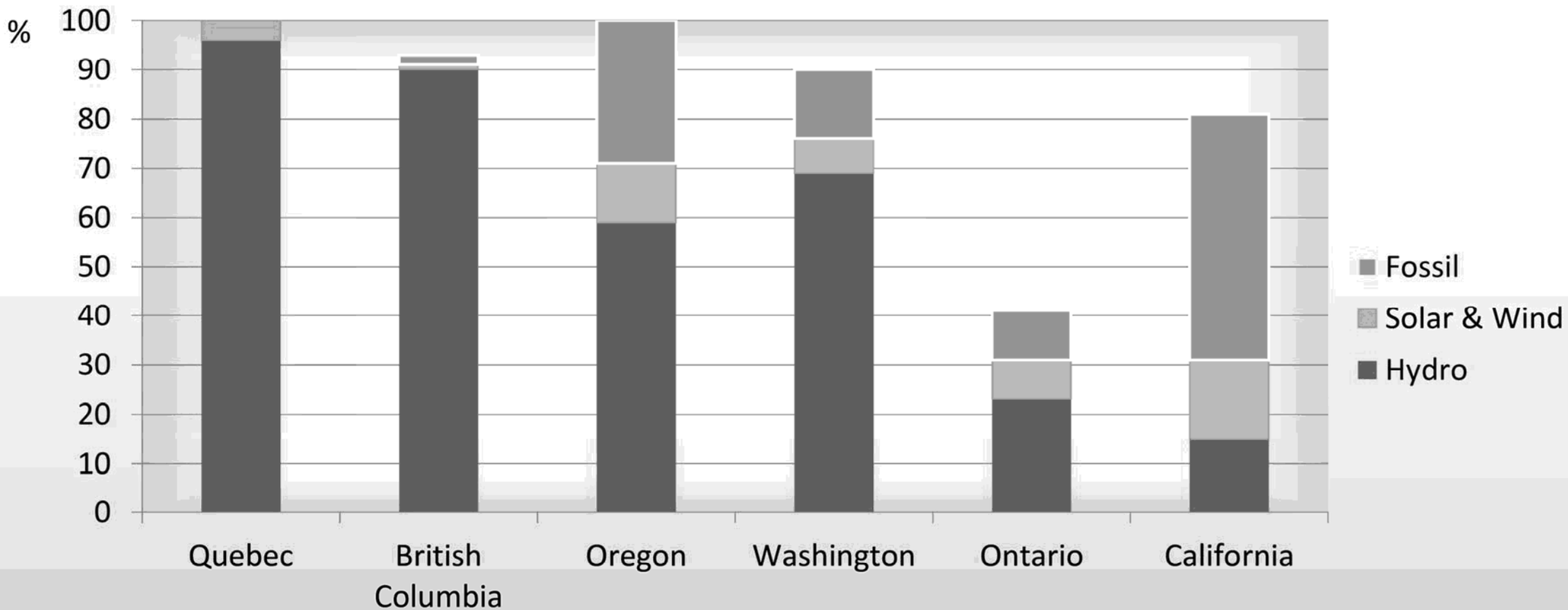
Source: Hydro Quebec, NRCAN, US EIA



BRITISH COLUMBIA

Sources of Electricity

Source: Hydro Quebec, NRCAN, US EIA
Other sources to 100% includes biomass, nuclear



II. Government's Decision Criteria

Criteria

1. Ratepayer Impact
2. Fiscal Impact / Risks
3. First Nation Impacts
4. GHG Targets
5. Agriculture / Food Security

III. Revised Cost Estimates

Projected Cost to Complete: $10.7 Billion

- 2014 approval was for $8.335 billion
  - With an additional $440 million risk reserve
  - For a total of $8.775 billion
- Costs to date have exceed budgeted amounts
- One-year delay of river diversion estimated to increase costs by $610 million
- Future contracts projected to be higher than budgeted amounts
- Current mid-point estimate is now $9.992 billion
  - $1.657 billion over 2014 estimate
- Given what has happened to date, risk reserve has been increased

Change in Cost Estimate

$ millions

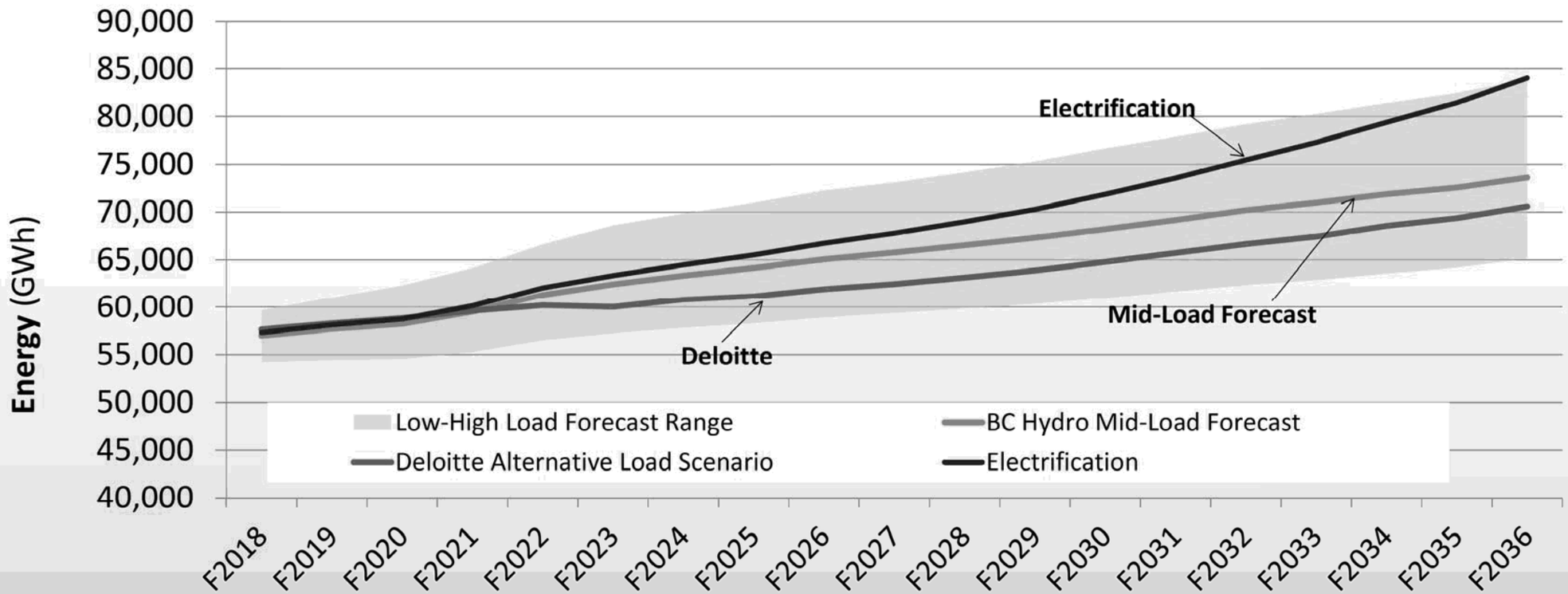
Cost	2014	Current
Direct Costs	4,940	5,839
Indirect and Overhead	1,194	2,010
Contingency	794	858
Interest before completion	1,407	1,285
Total Before Risk Reserve	8,335	9,992
Risk Reserve	440	708
Total	**8,775**	**10,700**

Comments on Cost Escalation

- Government will be putting in place enhanced oversight to ensure final costs are at or below $10.7 billion
- $10.7 billion is used in making comparisons of the continue versus terminate scenarios

IV. Rate Impacts

Comparison of Load Forecasts

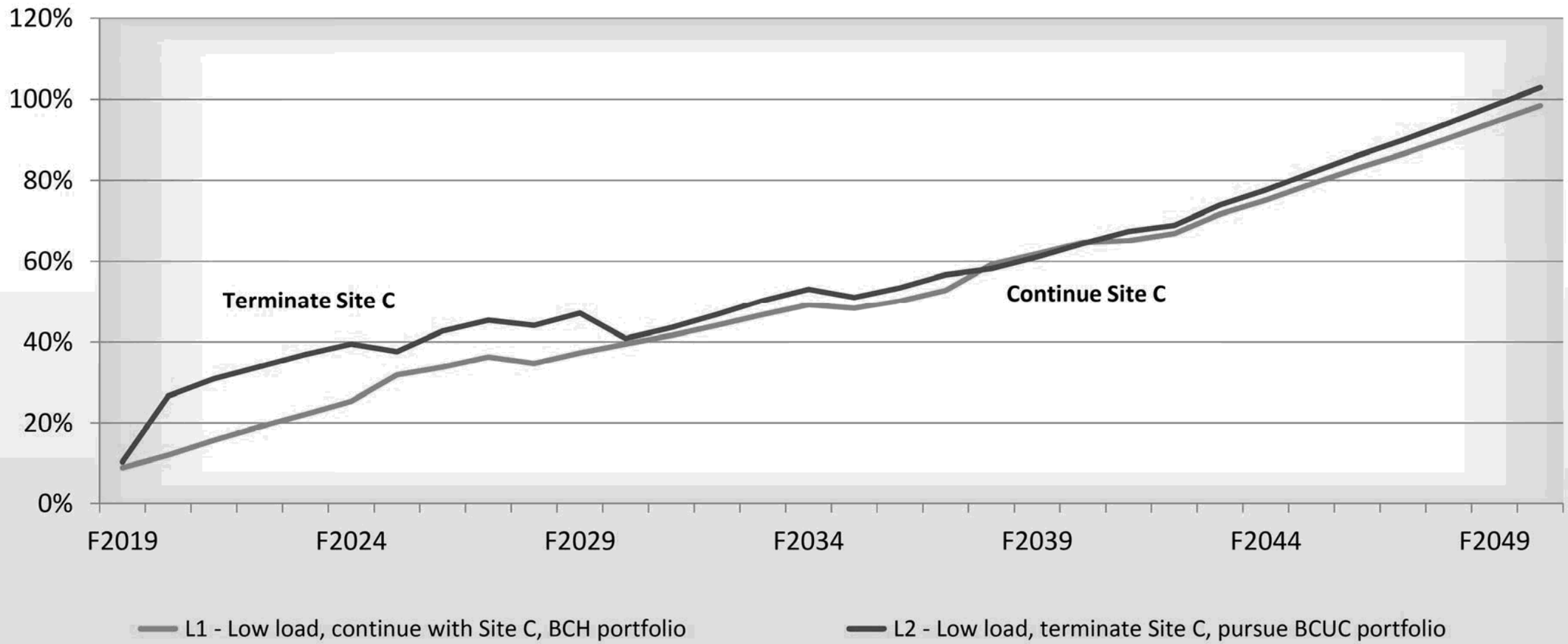


BRITISH COLUMBIA

Rate Impact Analysis Assumptions

- BCUC Low Load Forecast
- BCUC "Alternative Portfolio" assumptions
- $10.7 B Site C Cost
- 10 year amortization of $4 billion in termination scenario

Rate Impacts Under a Low Load Forecast



BRITISH COLUMBIA

What Is The Impact On Ratepayers?

Complete Site C	Terminate Site C
• Rate impact 1.1% in 2025, and 1.1% in 2026 under a rate smoothing scenario over 10 years, then decreasing (assuming revised $10.7B project cost)	• Increases rates, starting in 2020 to recover sunk and termination costs • A 12% rate increase would need to be in place for 10 years

BRITISH COLUMBIA

Impact of Terminating Site C on Customers

Results in a rate increase of 12%, effective 2020

Single Family Home, Vancouver Island

- Annual hydro bill $1,650 — **+$198 / year**

Lumber Mill, BC Interior

- Annual hydro bill $1.6 million — **+$192,000 / year**

Medium Data Centre

- Annual hydro bill $1.5 million — **+$180,000 / year**

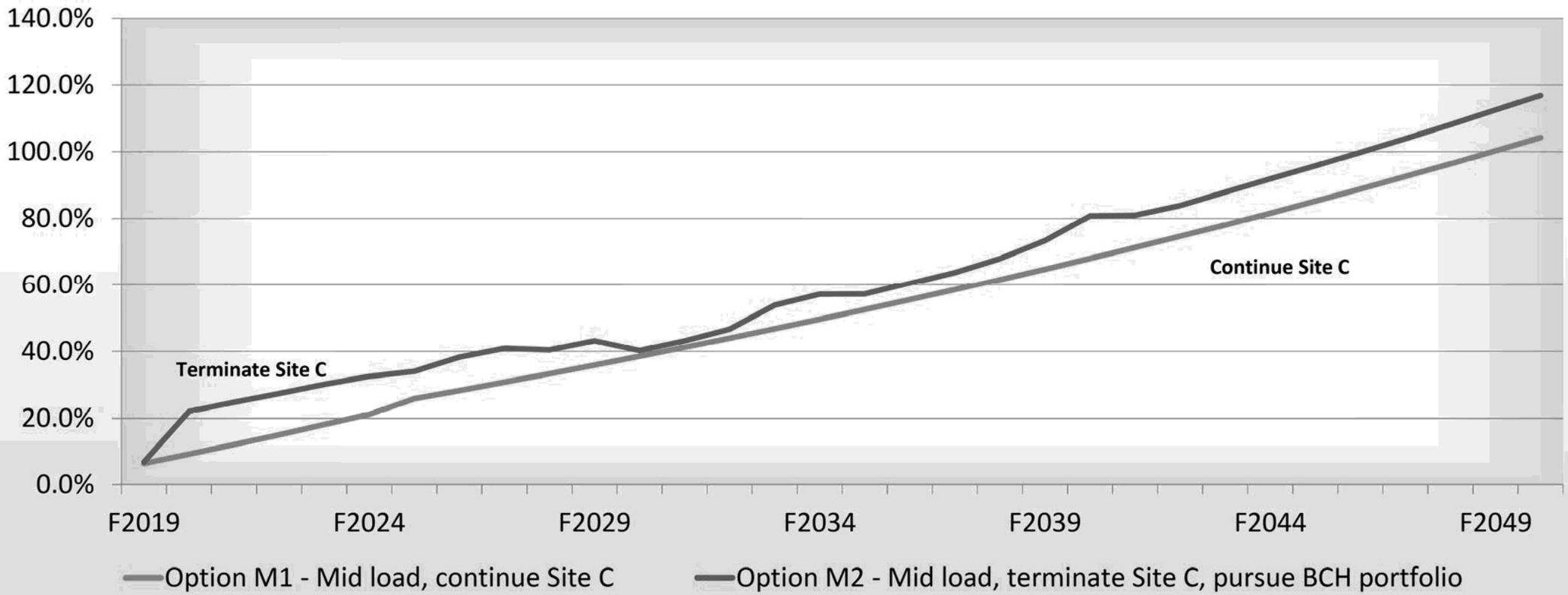
Large Lower Mainland Hospital

- Annual hydro bill $3.1 million — **+$372,000 / year**

Demand Affects Relative Rate Impact

- If demand exceeds low load forecast, relative advantage of complete scenario increases over terminate scenario

Rate Impacts Under a Mid Load Forecast



BRITISH COLUMBIA

V. Fiscal Impacts / Risks

Some Inconvenient Arithmetic

- If government decided to terminate, $4 billion in debt has to be absorbed by someone
  - Ratepayers
  - BC Hydro
  - Taxpayers
- The previous section looked at the implications if ratepayers absorbed the cost

Could BC Hydro Absorb Termination Costs?

- They could
- But this would
  - Wipe out more than 80% of BC Hydro's equity
  - The $4 billion loss would still be consolidated on the books of the Government Reporting Entity
  - Involve ongoing debt interest costs of $120-150 million per year

Biggest Risk Of The Hydro Absorb Scenario

- In a scenario where BC Hydro was to absorb the $4 billion termination costs:
  - Credit rating agencies could determine that BC Hydro was no longer a commercially viable entity
    Resulting in $20 billion debt being reclassified as taxpayer-supported debt
    - Likely leading to a downgrade of the Province's credit rating
    - Resulting in higher interest costs for the (then) $65 billion in taxpayer-supported debt

Could the Minister of Finance Absorb Termination Costs?

- Central Government's Consolidated Revenue Fund would take on the $4 billion of debt and recapitalize BC Hydro
- This would likely preserve BC Hydro's status as a commercial entity
- But…

Having the Minister of Finance Absorb Termination Costs Would

- Still entail a $4 billion loss in Government Reporting Entity
- Still involve $120-$150 million / year in interest costs that would have to be serviced
- Could lead to a credit rating downgrade, adding even more debt interest costs to taxpayers
- Crowd out room for new capital project spending
  - Schools, hospitals, housing, bridges, highways, etc.

What is $4 Billion Equivalent To?

66 secondary schools ($60 million each); or,

11 hospital projects similar to the North Island Hospitals (Province's share $365 million); or,

12 highway projects similar to the Okanagan Valley Corridor Project (Province's share $ 330 million); or,

3 Pattullo Bridges ($1.3 billion each).

VI. Concluding Comments

In Summary

- Very tough decision for Government
- Decision to proceed primarily driven by need to:
  - Minimize impacts on BC Hydro ratepayers
  - Preserve the fiscal room to build schools, hospitals, housing, bridges etc.


Questions?

Wright - Site C proceeding [Not for attribution]
Media Availability
Monday, December 11, 2017

By Wright/MacLaren/Foster - Site C - technical briefings

Don Wright: To cut to the chase, after a lot of deliberation, a lot of consultation, a lot of agonizing, quite frankly, the cabinet has made the difficult decision to complete Site C construction. I'm going to give you an overview of how they came to that decisions and what some of the considerations were, and that's the outline of what I'm going to talk about over the next few minutes.

First of all, historical context. It's, I think, important to put this in the context of what's happened over the last 20 years. Over the last 20 years, starting in 2003, hydro rates have gone up pretty significantly, almost 90% over that period of time. Now, to some extent that's because new power is more expensive than the heritage assets of Hydro. These are our estimates of the cost per megawatt-hour of the heritage assets versus the average of the IPPs that have entered into contracts with Hydro and what the new cost estimates project the Site C costs will be. You'll note those IPP prices are quite high, and over this period of time, IPPs' share of the total hydro load has gone up. At the start of that period it was about 5%. It's now about 25%. That accounts for some of the arithmetic.

Over this period of time the debt of Hydro has been growing. Back at the start of the century it was about $7b. It's now almost $20b. The regulatory account balances have grown significantly as well. In the arcane world of regulatory accounting, these deferral accounts, as they're sometimes called, sit as assets on the balance sheet of the utility, but ultimately, they need to be recovered from the ratepayers, so you can think of them as stored-up rate increases for ratepayers down the road.

This is important. Under the ten-year plan that was adopted by the former government, the rates are scheduled to go up by another 30% over the next ten years. When I come to talk about the relative impact of Site C continuation versus Site C termination, we'll be talking about what the incremental impact would be over on top of those scheduled increases.

Now, I talked about how rates have gone up. I think it's important to remind ourselves that in a relative sense BC Hydro's rates are still relatively low in a North American context. These rates come from an annual survey that Hydro Quebec does of rates across a number of North American cities. We've got states and provinces there, but actually, those tend to be the leading cities in each of those jurisdictions. As you can see, British Columbia is at the low end of that.

I think it's also worth noting, when you look at the sources of the electricity by jurisdiction, it varies quite dramatically, and I think something quite interesting comes across in this graph. You will note that jurisdictions that have the benefit of significant hydro resources tend to have lower rates. The ones on the left-hand side of that chart tend to have lower rates. The ones on the right-hand side tend to have higher rates. That has historically been the case.

Going forward, as we try to make the shift to green energy, there is a trilemma that Bloomberg New Energy Finance often talks about. We want to have energy that is cheap, reliable and green. A lot of jurisdictions find a way to get two of the three, but very few to date have found a way to get all three. The few that seem to have done that, seem to be ones that have been blessed with a significant hydro resource, Quebec, British Columbia. In Europe, Norway is probably the primary example of that.

Now, what criteria did the government use in making its decision? As you can imagine, this was a very difficult, complex decision with lots of factors they had to take into account. These are a list of the most prominent ones, and I think it's fair to say that as they worked through their deliberations, those first two were the ones that really tended to dominate their decision-making.

I want to talk quickly about the revised cost estimates for the project. You'll hear the Premier go out today and talk about we are now projecting that the project will cost $10.7b to complete. These come from the most recent Hydro numbers.

A few things that I will point there is the original project was approved at about $8.3b in 2014. That was what we call the midpoint range of the estimate. The government did allow for a risk reserve of another $440m on top of that to allow for unforeseen problems. Well, the costs to date have exceeded all of the budgeted amounts. You may have heard a fair amount of talk about the one-year delay. The estimate of that one-year delay is a $610m addition to costs, and the future contracts that have yet to be let are projected to be above the budgeted amounts. So the midpoint estimate is now just a little south of $10b. It's about $1.7b over that original $8.3b. And given what has happened to date, this has been a challenging project, and the decision has been made to increase the risk reserve an extra $700m.

Here is those numbers in more detail. As Don pointed out, these slides will be available at noon, so you don't have to worry a whole lot about getting down the details, but I will make one basic comment. You will look at the contingency line in that table and look at the risk reserve line in that table. We are already well into this project, approximately $2b of the costs we know with certainty, so we don't have to provide any contingencies for them, because we already know what they are. Notwithstanding the fact that we are talking about a partial project going forward, we have increased the levels of contingencies and increased the risk reserve, because the government wanted to make sure that if it did make the decision to go ahead, there weren't going to be those surprises down the road that might invalidate the decision they made.

In terms of the [climate and the cost] escalation, the government has been and will be putting in place further things to enhance the oversight of the project. The Premier may talk about this a little bit when he makes his remarks, and we will be having more to say about that down the road.

And then the other thing I think is important to point out is when we talk about the relative impacts, we are using the $10.7b, not the $10b that the Utilities Commission used, nor the $8.3b that the original decision was made on.

So what are the rate impacts of this going to be? Before we talk about the rate impacts, I just wanted to talk a little bit about the load forecasts. Those of you that have been following the debate know that this has been perhaps the most contested part of the debate that's been going on. How much electricity does BC need? What I have on that chart is a number of different lines. First of all, the grey-shaded area is the range of BC Hydro's load forecasts. The very bottom of that grey range is the low load forecast, the very top is the high load forecast, and then the green line in the middle is their mid-load forecast. The light blue line below the green line is Deloitte's load forecast. You'll recall that Deloitte did a study for the Utilities Commission, and that was their prediction of what the load forecasts would be. Then the final line is our best estimate of the demand that would be required if we electrified sectors of the economy, trying to meet the carbon reduction commitments that the province has made in the context of the Paris accord.

I just wanted to show that to you, because there is a big range in those forecasts, and as I say, it's a very contested part of this whole debate.

In terms of looking at the rate impact analysis, we have used the BCUC low load forecast, and we have used the BCUC alternative portfolio in the scenario where we decide to terminate the Site C. We are using the $10.7b Site C cost, and then if we do terminate, we were going to amortize the $4b over a ten-year period.

This chart shows, over the time from 2019 through 2049, what the rate impacts would be on the terminate-Site-C scenario or the continue-Site-C scenario. The basic story you see is that the rates would be significantly higher in the terminate-Site-C scenario for the next ten years, then the gap would narrow a little bit, but over time, the Site C still results in lower costs. Again, I will point out that this is based on the low load forecast, and we have decided to use BCUC's alternative portfolio. It's worth noting that there has been a fair amount of debate about the feasibility of that portfolio, but we asked the Utilities Commission to do the study, and we are taking their study as the base.

In terms of what this means over the next ten years, on the terminate-Site-C we would have to raise rates by 12%, and those would need to be in place for the ten-year amortization period. In the case of complete-the-Site-C scenario, we would have to raise the rates by 1.1% in 2025 and [1.1%] in 2026 to smooth the flowing in of the new energy source over a ten-year period. Then there would be decreasing after that. I just will go back to emphasizing that these are showing the costs over and above the costs that are projected based on the current ten-year rate plan.

To try to make that a little more real, we look at some scenarios. What would a single-family home on Vancouver Island with a hydro bill of $1,650 a year.? The Site C termination would mean about $200 a year more in electricity bills.

But we've also showed you a couple of business types, because at the end of the day, hydro rates are going to affect the competitiveness of our businesses, and that affects our ability to generate jobs and income for British Columbians. You can see the numbers there. The reason we put the data centre in there.. There's a lot of talk about the new economy in British Columbia, a lot of talk about big data and what role we can play. I think it's important reminding ourselves that a lot of that new economy is going to be quite energy-intense. It's interesting that Kamloops has

become an interesting centre for data centres in the province, and that's an estimate of what a medium-sized data centre in Kamloops would have happen to its electricity bill.

And then the public sector also uses a lot of electricity. This is a large lower-mainland hospital. I don't know why we're trying to protect its anonymity, but there you go. You know, a not-insignificant increase for a large hospital, as well, too.

A final note I want to make on the rate impact is that if the demand does exceed the low load forecasts, the relative advantage to [the complete] scenario increases over the terminate scenario. That chart just gives a quick flavour of that.

One final thing I'll say about this is this only talks about rate impacts, but in the BCUC's alternative portfolio, they put higher emphasis on demand-side management. In demand-side management there is actually a ratepayer's cost that doesn't get reflected in these rates, because you reduce your demand for electricity by buying more efficient refrigerators or going to a time-of-day or whatever. Those costs don't get reflected in the hydro rates.

Let's turn and look at fiscal impact and risks. Some inconvenient arithmetic. We have heard a number of people say, well, don't worry about the $4b if you terminate. Just write it off and move on. But the sad reality is that we can't just ignore that $4. It has to be absorbed by someone, either ratepayers, BC Hydro or taxpayers. The previous section looked at what happens if we had ratepayers absorb the cost, so I'm just going to run through what the implications would be if we looked at either BC Hydro or taxpayers to absorb the costs.

Could BC Hydro absorb the termination costs? Well, they could. What that would mean is they would write down more than 80% of their equity. The government entity would still show a $4b loss in that fiscal year.

Would that make it the biggest deficit we have ever had in BC, Doug?

Then there would be ongoing interest costs of $120m to $150m per year, because we can write the project off, but we unfortunately can't tell the bond holders that they don't get the interest on the bonds that we have sold them.

Now, the biggest risk of the Hydro-absorb scenario is that if we wipe out more than 80% of Hydro's equity, there would be a legitimate question as to whether Hydro would still be considered a commercially viable entity, and if the credit rating agencies decide that it's no longer a commercially viable entity, then that $20b in Hydro debt gets reclassified as taxpayer-supported debt. That would likely lead to a downgrade in the province's credit rating, resulting in higher interest rates on the now $65b of taxpayer-supported debt.

Well, rather than doing that, could we have the Minister of Finance absorb the termination costs? In essence, the central government would recapitalize BC Hydro with $4b so that their equity remains at its current levels. That likely would preserve BC Hydro's status as a commercial entity, but having the Minister of Finance absorb the termination costs would still entail that $4b loss in the government reporting entity, still involve $120m to $150m in debt-servicing costs,

could lead to a downgrade by the credit rating agencies, adding even more debt interest cost to taxpayers. But most important -- and this was really quite significant in the cabinet's decision-making -- is that it would crowd out room for new capital project spending on schools, hospitals, housing, bridges, highways, etc.

To give you an idea of what $4b is equivalent to, it's equivalent to 66 secondary schools at $60m a pop; 11 hospital projects similar to the North Island hospitals one, where the province's share was $365b; 12 highway projects similar to the Okanagan Valley corridor project -- the province's share of that is $330m -- or three new Pattullo bridges at one $1.3b each. At the end of the day this figured very prominently in the cabinet's agonizing over this decision.

Concluding comments. Obviously, a very tough decision for government. The decision to proceed was primarily driven by the need to minimize impacts on BC Hydro ratepayers and preserve the fiscal room to invest in schools, bridges, hospitals, housing, etc.

I'm happy to answer any questions.

Q and A

Reporter: Could we look back at the chart with the two comparisons and Site C costs, current and then the revised numbers? I have a couple of questions about where those came from. Direct costs have jumped by about $1b. That's the actual costs of building the project. Why have indirect costs jumped by so much? I'm not even sure what those are.

Response [not identified]: [Inaudible] construction, which you've observed. The indirects will be things like dealing with Highway 29 and the issues that are surrounding that, dealing with transmission, the reservoir, more work on the reservoir pieces, or for accommodation. There's a variety of pieces that make up indirects, and so they all start to move. Things have a cascading effect. Once one thing happens, especially, as Don alluded to, when there's a delay scenario, there's a bunch of costs that go with that.

Reporter: The other one, I guess, is the risk reserve. Is the 708 on top the 440, or is that a new reserve, so you've increased the risk reserve by about $250m?

Response: You've increased the reserve by 250, but for part of the project [inaudible].

Reporter: You said that some of the elements of the project have gone over budget already and that.. You referred to contracts that have not been awarded yet that are over budget. That's the highways, the transmission lines and the generating station spillways. Is that in the 5.8?

Response: Yes.

Reporter: But those contracts haven't been awarded yet, so you're going on the basis of the bids that have come in but the contracts haven't been awarded yet.

Response: Yes, as well as looking at what's happening to general construction costs, material costs, so on.

Reporter: But on the transmission lines and the generating station spillway, the bids are already in. Hydro knows what the bids are -- right?

Response: The generating station, that's true.

Reporter: I thought they [inaudible] that November 30.

Response: I haven't seen the numbers.

Response: In either case, Vaughn, November 30, they would just be starting to crack open those bids if that was the case. From that perspective it's a big unknown still.

Reporter: This is not, though, the result of changing the tender calls or going out for tenders a second time?

Response: No.

Reporter: And on the highways, I believe there's three bridges and highway relocation. Do they have an estimate on that yet?

Response: Yes, they have. They've built in estimates. I can't go into the details. Treasury Board will go through that more. This factors in, the relocation and all the consequential pieces that go with it, the extensions.

Reporter: How much of the $900m direct cost increase is costs that have already been incurred, and how much of it is estimates based on stuff that hasn't been done yet?

Response: I think it would be fair to say here that the largest share will be costs yet to be incurred yet. Some is already happening, but it's based on trends of what's happening and take it into the rest of the project. That's where a big piece of the cost is.

Reporter: I'm sort of on the same ballpark. You mentioned accommodation. Are we anticipating that First Nations will receive some kind of restitution [inaudible] this project? Is there any additional costs anticipated for that?

Response: I think the accommodation Doug was talking about was accommodation of workers.

Reporter: Let's talk about First Nations accommodation. Is there an anticipation that BC is going to be on the hook for additional costs to opponents of Site C that are under the Treaty 8?

Response: The discussions with First Nations will be ongoing. As you know, a number of First Nations do have benefit agreements. There are some that we, I think, are still.one we're still negotiating with, and two at this point in time have been going to the courts to try to deal with

that. As that unfolds, as our conversations with those First Nations unfold, we'll see what happens. I think one thing, though, that's important to put it in context is when we talk about accommodation agreements and benefit agreements with First Nations in the treatied area, there is Site C, but there's also natural gas and other things. They do tend to get blended together.

I don't want to make it sound like I'm not answering your question. We haven't pencilled in any additional costs.

Reporter: On the same topic, the Premier had indicated some concerns about the tension cracks and said he wanted some assurances. Has there been an independent geotechnical analysis, or is there going to be one, to make sure that that is actually under control?

Response: Part of preparing its estimate... You may recall that at the start of the project BC Hydro has what's called a technical advisory board. This is a board that's convened of external independent experts. That same body of people has given the corporation advice in preparing these estimates and will be providing advice to the provincial Treasury Board as well. So the direct answer to your question is, yes, they were part of how this new plan and budget that goes with it was constructed.

Reporter: You're not going to send this out for any kind of independent assessment to say there is going to be a continued problem?

Response: The technical advisory board pretty well consists of all of the experts that you would go to, to ask that same question.

Reporter: Are these the same people that apparently had said that those two cracks that were on the banks had been anticipated all along?

Response: I can't respond to that except to say that at the time the FID was made in 2014, the cracks were not.. There was lot of risks at the time, but they're weren't identified expressly by any of the geotech analysis that the technical board relied on.

Reporter: Are there still just two cracks?

Response: That's correct. Justine, that north bank was known to have historical slides and slopes on it, and as a result, that's why all that material is being taken off to get to a more stable base for the north abutment of the dam.

Reporter: Mr Wright, you mentioned enhanced oversight on the rest of the project. What does that look like? Is that someone in government watching Hydro and the contractor, or is that an independent kind of watchdog?

Wright: There's multiple strands to it. As you know, one of the first things the Premier did when he took office was he put in a new chair at Hydro, somebody who knows Hydro well and is well qualified and well respected and that the Premier relies on to give him the straight goods. There's been some changes at Hydro. I think you'll start to see some new appointments to the Hydro

board that bring in some of the expertise that we think we need, but we will also be.. I don't want to get ahead of the Premier, but there is a project management board, and we'll be asking Hydro to put some outside independent experts on that board as well as we have representatives of the shareholder sitting on that management board, as well, too.

Reporter: The premise of the point of no return. Do you buy that premise that basically, in very, very short form, this project is past the point of no return? Is that an accurate way of describing it?

Wright: It's always, at the end, an arithmetic exercise. It's how much money has been spent, how much money remains to be spent, versus the alternative of getting the energy elsewhere. Yes, I do believe in the concept of a point of no return. What that point is, is going to depend on what your estimates for the costs to complete are going to be.

Reporter: There's a lot of skepticism about the $1.8b in remediation costs. Some people discount that. It's correct to say that you have accepted that figure as part of the $4b in the walkaway costs.

Wright: Yeah. I mean, as I said, we have basically said we asked the Utilities Commission to do a review. They came back, and they said use the low load forecast. They said use this alternative portfolio, and we think the best midpoint estimate of the remediation costs are that $1.8b, $1.9b. We don't know why we wouldn't accept their analysis in that regard.

Reporter: The criteria slide. I just want to be clear. You mentioned the top two were far and away the two most dominant. Is this ranked in priority in terms of what was.?

Wright: I don't want to give you a definitive answer on that, Keith, because you know, this is such a complex decision to make. Cabinet spent nine hours in three separate sessions deliberating on it. It would be difficult to say, you know, this one gets a 0.2, and this gets a 0.6.

Reporter: But the top two were?

Wright: The top two were probably the dominant ones. You know, the agriculture is at the bottom, but in a way, that was one of the more emotional issues. The cabinet didn't discount that at all, so I think you'll hear the Premier say something about the agriculture side of things.

Reporter: I just want to clarify that rate impact and have a simple summary of that. You mentioned at one point -- I think I got it down -- 30% increase over ten years? I'm not sure about that. And the thing about rate impact of stopping the project and rate impact continuing the project. I just want to make sure I've got that right.

Wright: Let's say Site C had never been on the horizon. The former government came up with a ten-year rate plan that looks like that, that has rates going up by about 30% over the next ten years. I'm happy to talk about that ten-year rate plan down the road, but this isn't about that.

Then you ask: if we do Site C or if we terminate Site C, what additional increases do you have on top of that? You know, the rough and dirty number is if you terminate Site C, you add 12% to that.

If you continue on with Site C, you do, what, 1.1%?

Unidentified: If you were to.. Just a one-time increase when it comes into service in 2024-25 would be 6.5%. We would anticipate that BC Hydro would apply to the commission to smooth that impact, and if we were to do that over ten years, it would take 1.1% for two years and then flat after that.

Reporter: I'm just wondering about the revenue side of this, how much certainty is over the revenues that will be generated once Site C is up and running.

Wright: Good question. We will have surplus energy when Site C comes on stream. It is always the essence of these big projects that you do them in lumps, and so when they come on, you have some surplus energy until demand catches up to it. In that period of time, we have assumed that we will be selling that surplus energy into probably the US market, and we've made pretty conservative estimates of what we think we will get for that.

MacLaren: Over time, as demand grows, the domestic rates are higher than the export market price, and that actually has a negative impact on rates. You've built into rates based on the lower export price. You start making more revenues, it actually has a rates positive impact over time.

Reporter: I wonder if you could go back to the slide where you compare with other potential capital project scenarios, the slide where you compare it to hospitals, schools, bridges. On this slide, and I also noticed on the last slide where you were talking about the two-point decision, you're minimizing the ratepayers impacts and preserving fiscal room to build schools, hospitals and housing, you don't mention transit, which I find very interesting, because transit is a major issue here in the lower mainland, where a large amount of people live in the province, especially a large number of NDP voters. Has the Site C project's cost pressures affected other areas where the government had said it wanted to spend, such as a major transit infrastructure in the lower mainland, or was this just a communications oversight?

Wright: We never make communications oversights.

There's two parts to your question. First of all, why do we not have transit on this slide? Well, quite frankly, when we first prepared the slide, we had nothing but lower mainland projects on it. We had Royal Columbian Hospital. We had TransLink projects. We had the Pattullo Bridge. And then we said, well, you know, there is another part of the province other than the lower mainland, so we thought we would give a set of examples that spanned the province. That's the answer to that question.

The second part of the question is are the Site C overruns causing problems for the other capital projects like TransLink? Not at this point in time and not if we go ahead and complete Site C, or, in the alternative, not if we terminated Site C but asked ratepayers to pay for that $4b in costs. If,

however, we terminated Site C and decided, either because the government didn't think it was right or, frankly, the Utilities Commission could decide that that $4b can't be recovered from ratepayers.. I'm happy to talk about that if people want to explore it. In that case, if you can't recover it from ratepayers, then you have to take it onto the government's books. That would squeeze out $4b of capital room for other projects, and then it just becomes an exercise in how many schools, how many rapid transit projects, how many bridges do you want to knock down the priority list.

Reporter: I'm just wondering how this decision will affect the timeline and when this project is expected to be on line.

Wright: I think other than the fact that we do have a delay in the river diversion project, we don't expect this to have any further impact on the timelines.

?MacLaren: That is correct, Don -- November 2024.

Reporter: You mentioned that the cabinet spent nine hours in two separate sessions on this. Is that nine hours total over two meetings or two nine-hour meetings?

Wright: Knowing that this is not for attribution, I have to say two nine-hour cabinet meetings is pretty close to my definition of hell.

No, it means nine hours in total over three sessions.

Reporter: Three sessions. When precisely was the final decision made to complete the project?

Wright: The final decision was made last Wednesday.

Reporter: I'm just wondering if you can go back, just comparing the single-family home on Vancouver Island. The 12% would be effective by 2020. Would there be any other increase beyond that?

Wright: Under the terminate scenario, the assumption is we're going to write that $4b off over ten years. You lift it up by the 12%, you maintain that over the ten years, and then it goes away.

Reporter: Can you say if there was unanimous cabinet support?

Wright: I'm not going to talk about what the deliberations within cabinet are. That has to be subject to cabinet confidentiality. But this was a difficult decision. As I said, they spent nine hours talking about it. But at the end of the day, under our system of government, when the cabinet makes a decision, all of the ministers support that decision.

Reporter: I just want to clarify. So the rate increase of 12% starts in 2020. There's no increase before 2020.

MacLaren: That's what we assumed in our analysis.

Reporter: How long would that 12% continue for after 2020?

Wright: Ten years. Just on the 2020, we have assumed that it depends on what year we actually take the write-down, and then we have to go to the Utilities Commission and get the Utilities Commission to rule on how that can be recovered by the ratepayers, and we're assuming that may take two years from now.

Reporter: For the next six, seven years, on the build, what's the biggest risk factor that would keep the engineers or the financiers awake at night? Is it geotechnical or interest rates or costs, inflation?

Wright: Well, all of the above. On the interest rates, we've got some really incredible public servants in our treasury department. If you don't mind my just doing a little bit of an advertisement for the public service, the one area where we are below the original budget is in interest costs, and that's because Jim Hopkins and his folks have done a very good job of going into the market opportunistically and locking in low rates. I think for the most part we've got those locked in for the duration of the project.

MacLaren: They've been.. Borrowing to 2024 has been hedged, and so we've locked in.

Wright: Beyond that, I think the uncertainty that remains.. There is some geotechnical worries, no question about it. We think we've got a handle on them, but one of the reasons we have allowed for more of a risk reserve is you never know until you've got the project completed. Beyond that, trying to forecast what actual construction costs will be two or three years in the future depends on, you know, what happens in all kinds of markets. Like, are steel costs going to go up? Are cement costs going to go up? Does the oil patch in Alberta rebound and therefore labour costs go up? There's all kinds of uncertainties.

Reporter: Can you go back to the slide about completing and the rate impact? If you complete, the rate impact in 2015 is 1.1, and I think Les was saying it would be 6.5% overall, and that's assuming..

MacLaren: If you did it as a one-time increase, the increase would be 6.5%. You're just looking at what is the finance cost, amortization and operating cost, on one side; revenues from power sales; and then you have to figure out what rate increase would fill that gap. And so if you did it just one time, 6.5%, or if you smooth it over ten years, you could get this result, which is 1.1 in year one, 1.1 in year two, then flat from there.

Reporter: And then do you have a dollar amount for, like, an average residential customer, ratepayer, what that would be?

MacLaren: I don't. It would be on a higher rate base at that time. But it would be, obviously, significantly less than the terminate scenario impacts.

Reporter: [Inaudible].

Wright: I go back to the.. The previous government had a ten-year rate plan that sees rates climbing more or less steadily..

From:	MacLaren, Les EMPR:EX
To:	Wieringa, Paul EMPR:EX; Rowe, Katherine EMPR:EX; Sopinka, Amy EMPR:EX
Subject:	FW: For Chris"s review
Date:	Saturday, December 2, 2017 9:53:09 AM
Attachments:	Site C Responses 1 Dec 2017 v2.docx ATT00001.htm

Info

From: O'Riley, Christopher [mailto:Chris.Oriley@bchydro.com]
Sent: Saturday, December 2, 2017 9:29 AM
To: Nikolejsin, Dave MNGD:EX; MacLaren, Les EMPR:EX
Subject: Fwd: For Chris's review
Termination rate increase put in terms of customer bills.

Sent from my iPhone

Begin forwarded message:

> **From:** "Clarke, Gareth" <Gareth.Clarke@bchydro.com>
> **Date:** December 2, 2017 at 9:15:46 AM PST
> **To:** "O'Riley, Christopher" <Chris.Oriley@bchydro.com>
> **Subject: Fwd: For Chris's review**
>
> Sorry, should be there now?
>
> Sent from my iPhone.
>
> Begin forwarded message:
>
> > **From:** "Magre, Leela" <Leela.Magre@bchydro.com>
> > **Date:** December 1, 2017 at 14:29:38 PST
> > **To:** "Clarke, Gareth" <Gareth.Clarke@bchydro.com>
> > **Subject: For Chris's review**
> >
> > Hi Gareth,
> > We've been asked to pull together some info on Site C for Gov. Could you have Chris review before the end of the day? Sorry, I know I'm not giving much time.
> > This has been approved by the relevant business groups.
> > Thanks,
> > Leela
> >
> > _____
> > **Leela Magre** | Manager, Policy & Research
> > **BC Hydro**
> > 333 Dunsmuir St, 15th floor
> > Vancouver, BC V6B 5R3
> > **P** 604 623 4008
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> > Smart about power in all we do.

Site C Responses

1. **Examples of the impact of a 12% rate hike in terms of a typical household - ideally by region and household type.**

- If Site C is terminated and costs are recovered over 10 years, a rate impact of 12.1% means the typical residential household would pay about $1000 over the 10-year period.

    - Lower Mainland
        - A customer that lives in a single family home and has electric heat would pay $194 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $128 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $55 more in 2019.

    - Vancouver Island
        - A customer that lives in a single family home and has electric heat would pay $200 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $139 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $57 more in 2019.

    - Southern Interior
        - A customer that lives in a single family home and has electric heat would pay $193 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $116 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $73 more in 2019.

    - Northern Interior
        - A customer that lives in a single family home and has electric heat would pay $187 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $168 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $61 more in 2019.

[Supporting data follows]

			Illustrative Bill Difference with 12.1% Increase	
Region	**Housing Type**	**Heating Type**	**Annual Bill**	**Average Monthly Bill**
Lower Mainland	**Single Family Dwelling**	Electric Heat	$ 194	$ 16
		Non Electric Heat	$ 100	$ 8
	Townhome	Electric Heat	$ 128	$ 11
		Non Electric Heat	$ 69	$ 6
	Apartment	Electric Heat	$ 55	$ 5
		Non Electric Heat	$ 37	$ 3
Vancouver Island	**Single Family Dwelling**	Electric Heat	$ 200	$ 17
		Non Electric Heat	$ 104	$ 9
	Townhome	Electric Heat	$ 139	$ 12
		Non Electric Heat	$ 63	$ 5
	Apartment	Electric Heat	$ 57	$ 5
		Non Electric Heat	$ 37	$ 3
Southern Interior	**Single Family Dwelling**	Electric Heat	$ 193	$ 16
		Non Electric Heat	$ 103	$ 9
	Townhome	Electric Heat	$ 116	$ 10
		Non Electric Heat	$ 79	$ 7
	Apartment	Electric Heat	$ 73	$ 6
		Non Electric Heat	$ 48	$ 4
Northern Interior	**Single Family Dwelling**	Electric Heat	$ 187	$ 16
		Non Electric Heat	$ 98	$ 8
	Townhome	Electric Heat	$ 168	$ 14
		Non Electric Heat	$ 77	$ 6
	Apartment	Electric Heat	$ 61	$ 5
		Non Electric Heat	$ 45	$ 4

Data Source: 2014 REUS and F2015 Billing Data, as cited in 2015 RDA, BC Hydro's response to BCOAPO IR 1.59.6

Illustrative consumption is the Median Consumption of each segment

2. What would an alternative portfolio look like in a terminate scenario (renewables, capacity, transmission)? To meet 30% GHG reductions by 2030, and 80% by 2050.

- If we don't build Site C by 2030 we would need about 600 MW of wind and 1,000 MW of pumped storage by 2030 in addition to higher levels of conservation.

- 1,100 hectares of land impacts to accommodate about 200 wind turbines and one large pumped storage facility (equivalent to 3 times the size of Stanley Park).

- Meeting 2030 and 2050 GHG emission reduction targets would require more resources:

  - In 2030 with Site C – we need about 4,300 MW of wind, 5,000 MW of pumped storage capacity and three new high-voltage transmission lines:
    - 12,000 hectares of land impacts (equivalent to 30 times the size of Stanley Park covered with wind turbines and pumped storage facilities) to accommodate about 1,400 wind turbines and five large pumped storage facilities
    - 700 km of transmission corridors

  - In 2030 without Site C – we need an additional 1,600 MW of wind and 1,000 MW of pumped storage for a total of 5,900MW of wind and 6,000MW of pumped storage:
    - 9,000 total hectares of land impacts to accommodate a total of 2,000 wind turbines and six large pumped storage facilities (equivalent to 21 times the size of Stanley Park)
    - 700km of transmission corridors for three new high-voltage transmission lines (same as with Site C)

  - By 2050 (with or without Site C) – we would need an additional 9,600 MW of wind and 7,000 MW of pumped storage capacity and seven more new high-voltage transmission lines (over and above what is required in 2030):
    - 13,000 hectares of land impacts beyond the impacts above to accommodate about 3,200 more wind turbines and seven more large pumped storage facilities (equivalent to an additional 33 times the size of Stanley Park).
    - 1,700 km of transmission corridors beyond the 700 km above.

Important notes:

- The land impacts identified above are "direct" impacts only.
  - For wind, this consists of the turbine base, roads and transmission to the point of interconnection. The actual permitted size of the wind farm will be substantially larger as there is spacing among the wind turbines. Some land use (such as agriculture) can continue in this permitted but not directly impacted land.

- Our best assessment today is that wind projects will average approximately 3MW per turbine. The actual turbine size for a project would be determined after investigative and design studies, and may vary from this amount. As a result, the number of turbines and the amount of land required will vary from our estimates.

- We have made approximations for the land impact of transmission and roads required for the wind and pumped storage projects. The actual transmission and road impact would be determined after investigative and design studies, and may vary from this amount.

- This is an approximate impact that assumes wind and pumped storage continue to be the most cost effective resources.

3. The facts about flooding and agricultural impacts.

- The Site C Project will flood approximately 5,550 hectares of land resulting in a permanent loss of about 3,800 hectares of Class 1 to 5 agricultural lands.
    - *Due to moisture limitations, there is no Class 1 land in the project area, including the reservoir area.*

- About 2.7 million hectares of Class 1 to 5 lands will remain available in the Peace Agricultural Region.

- In the Peace River valley, more than 16,000 hectares (or more than 80 per cent) of Class 1 to 3 land would remain available for agricultural use including agricultural land downstream of the Site C project to the B.C. / Alberta border.

- On May 1, 2014, the Joint Review Panel submitted its report on Site C to the federal and provincial governments, as part of the independent environmental assessment process.

- The Joint Review Panel wrote (page 150): *"The Panel concludes that the permanent loss of the agricultural production of the Peace River valley bottomlands included in the local assessment area of the Project is not, by itself and in the context of B.C. or western Canadian agricultural production, significant."*

- Mitigation measures, including a $20 million agricultural compensation fund, will support agricultural programs and projects to improve production in the region.

- Other proposed mitigation measures include the implementation of individual farm mitigation plans to support the continued farm operations for farms directly affected by the project.

- On BC Hydro's proposed agricultural compensation fund, the Panel wrote (page 149): *"The current value of annual crops from the portion of the valley that would be inundated is but $220,000… The proposed $20 million agricultural investment fund, to be spent on improvements outside the inundation zone, is generous by comparison."*

From:	MacLaren, Les EMPR:EX
To:	Haslam, David GCPE:EX; Beaupre, Darren GCPE:EX; Grewar, Colin GCPE:EX
Cc:	Wieringa, Paul EMPR:EX; Rowe, Katherine EMPR:EX; Sopinka, Amy EMPR:EX
Subject:	Clean Energy Act Policies - historical background 2-7-14
Date:	Monday, December 4, 2017 5:41:08 PM
Attachments:	Clean Energy Act Policies - historical background 2-7-14.docx

You guys may finds the attached useful. I have adapted the table from a document we produced three years ago to essentially questioned whether we wanted to continue to adapt a number of policies.

When you are doing your "how did we get here" Backgrounder for Site C, and refer to self-sufficiency, you will see in this document that it first appeared in BC Hydro's service plan in 2005 (not the 2002 Energy Plan) and was included in the 2007 Energy Plan.

Hope this helps.

Les

Clean Energy Policies: Historical Background

CEA Section/Policy	History
2. *Clean Energy Act* British Columbia energy objectives:	• Continued interest in the clean energy sector in MBB mandate letter from the Premier • Staff to pull together options for Minister to take to P&P • Maintain focus on clean or renewable electricity • Desire to support clean technology • Nurture clean energy industry • Clean electricity can provide social license for other (economic) activities and infrastructure • Remove prohibition on BC Hydro investing and/or building electricity generation projects o P3 models (e.g. residual rights under design/build/finance/operate/maintain/return model) • NTD: May want to look using BC Hydro assets (e.g., telecommunications) for economic development purposes and/or new sources of revenue
(a) self-sufficiency (plus section 6)	• 2005 BC Hydro Service Plan – initial proposal • 2007 Energy Plan – policy action 10: self-sufficiency 2016 plus insurance by 2026 • Special Direction No. 10 – defined terms of self-sufficiency (critical water) • 2008 Utilities Commission Act (UCA) amendments - s. 64.01 enabled self-sufficiency regulation • *Clean Energy Act* Electricity Self-Sufficiency Regulation enacted in November 2010 (maintained critical water definition) • 2012 changes to regulation to average water and CEA amended to remove insurance requirement • 2013 Industrial Electricity Policy Task Force recommended government consider, by 2020, whether self-sufficiency policy is consistent with least cost electricity pricing
(b) 66% conservation target	• 2007 Energy Plan – policy action 1- target to meet 50% of demand growth through conservation/efficiency by 2020 • 2008 UCA amendments – s. 44.1 required BC Hydro's resource plans to show what it would take to meet 50% conservation target • BC Hydro's 2008 Long Term Acquisition Plan showed that BC Hydro could cost-effectively meet ~78% of demand growth through conservation by 2020 • 2010 Green Energy Advisory Task Force Recommendation to make energy efficiency and conservation the highest priority • *Clean Energy Act* raised target to 66% • 2013 Industrial Electricity Policy Task Force stated no need for this BC Hydro-specific measure.

CEA Section/Policy	History
(c) 93% BC generation from clean/renewable resources (plus section 19)	• 2002 Energy Plan – policy action 22 voluntary goal to acquire 50% of new supply from "BC Clean" electricity over next 10 years • 2007 Energy Plan – policy action 21 was a commitment to ensure that at least 90% of electricity generation in BC was from clean or renewable resources • By 2010, BC Hydro was confident that 93% was an achievable target • 2012 objective modified to exclude electricity associated with LNG export by ship from 93% calculation • 2013 Industrial Electricity Policy Task Force said just pick a carbon price for planning purposes and let technologies compete
(d) innovative technologies	• 2007 Energy Plan theme of investing in innovation • 2007 Energy Plan – policy action 29 to create Innovative Clean Energy Fund • 2007 ICE Fund established through legislation (funding $25M/year with electricity included and higher natural gas prices) • 2008 UCA amendments – "innovative energy technologies" one of the 5 energy objectives to be considered by the BCUC when regulating utilities • 2010 Green Energy Advisory Task Force recommendation to grow clean tech • 2013 reintroduction of levy with PST excluded electricity so revenues currently $7-8M at lower natural gas prices
(e) benefits of heritage assets and heritage contract (plus s. 14)	• 2000 legislated Heritage Contract (aka "heritage pool") established in Quebec • 2002 Energy Plan promised to establish a BC Heritage Contract to lock in the value of existing low-cost generation assets for an extended period • 2003 BCUC conducted a public Heritage Inquiry as ordered by Government • 2003 *BC Hydro Public Power Legacy and Heritage Contract Act* and Heritage Special Direction HC2 established the Heritage Contract effective April 1, 2004 – requires public ownership of heritage assets, protects ratepayers from trade risk (caps ratepayer benefit from trade at $200M, with Province assuming risk if trade income below $0) • 2007 Energy Plan – policy actions 15 and 16 to maintain public ownership of BC Hydro and its assets and to continue the Heritage Contract in perpetuity • Fall 2008 - termination provision of Heritage Contract repealed

CEA Section/Policy	History
(f) competitive rates (plus s. 8(4))	• BC Hydro rate freeze 1993 to 2003 • 2002 Energy Plan – low electricity rates and public ownership of BC Hydro one of 4 cornerstones of plan; returned BC Hydro to BCUC oversight • 2007 Energy Plan – reference to maintaining competitive advantage • 2008 UCA amendments – requires BC Hydro annual rate comparison report to BCUC • 2010 reporting requirements transferred to *Clean Energy Act* – report to Minister
(g) GHG reduction targets	• 2002 Energy Plan – policy action 24 stated that government was developing strategies to manage BC's GHG emissions and air quality in threatened air sheds • 2007 Speech from the Throne – focused on reducing GHG emissions • 2007 Energy Plan – policy actions 18, 19, 20 net zero GHG emissions from thermal generation (offset obligation), absolute zero GHG emissions from coal-fired generation (sequestration obligation) • *Greenhouse Gas Reduction Targets Act* (November, 2007) • 2008 Climate Action Plan set 2020 and 2050 targets • 2008 UCA amendments – energy objective to encourage utilities to reduce GHGs • 2008 amendments to *Environmental Management Act* (not yet in force) – requiring offsets for natural gas fired electricity generation
(h) encourage fuel switching (plus s. 1 definition of "demand-side measure" and s. 18)	• Government policy remained fuel neutral until 2010 – objective was to improve efficiency across all fuel types, although switching from oil heat was encouraged • 2009 decision by BCUC directed BC Hydro to explore "electric load avoidance DSM" (i.e., measures to reduce demand by encouraging customers to switch from electricity to natural gas) • 2010 Green Energy Advisory Task Force recommendation to shift from fossil fuels to decarbonized electricity for most energy services and grow domestic electricity demand
(i) encourage communities to reduce GHGs	• 2008 Climate Action Plan
(j) reduce waste by encouraging waste heat, biogas, biomass	• 2007 Energy Plan – policy action 30 to implement a provincial bioenergy strategy and policy action 31 required a bioenergy call for power • 2008 Bioenergy Strategy released • 2008 Bioenergy Network established • 2010 Green Energy Advisory Task Force recommendation to reduce fuel risk, improve access to biomass and enhance competitiveness of forest industry through adoption of bioenergy technologies

CEA Section/Policy	History
	• 2010 Forest tenure reforms announced - designed to improve access to forestry and logging debris
(k) encourage economic development and jobs	• 2002 Energy Plan • 2010 Green Energy Advisory Task Force recommendation
(l) FN and rural development through clean/renewable resource development	• 2010 Green Energy Advisory Task Force recommendation • 2010 creation of the First Nations Clean Energy Development Fund under the Clean Energy Act
(m) maximize value of generation and transmission assets	• 2010 Green Energy Advisory Task Force recommendation – important for trade, particularly by targeting markets with renewable portfolio standards for BC's clean electricity
(n) become a net exporter to benefit BC and reduce regional GHGs	• 1993 BC Electricity Export Policy: Long-Term Firm Exports – based on "net benefits" • 2010 Green Energy Advisory Task Force recommendation
(o) no nuclear power (note: nuclear energy is under federal jurisdiction)	• 2002 Energy Plan – "environmental responsibility and no nuclear power" one of 4 cornerstones of Energy Plan • 2007 Energy Plan – policy action 23
(p) BCUC to continue to regulate BC Hydro domestic rates, but not export expenditures	• 2010 decision by Cabinet that exports not be subsidized – identify opportunity first, then procure to meet market (Green Energy Advisory Task Force recommended regular calls to build surplus and then market that surplus)
3. BC Hydro IRP approved by Cabinet	• 1996 - BC Hydro challenged the BCUC's authority at the BC Court of Appeal – Court ruled in favour of independence of BC Hydro management in planning – BCUC's role limited to approving projects and contracts • 2008 UCA amendments to clarify BCUC's role in approving plans • 2009 BCUC rejected BC Hydro's Long Term Acquisition Plan, although approving most of the proposed expenditures it contained • 2010 Government favoured broader, collaborative public planning process rather than the narrower, more adversarial process before the BCUC
3. IRP to include long term transmission needs	• 2008 UCA amendments – section 5 provided for a long term, 30 year transmission inquiry • 2009 Inquiry suspended for 3 reasons: challenges based on the duty to consult First Nations; Government's emerging electricity export strategy; and the Green Energy Advisory Task Force

CEA Section/Policy	History
3. and 13. Restrictions on use of Burrard Thermal	• 2001 BC Liberal Platform – phase out Burrard Thermal • 2007 Energy Plan – policy action 22 supported BC Hydro proposal to replace firm energy from Burrard, retaining only for capacity after 2014 • 2009 BCUC decision directing BC Hydro to explore possibility of greater reliance on Burrard for firm energy • 2009 Direction No. 2 to the BCUC limiting the extent to which BC Hydro can rely on Burrard • *Clean Energy Act* regulation authorizing limited use of Burrard (November 2010)
4. Export projects/contracts not regulated by BCUC, ratepayers insulated from export risk	• 2003 – Heritage Contract protects ratepayers from trade risk
7. Exempt projects, programs, contracts, expenditures - general	• 2010 – regarded as the foundation for the vision of BC's future powered by clean energy that the *Clean Energy Act* was in response to • No need to duplicate/add more process in addition to environmental assessment
Northwest Transmission Line	• 2009 Federal Green Infrastructure Funding of $130M • 2010 – Altagas avoided cost contribution of $180 • Need to commence construction in 2011 to meet 2013 in-service to connect Altagas Forrest Kerr Project
Mica, Units 5 and 6, and Revelstoke Unit 6	• 2010 Green Energy Advisory Task Force recommendation to complete as early as possible
Site C	• 2010 Green Energy Advisory Task Force recommendation to move forward with Site C
Bioenergy Call	• 2007 Energy Plan – policy action 31 directed a bioenergy call for power • 2007 – Special Direction No. 10 supported contracts awarded under bioenergy call • Extensive Cabinet debate on structure of Bioenergy Phase 2 call for power s.13,s.17
Integrated Power Offer	• 2010 - Federal black liquor subsidy to pulp mills for clean power generation and energy efficiency • Cost-effective opportunity for BC Hydro to acquire new supply
Clean Power Call	• 2002 Energy Plan – greater role for the private sector – one of the 4 cornerstones of the Energy Plan • 2002 exemption – IPPs not regulated as public utilities

CEA Section/Policy	History
	• 2007 Energy Plan – policy action 26 to continue to improve procurement process for electricity • 2008 – launch Clean Power Call – delays due to court ruling on First Nations consultation and election
Standing Offer Program	• 2007 Energy Plan – policy action 11 • 2008 UCA amendments – section 64.03 • 2010 Green Energy Advisory Task Force recommendation to expand the standing offer program • 2010 Regulation to increase maximum project size from 10 to 15 MW • 2011 BC Hydro re-launch with pricing linked to 2008 Clean Power Call and more flexibility on technology
Feed in Tariff	• 2010 Green Energy Advisory Task Force recommendation to implement a technology-specific feed-in tariff • 2010 – Consultation Paper – over 100 responses from stakeholders and the public
Smart Meters/Grid	• 2006/07 BC Hydro's service plan – meters only • 2007 Premier's address to UBCM – promised smart meters by 2012 • 2008 Speech from the Throne – confirmed commitment to install smart meters – BC Hydro Service Plan included both meters and grid • 2008 UCA amendment – s.64.04 - BC Hydro to install smart meters by 2012 • 2010 provision placed in *Clean Energy Act*, regulation defining "smart meter" enacted in December
9. Domestic long-term sales contract	• 2010 Green Energy Advisory Task Force recommendation • Proposed by the Ministry of Science, Technology and Economic Development – rate certainty for new investors – still requires BCUC approval to show no subsidy
Part 2: 10, 11 2 Rivers Policy – prohibited projects	• WAC Bennett policy from 1960s to focus hydroelectric development on the Peace and Columbia Rivers • Site C OK, but large hydro in other basins excluded (including those named in Schedule 2 of the *Clean Energy Act*)
12. Prohibited acquisitions from protected areas	• 2010 Green Energy Advisory Task Force recommendation
Utility Emission Reduction Programs (fuel switching)	• 2010 Green Energy Advisory Task Force recommendation • Support for Climate Action Plan
First Nations Clean Energy Business Fund	• 2010 Green Energy Advisory Task Force recommendations to expand revenue sharing and establish an

CEA Section/Policy	History
	equity fund to increase First Nations participation in the green economy
Re-integration of BCTC into BC Hydro	• 2002 Energy Plan – announced the establishment of BCTC separate from BC Hydro to improve ability to participate in regional wholesale power markets • 2003 *Transmission Corporation Act* established BCTC, whose assets continued to be owned by BC Hydro but with a separate board of directors • By 2010 became clear that regional transmission organizations were not required, allowed for integrated generation/transmission/marketing utilities • 2010 Green Energy Advisory Task Force Recommendation to examine need for separate transmission corporation • Re-integration driven by estimated savings of $25M per year
Renewable and Low Carbon Fuels	• 2007 Energy Plan – policy actions 32 and 33 committed to implementing a 5% renewable fuel standard, support federal actions to increase ethanol content in gasoline and adopt quality parameters for all renewable fuels and fuel blends in cooperation with other North American jurisdictions • 2007 Throne Speech - British Columbia will establish a low-carbon fuel standard. It will reduce the carbon intensity of all passenger vehicles by at least 10 per cent by 2020. These new standards will be developed in recognition of what is already mandated in California, to ensure they are viable and achievable. • 2008 Throne Speech - Standards for low-carbon fuel content will be adopted to reduce the carbon intensity of motor vehicle fuels by 10 per cent by 2020. • 2008 *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act* and 2009 Renewable and Low Carbon Fuel Requirements Regulation

Energy Efficiency Act	• Enacted in 1990, amended in 1993 and 1996
	• Recent *Energy Efficiency Act* regulations:
	  ○ June 2006: standards for commercial boilers, windows, gas furnaces (new construction), thermostats, gas fireplaces (labeling)
	  ○ June 2008: standards for gas furnaces (replacement units), fluorescent ballasts.
	  ○ September 2009: standards for light bulbs, residential water heaters, industrial motors.

From:	MacLaren, Les EMPR:EX
To:	Sanderson, Melissa EMPR:EX; Nikolejsin, Dave MNGD:EX
Cc:	Wieringa, Paul EMPR:EX; Rowe, Katherine EMPR:EX; Sopinka, Amy EMPR:EX
Subject:	187451 - Info Note Site C and ALR
Date:	Tuesday, December 5, 2017 1:18:30 PM
Attachments:	187451 - Info Note Site C and ALR.DOCX

GCPE asked AGRI for a note on replacing ALR lands being flooded by Site C. Attached is their response.
Les

Ministry of Agriculture
BRIEFING NOTE FOR MINISTER FOR INFORMATION

Ref: 187451 Date: December 4, 2017

Issue: Addressing the loss of land from Site C in the Agricultural Land Reserve in the Peace Region.

Background:

The development of Site C in the Peace Region is estimated to permanently displace approximately 3,800 hectares of Class 1 to 5 agricultural lands (land capable of crop production) in the Agricultural Land Reserve (ALR). An Environmental and Land Use Committee Order-in-Council was passed to remove the identified lands from the Agricultural Land Reserve.

The environmental assessment of Site C concluded that an adequately funded and properly administered agricultural compensation fund would mitigate the Site C Project effects on agricultural production and agricultural economies. s.13
s.13

Discussion:

More than 99 percent of Class 1 to 5 agricultural lands in the Peace Agricultural Region will not be affected by Site C. It is estimated that about 2.7 million hectares remains available in the Peace Agricultural Region.
s.13

Ministry of Agriculture
BRIEFING NOTE FOR MINISTER FOR INFORMATION

s.13

Contact: Lorie Hrycuik, Corporate Governance, Policy and Legislation, 250-356-8299

ED LH ADM _____ DM _____

From:	MacLaren, Les EMPR:EX
To:	Grewar, Colin GCPE:EX
Cc:	Rowe, Katherine EMPR:EX; Beaupre, Darren GCPE:EX; Sovka, David GCPE:EX; Haslam, David GCPE:EX
Subject:	RE: NR and Three Backgrounders
Date:	Wednesday, December 6, 2017 2:25:38 PM
Attachments:	Backgrounder 3_Site C New Direction_Dec04_602pm_BCH edits LM.docx Backgrounder 2_Climate Action_Dec04_558pm_BCH edits LM.docx Backgrounder 1_Impact on Rates_Dec04_542pm_BCH edits.docx image001.jpg

Some tracked suggestions

Les

From: Grewar, Colin GCPE:EX
Sent: Wednesday, December 6, 2017 8:45 AM
To: MacLaren, Les EMPR:EX
Cc: Rowe, Katherine EMPR:EX; Beaupre, Darren GCPE:EX; Sovka, David GCPE:EX; Haslam, David GCPE:EX
Subject: FW: NR and Three Backgrounders

Hi Les: I note that you have reviewed backgrounder 4 (including BC Hydro's suggested edits) as attached. Wondering if you'd had a chance to review backgrounders 1,2 and 3 yet.

Thanks,

Colin

Colin Grewar
Public Affairs Officer
Government Communications and Public Engagement
Ministry of Energy, Mines and Petroleum Resources
Phone: 250-952-0650
Colin.Grewar@gov.bc.ca

From: Grewar, Colin GCPE:EX
Sent: Monday, December 4, 2017 6:12 PM
To: MacLaren, Les EMPR:EX
Cc: Rowe, Katherine EMPR:EX; Haslam, David GCPE:EX; Beaupre, Darren GCPE:EX; Sovka, David GCPE:EX
Subject: FW: NR and Three Backgrounders

Hi Les: Further to our phone conversation with David this afternoon, please find attached for your review the four backgrounders.

Backgrounders 1, 2 and 3 have been reviewed by BC Hydro.

Backgrounder 4 (How We Got Here) was drafted by GCPE HQ.

Colin

Colin Grewar
Public Affairs Officer
Government Communications and Public Engagement
Ministry of Energy, Mines and Petroleum Resources
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From: Magre, Leela [mailto:Leela.Magre@bchydro.com]
Sent: Monday, December 4, 2017 2:58 PM
To: Haslam, David GCPE:EX; MacLaren, Les EMPR:EX; Rowe, Katherine EMPR:EX
Cc: Beaupre, Darren GCPE:EX; Grewar, Colin GCPE:EX; Sovka, David GCPE:EX; Sauer, Darwin
Subject: RE: NR and Three Backgrounders

Hello all,

Attached are the backgrounders fact checked with notes tracked. Thank you for the opportunity to

review.
A few things:

- Backgrounder 1: We are still confirming our recommendation on how the rate impact should be stated

s.13

- Backgrounder 2: We cannot confirm the information highlighted in green. I'm going to have the Energy Planning team calculate this for us and will send through the info ASAP.

Thank you,
Leela

Leela Magre | Manager, Policy & Research
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Smart about power in all we do.

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

Finishing Site C will keep rates affordable

Keeping rates affordable for residents, businesses and industry was Government's primary focus in reviewing the Site C project.

The provincial government's extensive analysis clearly shows rates will be kept low with Site C moving forward.

Finishing Site C:

There is no effect on today's BC Hydro rates from Site C.

Costs of the project do not impact customer rates until the project begins generating electricity around 2025. This ensures that the costs for Site C are paid by the ratepayers who are benefiting from the project.

In accordance with accounting rules, the cost of Site C will be amortized over the expected useful life of the asset (approximately 70 years) to ensure that the costs for Site C are paid by the ratepayers who are benefiting from the project.

Site C will improve predictability in customer rates, compared to implementing an alternative portfolio of sources of power. Operating costs will be stable and predictable because the majority of costs are incurred during construction. Site C will bring savings to ratepayers over the long-term as the upfront capital costs of the project are repaid and financing costs decrease, and because Site C is lower cost than alternative power sources.

BC Hydro's proposal for smoothing out the costs of Site C anticipates incremental rate impacts of 1.1~~0.5~~% in fiscal 2025, and 1,1~~0.5~~% in fiscal 2026, then decreasing. [FACT CHECK PENDING - FINANCE]

Cancelling Site C:

Alternatively, cancelling Site C would mean BC Hydro would need to recover up to $4 billion in sunk, termination and remediation costs starting in 2019, and over a shorter period of time – likely 10 to 30 years. A shorter timeframe is expected because future ratepayers should not pay for a benefit they are not receiving. The recovery period would be determined by the BC Utilities Commission.

Ratepayers not even born yet should not have to pay for the costs of terminating Site C. Whereas for Site C, the costs can be spread over 70 years because future generations will benefit from the power provided by Site C and the revenue it generates.

If sunk and termination costs of $4 billion were recovered over a 10-year period, a 12.1% rate increase would need to be added to every BC Hydro bill for 10 years. A rate impact of 12.1% means the typical residential household would pay almost $1,300 more over the 10-year period. For example, in the Lower Mainland:

- A customer that lives in a single family home and has electric heat would pay $194 more in 2019.
- A customer that lives in a townhome and has electric heat would pay $128 more in 2019.
- A customer that lives in an apartment and has electric heat would pay $55 more in 2019.

Even if sunk and termination costs were recovered over a longer, 30-year amortization period it would mean rate increases of about 6% on every bill for 30 years.

Cost of Site C vs. Alternative Portfolio:

When sunk and termination costs are included in the calculations, Site C is significantly less costly for ratepayers when compared to the costs of termination and developing alternative sources of generation (wind, pumped storage) regardless of how quickly the costs of termination are recovered.

Also, Site C has a lower unit energy cost than alternatives when sunk and termination costs are factored in.

For example, based on calculations provided by the BCUC (assuming Site C costs are amortized over 70 years):

- When sunk and termination costs are recovered over 20 years, an alternative portfolio:
    - Costs $883 million more than Site C, and
    - The unit energy cost of alternatives is $70 per megawatt hour (MWh) compared to $57 per MWh for Site C.

Additionally, it's important to note that the numbers above assume a low-load forecast for demand which does not account for extra electricity supply to serve low-carbon electrification, and assumes that BC Hydro would develop energy projects in the alternative portfolio at its lower rate of capital financing instead of independent power producers (IPPs). Alternatively:

- In a mid-load forecast assuming IPPs develop the projects, the costs of an alternative portfolio increase $512 million.
- In a high-load forecast, assuming IPPs develop the projects, the costs of an alternative portfolio increase $710 million.

- In a low-load forecast assuming IPPs develop the alternative projects at their higher rate of capital financing, the cost of an alternative portfolio increases an additional $212- million.

Taken together, including sunk and termination costs that are recovered over 20 years, and assuming a more likely mid-load forecast and that IPPs develop and finance alternative energy projects at their cost of capital, finishing Site C instead of cancelling the project and pursuing alternatives will save ratepayers approximately$1.4 billion.

Additional actions to keep rates affordable:

Working with BC Hydro we are developing further actions to help British Columbians reduce their electricity bills and help us achieve a clean energy future, including:

- The rate freeze currently before the BCUC for a decision.
- A comprehensive review of BC Hydro to find savings to pass along to ratepayers.
- Continuing to offer incentives to customers to help them reduce their electricity consumption and lower their power bills.
- Additional measures to be announced early in the new year.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

Site C supports climate action

Site C supports British Columbia's fight against climate change by providing firm, reliable power that can be used for low-carbon electrification – the transition from using fossil fuels to power our vehicles, homes and buildings, businesses and industries to using clean, renewable electricity to reduce greenhouse gas (GHG) emissions.

Low-carbon electrification is required to meet aggressive climate action goals. For example:

- The Province is planning on legislating an interim target of 40% overall reduction in carbon emissions from 2007 levels by 2030 to set it back on course to meet a reduction target of 80% by 2050.
- The City of Vancouver has set a target to reduce community-based GHG emissions by by at least 80% below 2007 levels before 2050, and to derive 100% of the energy used in Vancouver from renewable sources before 2050.
- The Pan Canadian Framework on Clean Growth and Climate Change agreed to by Canada's First Ministers calls for a 30% reduction in GHG emissions by 2030 from 2005 levels.
- As a signatory to the Paris Climate Agreement, Canada committed to reduce GHG emissions to 30% below 2005 levels by 2030.

British Columbia's electricity supply is already 98% clean. The joint federal-provincial environmental review of Site C confirmed that the project will produce the lowest greenhouse gas emissions per unit of energy of any resource option except nuclear, maximizing the greenhouse gas reductions associated with low-carbon electrification.

However, currently over 60% of total energy consumption in B.C. is still ~~gasoline~~ petroleum or natural gas, so meeting GHG targets requires aggressive electrification and ~~a lot of electrical capacity (the maximum amount of electricity that can be supplied on demand)~~new electricity generation.

To put it into context:

- To reduce GHG emissions by 30% by 2030 could require about 19,000 gigawatt hours more new energy, the equivalent output of about three and a half Site Cs, or Site C plus about 25 wind farms (150 megawatts) with 1,300 turbines (plus backup resources to ensure the energy is available when needed).

- To reduce GHG emissions by 80% by 2050 could require about 34,000 gigawatt hours more new energy, the equivalent output of about six and a half Site Cs, or Site C plus about 55 wind farms with 2,800 turbines plus backup resources.

- ~~Switching 30% of fossil fuel use to electricity by 2030 could require about 12,500 gigawatt hours of new power, the equivalent energy output of three Site Cs, or Site C plus 24 windfarms with 480 turbines.~~
- ~~Switching 80% by 2050 could require about 34,000 gigawatt hours of new power, the equivalent of seven Site Cs, or Site C plus 110 wind farms with 2,200 turbines.~~

Reliable electric capacity from Site C means the Province working with BC Hydro can:

- Ramp up efforts to get more electric vehicles on the road and more charging stations around B.C., and electrify ports, ferries, airports and mining operations.
- Provide clean energy to help carbon-emitting industries like the upstream natural gas sector and LNG facilities switch to electricity to run their operations
- Satisfy the energy needs of a rapidly growing innovation and technology sector
- Integrate more generation from alternative sources like wind and~~,~~ solar, ~~and geothermal~~which are intermittent.

The fight against climate change is a race against time. The annual global temperature record has been broken five times since 2005, including the last three years.

Site C provides British Columbia with the means to drive the province's electrified, low carbon economy moving forward.

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Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

New directions for B.C. energy

The decision to proceed with the Site C project paves the way for British Columbia to tackle the challenges of climate change. Protecting B.C.'s environment means making tough decisions, finding solutions and getting to work creating good jobs and a sustainable, clean energy economy that puts people first. The government will turn Site C into the driver for a clean energy economy solution, beginning with a strategic approach to address concerns identified in our review of Site C.

Project Oversight

- An independent expert project assurance team will work with BC Hydro to ensure that the project is completed by November 2024, at a total cost not to exceed $10.7 billion.

Launch an Electrification Strategy

- The Ministry of Energy, Mines and Petroleum Resources will:
  - Examine opportunities for further electrification as a strategy to achieve the Province's greenhouse gas (GHG) emission targets as part of the upcoming review of BC Hydro; and
  - Work with BC Hydro to embed an electrification strategy within the energy roadmap that the Ministry is developing, and the climate action strategy the Ministry of Environment and Climate Change Strategy is developing.

Treaty 8 First Nations and other Indigenous people

- BC Hydro and the Ministry of Transportation and Infrastructure will work with Treaty 8 First Nations and others to re-design the Highway 29 re-alignment at Cache Creek to reduce impact on potential burial sites and sacred places.

s.13,s.17

- The Ministry of Indigenous Relations and Reconciliation and BC Hydro will continue engage Treaty 8 First Nations to seek additional solutions to mitigate the adverse impacts of Site C, and to advance reconciliation.

s.12,s.13

Agricultural, Communities, Environmental and other interests

- The Ministries of Agriculture, Jobs, Trade and Technology and Forests, Lands, and Resource Operations and Rural Development will explore the potential for a Peace River Legacy Fund, and/or Northern Agricultural Centre of Excellence, in consultation with Peace Valley and provincial agricultural producers, Treaty 8 First Nations, Peace Valley residents and local governments, and interested stakeholders, and s.12,s.13

s.12,s.13

Comment [LM1]: I am not sure whether this landed.

Workers and Jobs

- BC Hydro will implement ~~a~~ project labour agreements for all new Site C procurements, to ensure opportunities for BC's skilled labour trades.
- The Ministry of Advanced Education and Skills and Training will review existing training and apprenticeship programs in the northeast, and address any deficiencies as soon as possible, and within existing budget allocations.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

From:	MacLaren, Les EMPR:EX
To:	Haslam, David GCPE:EX; Lloyd, Evan GCPE:EX
Cc:	Nikolejsin, Dave MNGD:EX; Wieringa, Paul EMPR:EX; Rowe, Katherine EMPR:EX; Sopinka, Amy EMPR:EX; Foster, Doug FIN:EX
Subject:	Rate Impact of Site C
Date:	Friday, December 8, 2017 6:45:36 AM
Attachments:	image002.png

I received the following from BCH yesterday. I spoke with Don W about this yesterday afternoon, and we need to work this into the materials for Monday.

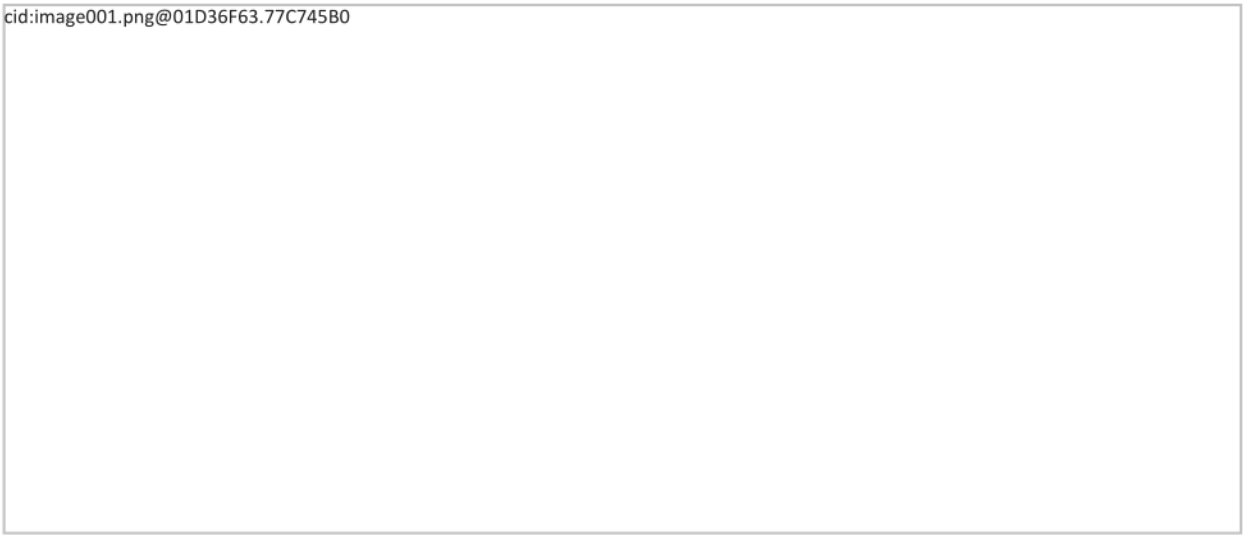
- The rate impact chart utilizes the method developed for the Joint Review Panel to provide up-front, absolute rate impacts of adding Site C into rates on a smoothed and un-smoothed basis. This analysis only describes the rate impact of Site C. Other rate increases to recover other capital and operating cost increases would be separate.
    - Assumes 100% of project is debt financed (conservative – capital is financed with a combination of debt and cash flow)
    - Assumes Weighted Average Cost of Debt (conservative – 50% of borrowing to 2024 has been locked in at lower rates with a hedge)
- Note that amortization has been done using a straight-line 70 year amortization period. In reality Site C will be subdivided into several different assets with different amortization periods. The 70-year period is a reasonable simplification as it represents the weighted average amortization period.

$10.7 B PROJECT COST SUMMARY

- All costs and borrowing (including interest during construction) are capitalized until Site C comes into service in 2024.
- When the estimated $10.7 billion Site C project comes into service in fiscal 2025, BC Hydro is expected to be in a surplus energy position. Site C energy would thus be sold into energy markets as surplus sales.
- Over time as domestic customer load grows, Site C energy begins to be used more and more to serve this domestic customer load. Site C would completely serve domestic customer load by about fiscal 2035.
- The table below shows the costs related to Site C that must be collected in rates, such as amortization of the assets, finance charges (interest on borrowings), operating costs to run the asset, etc.
- Note that Year 1 includes some partial year effects (Fall 2024 in service). Year 2 is a full year.

	Year 1 (F2025)	Year 2 (F2026)	Comments
Costs			
Finance charges	364	359	$10.7B borrowings with interest at BC Hydro's weighted average cost of debt
Amortization	153	153	$10.7B w/ straight line amortization over 70 years
Operating Costs	15	40	Year 1 operating costs lower as not all units operational for full year
Total Financing Costs	**532**	**552**	
Revenues			
Power Sales	140	256	Not all units operational for full year 1 Year 1 sales: ~3,100 GWh Year 2 sales: 5,286 GWh
Rate Increase	392	296	one time rate increase of **6.5**% in year 1 to close the gap, followed by rate decreases over time
Total Revenues	**532**	**552**	

- To bring Site C into rates, one option is to have a one-time rate increase related to Site C costs of about **6.5**% in fiscal 2025 after the project completes. There would be rate decreases after that, with Site C's impact on rates decreasing as more and more of the energy serves domestic load. The project becomes positive to rates (revenues more than covering project costs) by about fiscal **2033**. The blue line in the chart below shows this.



- Another option is shown by the red dotted lines in the chart above. This option involves smoothing the impact of the project into rates. This would avoid the one-time increase of **6.5**% noted above. One way of smoothing the impact into rates could be over a 10 year period. This would see an estimated rate increase of about 1.1% in the first year (fiscal 2025), and an additional about 1.1% rate increase in the second year (fiscal 2026). No further incremental rate increases would be needed related to Site C costs for the remaining 8 years of the 10 year smoothing period. At the end of the smoothing period, there would be a decrease in rates. This is also seen in the chart above.
- Rate increases, and the use of any smoothing approach, would be proposed by BC Hydro but would be subject to BC Utilities Commission review and approval.

Les MacLaren
Assistant Deputy Minister
Electricity and Alternative Energy Division
BC Ministry of Energy, Mines and Petroleum Resources
NOTE NEW OFFICE PHONE NUMBER: 778-698-7183
Cell: 250-889-3479
Energizing BC—clean, sustainable and productive

From:	Haslam, David GCPE:EX
To:	Nikolejsin, Dave MNGD:EX; MacLaren, Les EMPR:EX
Cc:	Rowe, Katherine EMPR:EX; Cutler, Scott EMPR:EX; Grewar, Colin GCPE:EX; Plummer, Glen GCPE:EX; Sovka, David GCPE:EX; Giles, Alison GCPE:EX; Dalal, Suntanu GCPE:EX
Subject:	Site C materials
Date:	Monday, December 11, 2017 8:20:23 AM
Attachments:	s.13 Backgrounder 3 Site C Termination Implications for BC Hydro Customers and BC Taxpayers - Dec10V1.docx Backgrounder 2 Site C -From Private Power to Site C Dec10-V1.docx Backgrounder 1_Site C Mitigation Elements - Dec10V2.docx s.13 SiteC-NR-Dec10V2.docx

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All – attached are the final Site C materials. Please note: This is still unofficial in that these have not gone through Writing & Editorial services yet. s.13

s.13 Just an FYI. Secondly, we're re-working the QA s.13

s.13 Colin Grewar is working on it. Glen Plummer (cc'd) is getting the materials thru the editors and will send finals. Thanks - David

Page 030 to/à Page 033

Withheld pursuant to/removed as

s.13

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
Dec. 11, 2017

Site C Quick Facts & Mitigation Elements

Quick Facts:

- The Site C project is already two years into construction.
- To date, $2.1 billion has already been spent; it's estimated that another $1.8 billion would be needed for site remediation (which, even then, would not restore the site to its previous condition).
- The $4 billion in Site C termination costs is equivalent to $860 for every British Columbian, or eliminating taxpayer-supported capital projects:
    - 66 secondary schools ($60 million each); or,
    - 11 hospital projects similar to the North Island Hospitals (Province's share $365 million); or,
    - 12 highway projects similar to the Okanagan Valley Corridor Project (Province's share $ 330 million); or,
    - 3 Pattullo Bridges ($1.3 billion each).
- 99 per cent of Class 1-5 agricultural lands (capable of crop production) in the Peace Agricultural Region will not be affected by Site C. Permanent loss of approximately 3,800 hectares of class 1-5 agricultural lands leaves approximately 2.7 million hectares of Class 1 to 5 lands available for agricultural production in the Peace Agricultural Region.

New Management Direction

- A new Project Assurance Board – made up of BC Hydro, independent experts and government representatives - will provide enhanced oversight to future contract procurement and management, project deliverables, environmental integrity, and quality assurance – all within the mandate of delivering the project on time and budget. Based on current projections, BC Hydro has revised the budget to $10.7 billion.
- *EY Canada* has been retained by BC Hydro to provide dedicated budget oversight, timeline evaluation and risk assessment analysis for the duration of the project.

Agriculture

- Activate the $20 million agricultural compensation fund established to offset lost sales and stimulate agriculture enhancements in the Peace region.
- Government will establish a new dedicated BC Food Security Fund – based on Site C revenues – dedicated to supporting farming and enhancing agricultural innovation and productivity across BC.

Community Benefits

- New Community Benefits Programs will be established with a mandate to ensure that project benefits flow to local communities, and increase the number of apprentices and First Nations workers hired onto the project.

- The Peace River Legacy Fund will be used to implement solutions to longer-term environmental, social and economic issues.

- Government will explore options for relocating Site C worker accommodations, post completion, to a local skills-training institution.

First Nations

- As a component of the comprehensive review of BC Hydro, the Province and BC Hydro will consider the development of a new procurement stream for smaller scale renewable electricity projects where Indigenous Nations are proponents or partners to create local employment and commercial opportunities throughout B.C. as well as environmental benefits with the replacement of diesel or fossil fuel-based energy installations. The Ministry of Energy, Mines and Petroleum Resources and the Ministry of Finance will bring these proposals to government by fall 2018.
- BC Hydro and the Ministry of Transportation and Infrastructure will work with Treaty 8 First Nations and others to redesign the Highway 29 realignment at Cache Creek to reduce impact on potential burial sites and sacred places. BC Hydro will invite proposals from Treaty 8 First Nations for this roadbuilding work.
- The Ministry of Indigenous Relations and Reconciliation and BC Hydro will continue to engage Treaty 8 First Nations to seek additional solutions to mitigate the adverse impacts of Site C, and to advance reconciliation.
- The Province will continue recent direct government engagement with First Nations to seek input into the design of a Peace River Legacy Fund and establish a collective Treaty 8 project advisory committee.
- Work will continue in addressing cultural concerns, enhancing business opportunities, and retaining funding/land transfers and contract opportunities.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
Dec. 11, 2017

From Private Power to Site C: Bad Decisions that Shaped B.C.'s Electricity Policy

Government's decision to proceed with the completion of Site C was driven, in large part, by a series of bad energy policy decisions made over the past decade and a half that put politics ahead of people. These decisions significantly increased the Province's intermittent electricity energy supply and forced upward pressure on electricity rates.

In 2002, the previous government introduced the Energy Plan that mandated that all new power generation opportunities were reserved for private power producers. Through the extensive use of electricity purchase agreements, the board of BC Hydro made long-term commitments to purchase a large supply of new intermittent power, primarily through run-of-river power projects, at prices considerably higher than produced by BC Hydro's heritage hydroelectric assets.

The board of BC Hydro committed to more than 135 contracts with an average term of 28 years. And while power generated by BC Hydro's heritage assets cost $32 per MWh, power from IPPs cost $100 per MWh. Today these contracts represent future financial commitments of over $50 billion.

The Energy Plan also changed the structure of BC Hydro and established a standalone BC Transmission Corporation to allow private power producers to access the transmission system and to sell directly to large consumers.

At the same time that BC Hydro was directed to accommodate this new supply of intermittent power, the previous government also instructed BC Hydro to decommission its Burrard Generating Station in Metro Vancouver to address growing concerns about local air pollution and greenhouse gas emissions.

As BC Hydro lost needed electrical capacity to backstop its new intermittent power supply, it was forced to seek new capacity or "firm" power, the type traditionally provided by hydroelectric facilities like Site C.

In 2010, the old government introduced the Clean Energy Act, which exempted a number of BC Hydro projects and power procurement activities from independent review by the BC Utilities Commission including Site C, the Clean Power Call, the Smart Metering Program and the Northwest Transmission Line.

The former government then compounded the financial problems at BC Hydro by directing the corporation to pay dividends to the province from funds BC Hydro had to borrow. The cost of this debt is a direct cost to BC Hydro ratepayers.

Between 2001 and 2017, the old government directed BC Hydro to increase its liabilities held in regulatory accounts from $116 million to $5.597 billion. These costs will have to be recovered from ratepayers in the future.

As a result of these earlier policy decisions, the old government saddled BC Hydro with a new supply of long-term expensive intermittent power, without the electrical capacity to maintain reliable service to its customers.

Faced with challenges of its own making, the old government decided to push ahead with Site C without allowing review by B.C.'s independent regulator, the BC Utilities Commission.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
Dec. 11, 2017

Site C Termination Implications for BC Hydro Customers and BC Taxpayers

The decision to proceed with construction of Site C was primarily driven by a determination that British Columbians should not have to take on $4 billion in debt with nothing in return for the people of this province and, even worse, with massive cuts to the services they count on.

Analysis conducted by the Ministry of Finance, Ministry of Energy, Mines and Petroleum Resources, and external experts on the BC Utilities Commission (BCUC) report concluded that completing Site C will be significantly less costly to British Columbians than cancelling the project.

In its report, the BCUC estimated that BC Hydro would need to spend an additional $1.8 billion for termination and site remediation costs if it were to cancel the project. This is in addition to the $2.1 billion of sunk construction and planning costs that will have been spent by the end of December 2017.

Faced with an immediate and unavoidable $4 billion debt, the Province would have to recover these costs from either BC Hydro customers or taxpayers. As a regulated utility, BC Hydro is obligated to file a plan with the independent BCUC who would ultimately determine which course of action it deemed most appropriate.

The BCUC did not take a position with respect to the options for debt recovery, however, government conducted extensive analysis of the fiscal and rate implications of likely debt recovery options.

If the BCUC determined that BC Hydro could recover the nearly $4 billion in Site C costs from its customers, the Commission would then have to decide what the repayment period should be:

- Under a 10-year recovery period, BC Hydro customers could face a one-time 12.1% rate increase that would last for the next decade. This would be in addition to any other rate increases required to cover BC Hydro's ongoing debt servicing and other operating costs, including recovery of its rate deferral accounts.
- Under a longer recovery period of 70 years, customers would not face short-term rate impacts. Such a move would, however, force future generations to pay for a valueless asset from which they never receive benefits. This course of action would also increase the risk that provincial bond rating agencies would bring into question BC Hydro's financial sustainability, thus increasing the risk that BC Hydro's entire debt load becomes viewed as non-commercial. This would place significant pressure against the Province's AAA credit rating and annual borrowing costs.

If the BCUC decided that BC Hydro should not recover the $4 billion of Site C debt from its customers, the corporation and the Miniser of Finance would face two options that would significantly impact BC taxpayers.

If BC Hydro retained the $4 billion debt:

- It would first be obligated to write off the Site C costs as unrecoverable thus causing BC Hydro and the Province to slip into significant deficits. The corporation would then face an even higher risk of no longer being viewed by rating agencies as self-supporting and having its entire debt reclassified as non- commercial.
- Such a move would significantly risk the Province losing it's AAA rating with a resultant increase in borrowing costs, thus reducing the annual budget available for key priority spending areas.

If government itself chose to assume the nearly $4 billion of Site C debt – thus safeguarding BC Hydro:

- It would immediately increase B.C.'s level of taxpayer-supported debt from about $44.6 billion to $48.6 billion.
- This increase would also erode the Province's key fiscal sustainability debt-to-revenue ratio by 7-8 percentage points – a measure critically assessed by provincial bond-rating agencies and ultimately determines the Province's borrowing and debt-servicing costs.
- Taking on the Site C debt into government taxpayer-supported debt would likely eliminate planned increases in provincial capital spending over the next two years. For context, $4 billion in assumed Site C debt could pay for the equivalent of:

    - 66 secondary schools ($60 million each); or,
    - 11 hospital projects similar to the North Island Hospitals (Province's share $365 million); or,
    - 12 highway projects similar to the Okanagan Valley Corridor Project (Province's share $ 330 million); or,
    - 3 Pattullo Bridges ($1.3 billion each).
- This additional taxpayer-supported debt load would also increase operating costs in the provincial budget by $120 million to $150 million annually – putting at risk the services British Columbians count on.

Contact:
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Ministry of Energy, Mines and Petroleum Resources 250 952-0628

Page 040 to/à Page 042

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BRITISH COLUMBIA

NEWS RELEASE

For Immediate Release
[release number]
Dec. 11, 2017

Office of the Premier

Government will complete Site C construction

Will not burden taxpayers or Hydro customers with previous government's debt

VICTORIA – The B.C. government will complete construction of the Site C hydroelectric dam, saying that to do otherwise would put British Columbians on the hook for an immediate and unavoidable $4-billion bill – with nothing in return – resulting in rate hikes or reduced funds for schools, hospitals, and important infrastructure.

"Megaproject mismanagement by the old government has left B.C. in a terrible situation," said Premier John Horgan in making today's announcement. "But we cannot punish British Columbians for those mistakes and we can't change the past, we can only make the best decision for the future.

"It's clear that Site C should never have been started. But to cancel it would add billions to the province's debt – putting at risk our ability to deliver housing, child care, schools and hospitals for families across B.C. And that's a price we're not willing to pay," said Horgan.

Had government decided to cancel Site C, it would have taken on the project's $3.9 billion in debt, made up of $2.1 billion already spent and another $1.8 billion in remediation costs. As public debt, it would become the responsibility of BC Hydro customers or taxpayers.

"We will not ask British Columbians to take on $4 billion in debt with nothing in return for the people of this province and, even worse, with massive cuts to the services they count on.

"The old government recklessly pushed Site C past the point of no return, committing billions of dollars to this project without appropriate planning and oversight. Our job now is to make the best of a bad deal and do everything possible to turn Site C into a positive contributor to our energy future."

The premier says that in moving forward with the project, his government will launch a Site C turnaround plan to contain project costs while adding tangible benefits. The plan will include:

- A new Project Assurance Board that will provide enhanced oversight to future contract procurement and management, project deliverables, environmental integrity, and quality assurance – all within the mandate of delivering the project on time and budget. Based on current projections, BC Hydro has revised the budget to $10.7 billion.
- Establishing new Community Benefits Programs, mandated with making sure that project benefits assist local communities, and increasing the number of apprentices and First Nations workers hired onto the project.
- A new BC Food Security Fund – based on Site C revenues – dedicated to supporting farming and enhancing agricultural innovation and productivity across BC.

In addition to funding for provincewide food security initiatives, the turnaround plan will:

- Ensure the Peace River Legacy Fund implements solutions to longer-term environmental, social and economic issues.
- Activate the $20-million agricultural compensation fund to offsets lost sales and stimulate long-term productivity enhancements in Peace Valley agriculture.

“We’re taking the steps the previous government showed no interest in: a solid budget, enhanced review and oversight, community benefits, and an eye to the future,” said Horgan.

“We’re putting an end to the years of energy policy that put politics ahead of people – where government forced BC Hydro into costly contracts, hiking rates for homeowners and renters, and delivering dividends to government it simply couldn’t afford.”

Horgan adds his government will also be pursuing an alternative energy strategy to put B.C more firmly on the path to green, renewable power that helps the province exceed its climate goals.

“I respect and honour the commitment of people who oppose Site C, and share their determination to move B.C. to a clean, renewable energy future and to embrace the principles of reconciliation with Indigenous communities,” said Horgan, who acknowledged that Site C does not have the support of all Treaty 8 First Nations. “We know this decision is not what some First Nations wanted. Their voices were heard and their perspectives were an important part of the deliberations on a very challenging decision.”

“As we move forward, I welcome ideas from across our province as we define an energy strategy that protects our environment, delivers on our climate responsibilities, powers future generations, and creates jobs and opportunities for all British Columbians.”

- 30 -

Media contact:
Jen Holmwood
etc

From:	MacLaren, Les EMPR:EX
To:	Rowe, Katherine EMPR:EX; Grewar, Colin GCPE:EX
Cc:	Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
Subject:	RE: Mitigation Elements
Date:	Monday, December 11, 2017 8:55:42 AM
Attachments:	image001.jpg

Just clarified with GCPE HQ (Evan and Eric) that:

- Community Benefit Programs is existing community agreements plus more concerted effort to get apprentices training on the job
- Food Security Fund would be a share of the Provinces water rentals (amount TBD) after project is in operation
- Peace River Legacy Fund is the existing Peace Valley Agreement

---

- $20M AGRI mit/comp is already in the project

Please adjust QAs accordingly.
Les

- **From:** Rowe, Katherine EMPR:EX
  Sent: Monday, December 11, 2017 8:49 AM
  To: Grewar, Colin GCPE:EX
  Cc: MacLaren, Les EMPR:EX; Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
  Subject: RE: Mitigation Elements

Hi Colin – I've provided some answers, below. I am not familiar at all with the BC Food Security Fund – this is the first time I've heard of that. GCPE Central, or the Ministry of Agriculture may know more?

From: Grewar, Colin GCPE:EX
Sent: Monday, December 11, 2017 8:16 AM
To: Rowe, Katherine EMPR:EX
Cc: MacLaren, Les EMPR:EX; Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
Subject: Mitigation Elements

Morning Katherine: I'm thinking Les is busy over at the Leg this morning. I was hoping you could answer the following questions related to the mitigation elements included in the announcement this morning:

Q. What is the Peace River Legacy Fund? Is it a new program or already in existence? How is it (will it be funded)?

This fund is not yet established. It is intended to be a dedicated initiative, potentially modelled after the Columbia Basin Trust, and could be used to

- enhance and amplify current provincial efforts to promote local food production and distribution under the "Growing Forward" strategy and other initiatives (unless this is also the intent of the BC Food Security Initiative?), and/or
- empower Peace region residents to develop and implement local solutions to longer-term local issues, including local environmental/habitat restoration projects, and gaps in community needs not being met through the Peace Valley Agreement and/or the NDIT.

It is now yet known how the Peace Valley Legacy Fund would be funded. MEMPR will coordinate with AGRI, JTT, FLRNORD and other ministries as appropriate to consult with Peace Valley residents and local governments, First Nations, stakeholders and others to bring recommendations for a man

Q. Are the new Community Benefits Programs in addition to the community benefit agreements that BC Hydro has already signed with communities and the Peace River Regional District? How will these programs be funded and administered? How much

funding has been set aside for them?

These are the same agreements that BC Hydro has already signed with communities and the PRRD. There is no change to how they will be funded and administered.

Q. How is the new dedicated B.C. Food Security Fund different than the Agriculture Mitigation and Compensation Plan (and $20 million compensation fund) already in place?

Sorry, I don't know the answer on this one. It wasn't part of the mitigation strategies that EMPR put forward as part of the Site C Cab Sub.

I'd like to include these questions in the QA we are working on.

Thanks,

Colin

Colin Grewar
Public Affairs Officer
Government Communications and Public Engagement
Ministry of Energy, Mines and Petroleum Resources
Phone: 250-952-0650
Colin.Grewar@gov.bc.ca

From:	Buchanan, Jack EMPR:EX
To:	Wingfield, Irene EMPR:EX; EMPR Electricity and Alternative Energy Division
Subject:	RE: one Link for today"s Site C announcement - FYI
Date:	Monday, December 11, 2017 11:35:03 AM

Press release is here...

https://news.gov.bc.ca/releases/2017PREM0135-002039

From: Wingfield, Irene EMPR:EX
Sent: Monday, December 11, 2017 9:30
To: EMPR Electricity and Alternative Energy Division
Subject: one Link for today's Site C announcement - FYI

Hi

Here is one link for the decision announcement happening today for anyone interested:

https://www.cheknews.ca/fate-of-site-c-to-be-announced-monday-how-to-watch-on-chek-396542/

From:	Rowe, Katherine EMPR:EX
To:	MacLaren, Les EMPR:EX; Grewar, Colin GCPE:EX
Cc:	Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
Subject:	Updated: Mitigation Elements
Date:	Monday, December 11, 2017 9:54:00 AM
Attachments:	image001.jpg

Hi Colin – here are some updated responses based on the info Les just sent through

1. The Peace Valley Legacy Fund

   The Peace Valley Legacy Fund will replace the existing Peace Valley Agreement (formerly known as FairShare), which is administered by the Ministry of Municipal Affairs and Housing.

   This agreement, between the Province and Peace region local governments, was signed in 2015 in recognition that the Northeast is a major contributor to the economic development of the province through the oil, gas, and forest industries. The Northeast is home to nearly half of the province's rural property assessment for utilities and industry (Property Classes 2, 4 and 5). Most of this assessment is outside the taxing jurisdiction of the local governments in the region. To address this inequity, the Province provides the eight local governments in the region with annual funding under the Peace Valley Legacy Fund.

   Annual funding under the agreement is $50 M a year over 20 years (2015-35) with a 2% annual inflator commencing in 2020; with a total value of $1.1 B over the 20-year term. The money is allocated to the eight local governments based on a formula set in the agreement. Roughly about 80% of the funding goes to the two largest regional centres (Dawson Creek and Fort St. John); 6% goes to the Peace River Regional District (PRRD); and the remaining 14% goes to the smaller municipalities (Chetwynd, Hudson's Hope, Pouce Coupe, Tumbler Ridge, and Taylor). The funds are to be used to upgrade, maintain, and expand the local government services and infrastructure necessary to facilitate the economic expansion of industry in the Peace River region (especially oil, gas, and forest products), with an emphasis on capital investments, asset management, and planning.

2. The Community Benefits Agreements

   Existing Community Benefits Agreements between BC Hydro and Peace Valley communities will be enhanced, to bring forward benefits for workers and others as construction on Site C continues.

   To date BC Hydro has reached agreements with the PRRD, the District of Chetwynd, District of Taylor and the City of Fort St. John that will provide lasting benefits for residents of the Peace region. A regional legacy benefits agreement between BC Hydro and the PRRD will provide $2.4 M annually to the PRRD and its member communities for a period of 70 years, starting when Site C is operational. The funding will be indexed to inflation.

   In addition to these existing agreements, BC Hydro will work with its contractors, and labour organizations, to redouble efforts to create apprenticeship opportunities during construction, to ensure that workers from the Peace Valley and other parts of BC receive the on-the-job training and experience they need to complete their training in high skill, high demand trades.

3. The BC Food Security Fund

This is a new initiative, to be put in place in early 2025, once Site C is operational. A portion of

the water rentals paid by BC Hydro for Site C will be used to establish a fund to promote food production and distribution in the Peace River Valley, and across BC. The Province will consult with Peace Valley residents and local governments, First Nations, agricultural produces and others stakeholders and others to inform the design and implementation of this new program.

From: MacLaren, Les EMPR:EX
Sent: Monday, December 11, 2017 8:56 AM
To: Rowe, Katherine EMPR:EX; Grewar, Colin GCPE:EX
Cc: Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
Subject: RE: Mitigation Elements

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Cc: MacLaren, Les EMPR:EX; Cutler, Scott EMPR:EX; Haslam, David GCPE:EX
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Thanks,

Colin

Colin Grewar
Public Affairs Officer
Government Communications and Public Engagement
Ministry of Energy, Mines and Petroleum Resources
Phone: 250-952-0650
Colin.Grewar@gov.bc.ca

Site C
Technical Briefing

Don Wright
Deputy Minister to the Premier
December 11, 2017

BRITISH COLUMBIA

After review by BCUC, meeting with Treaty 8 First Nations, advice from independent experts and lengthy deliberation

Cabinet has made the difficult decision to complete Site C construction

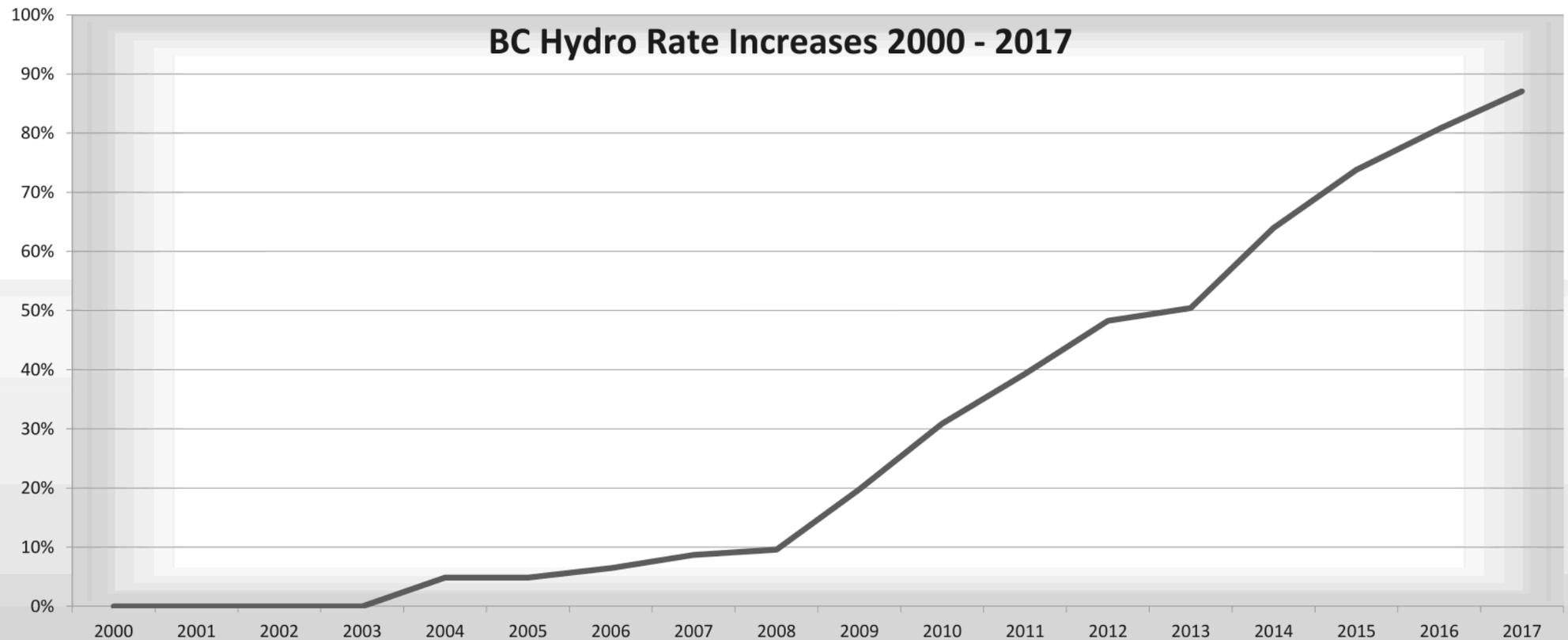
BRITISH COLUMBIA

Outline of Technical Presentation

I. Historical Context
II. Government's Decision Criteria
III. Revised Cost Estimates
IV. Ratepayer Impacts
V. Fiscal Impacts/Risks
VI. Concluding Comments

I. Historical Context

Hydro Rates Have Been Rising Significantly Since 2003

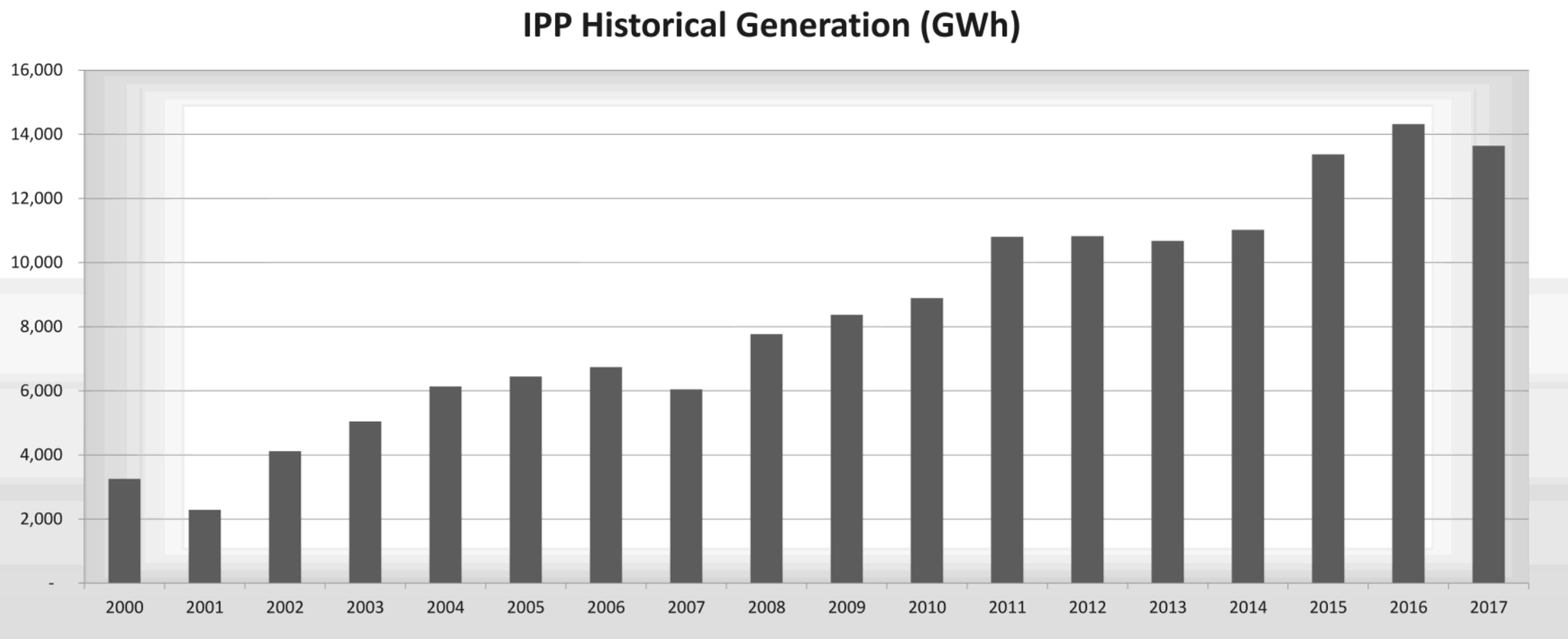


BRITISH COLUMBIA

New Power More Expensive Than Heritage Assets

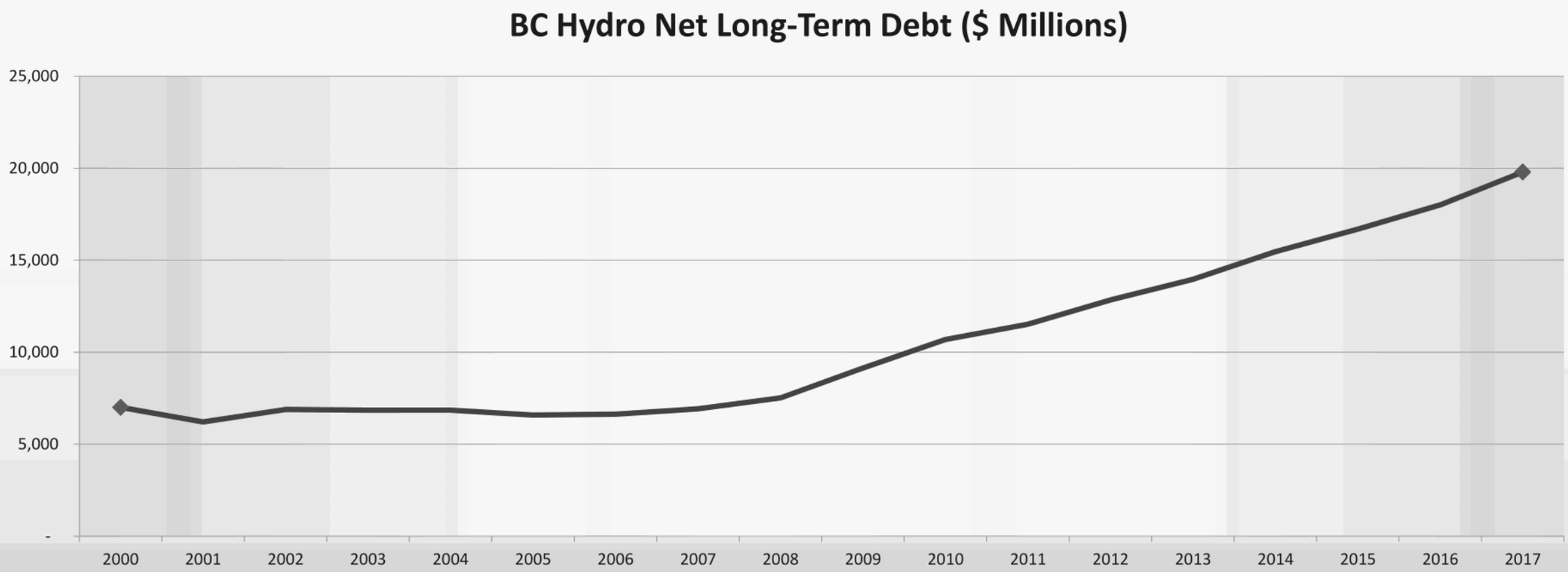
Heritage Assets	Average of IPP	Projected Site C
$32 / MWh	$100 / MWh	$60 / MWh

IPP Share of Supply Growing



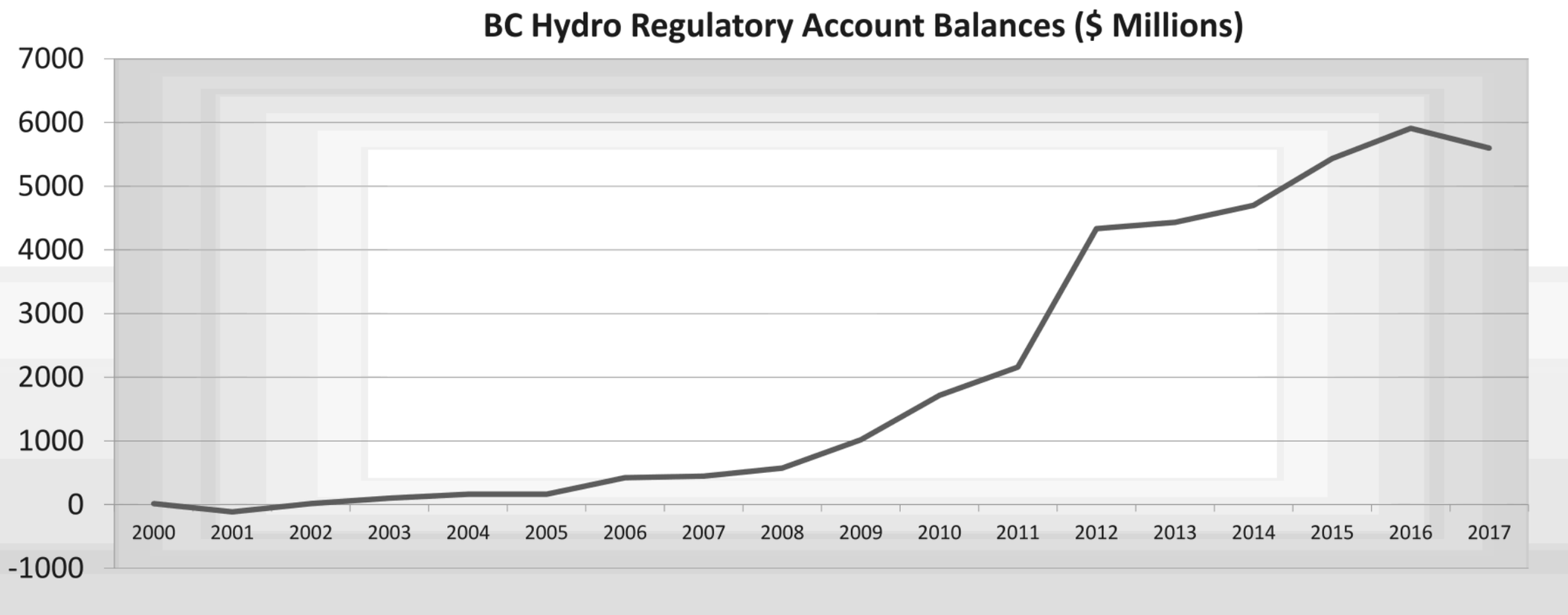
BRITISH COLUMBIA

BC Hydro Debt is Growing



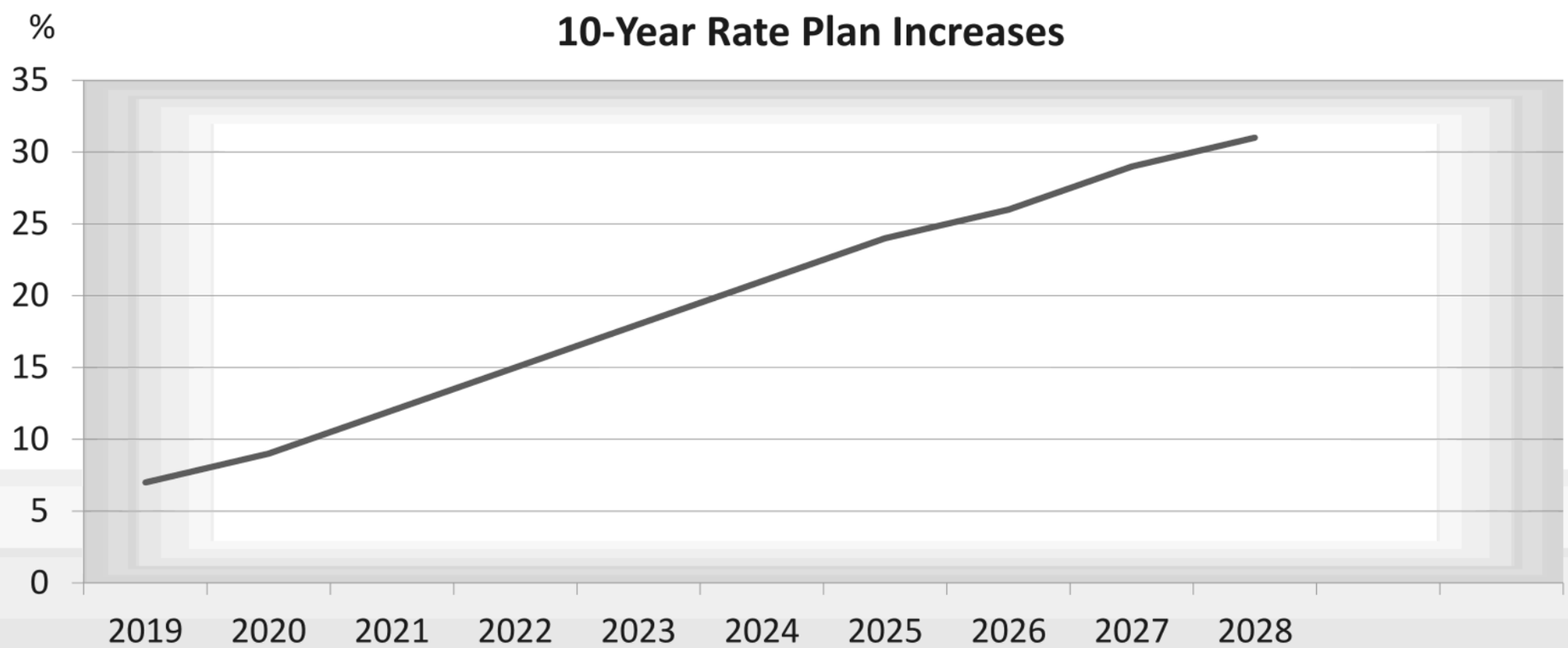
BRITISH COLUMBIA

BC Hydro's Regulatory Account Balance Is Growing



BRITISH COLUMBIA

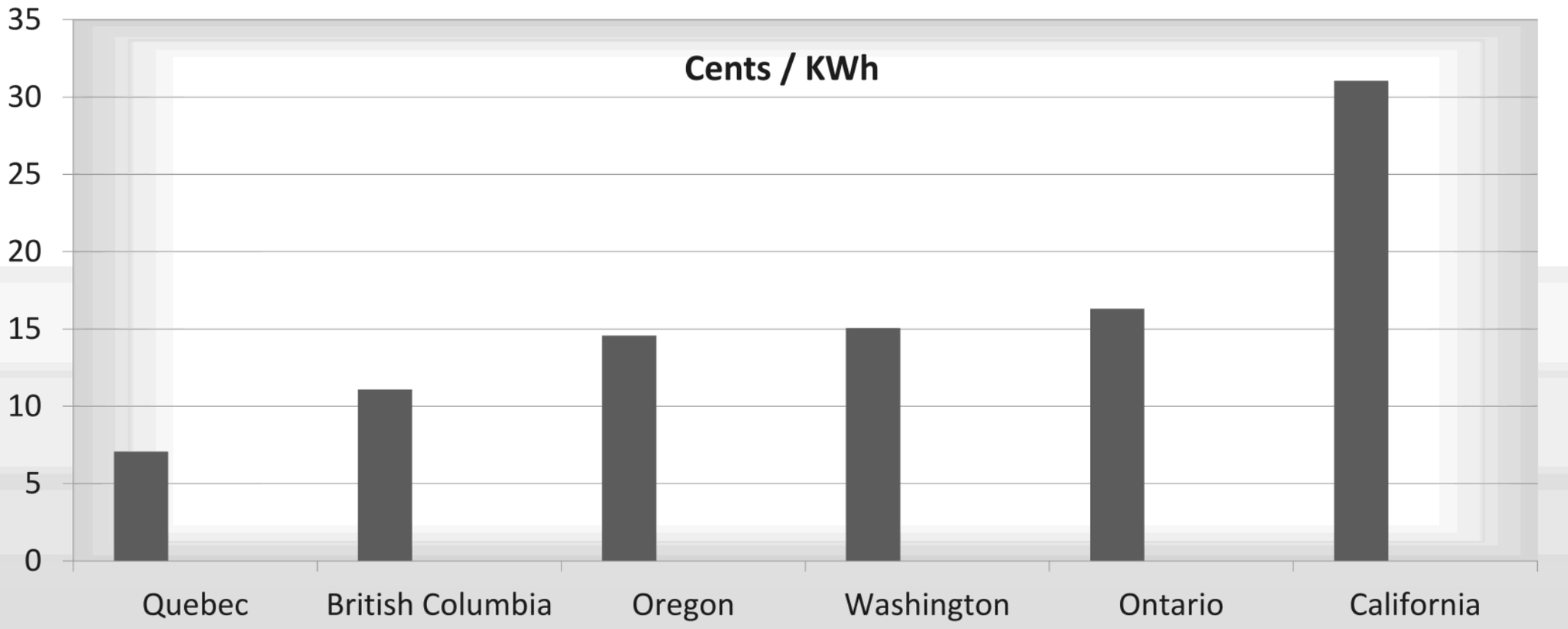
Current 10-Year Rate Plan Schedules Further Increases



BRITISH COLUMBIA

How Our Rates Compare, Residential

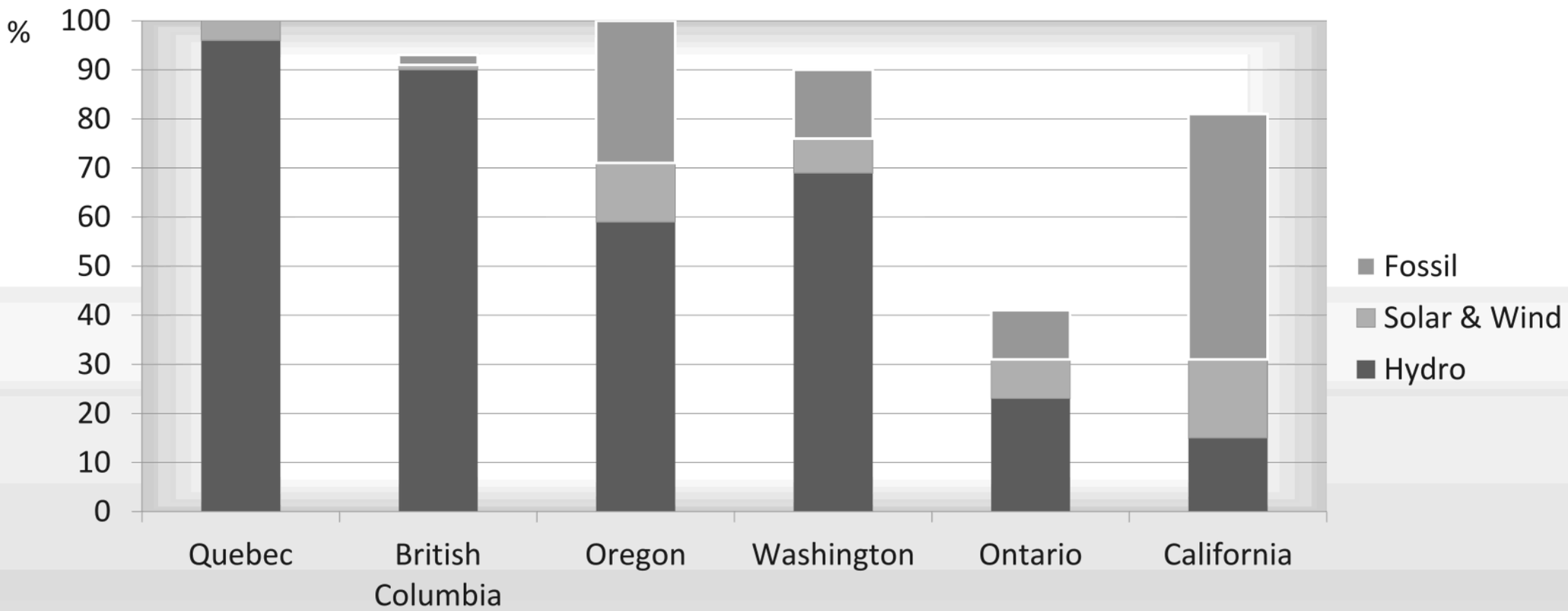
Source: Hydro Quebec, NRCAN, US EIA



BRITISH COLUMBIA

Sources of Electricity

Source: Hydro Quebec, NRCAN, US EIA
Other sources to 100% includes biomass, nuclear



BRITISH COLUMBIA

II. Government's Decision Criteria

Criteria

1. Ratepayer Impact
2. Fiscal Impact / Risks
3. First Nation Impacts
4. GHG Targets
5. Agriculture / Food Security

III. Revised Cost Estimates

Projected Cost to Complete: $10.7 Billion

- 2014 approval was for $8.335 billion
  - With an additional $440 million risk reserve
  - For a total of $8.775 billion
- Costs to date have exceed budgeted amounts
- One-year delay of river diversion estimated to increase costs by $610 million
- Future contracts projected to be higher than budgeted amounts
- Current mid-point estimate is now $9.992 billion
  - $1.657 billion over 2014 estimate
- Given what has happened to date, risk reserve has been increased

Change in Cost Estimate

$ millions

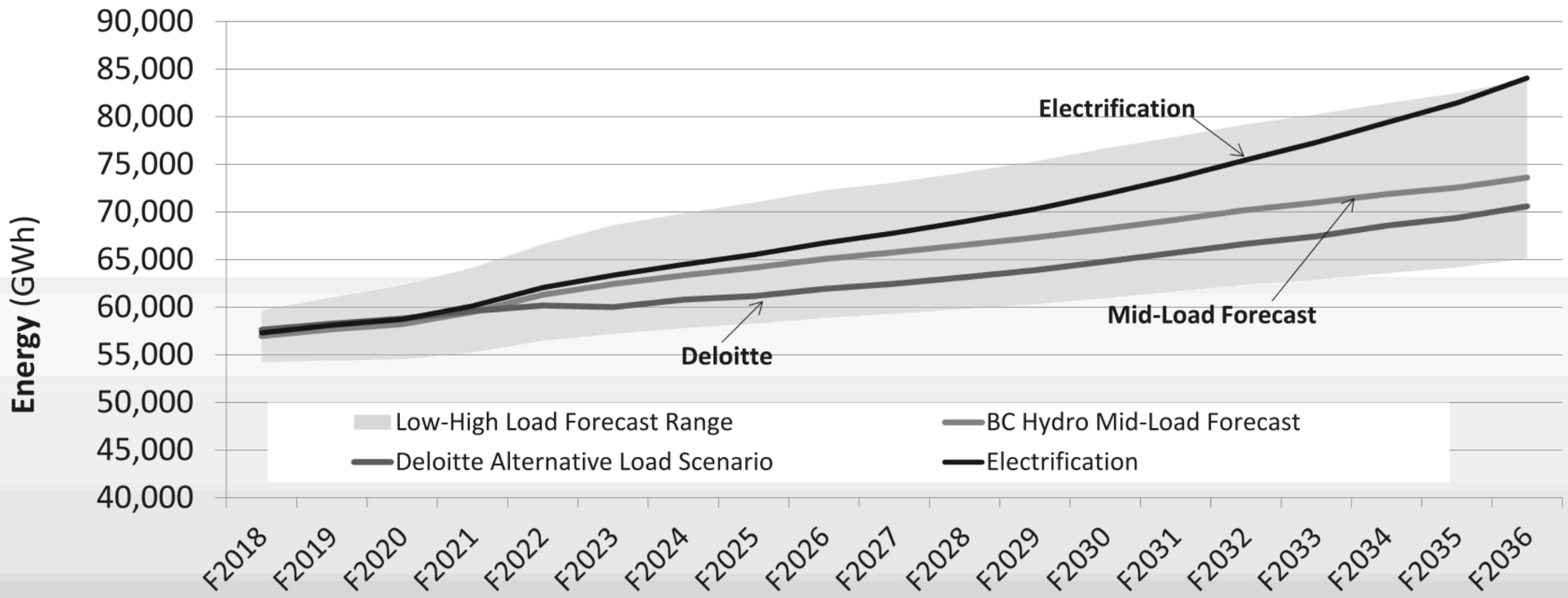
Cost	2014	Current
Direct Costs	4,940	5,839
Indirect and Overhead	1,194	2,010
Contingency	794	858
Interest before completion	1,407	1,285
Total Before Risk Reserve	8,335	9,992
Risk Reserve	440	708
Total	**8,775**	**10,700**

Comments on Cost Escalation

- Government will be putting in place enhanced oversight to ensure final costs are at or below $10.7 billion
- $10.7 billion is used in making comparisons of the continue versus terminate scenarios

IV. Rate Impacts

Comparison of Load Forecasts

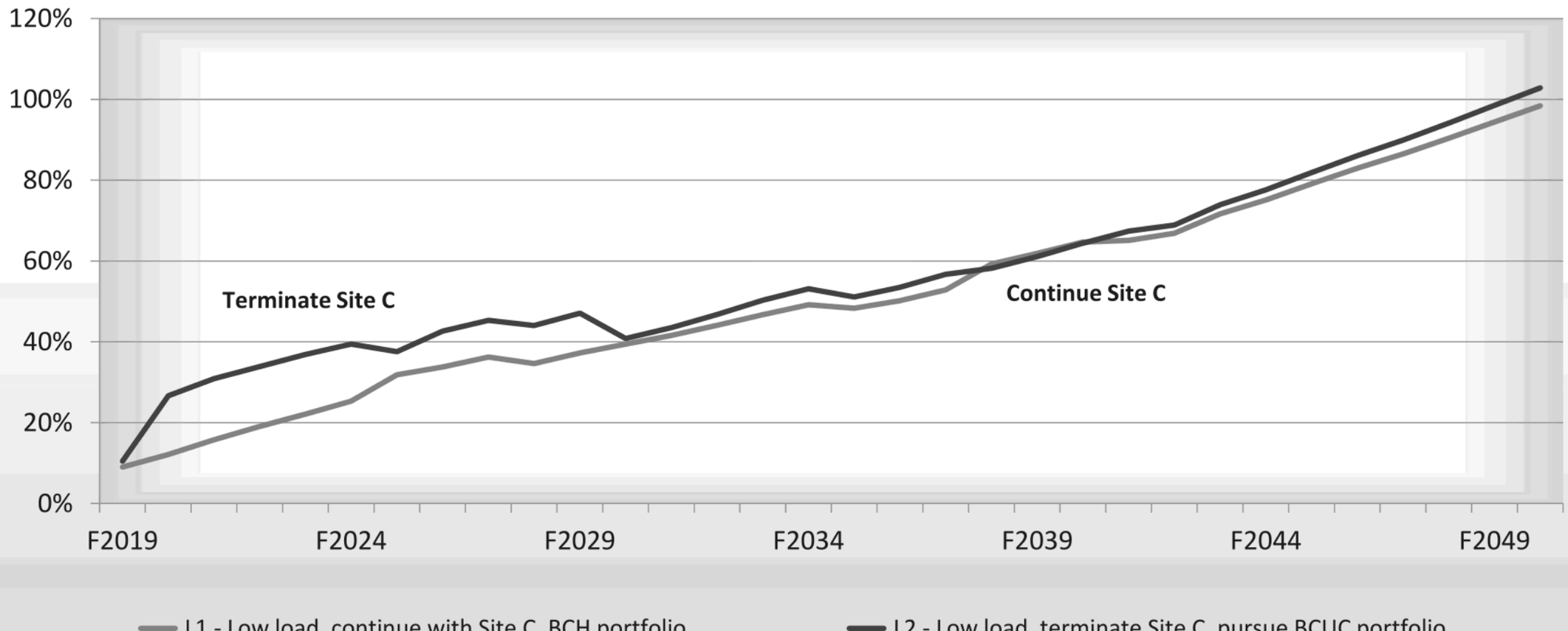


BRITISH COLUMBIA

Rate Impact Analysis Assumptions

- BCUC Low Load Forecast
- BCUC "Alternative Portfolio" assumptions
- $10.7 B Site C Cost
- 10 year amortization of $4 billion in termination scenario

Rate Impacts Under a Low Load Forecast



BRITISH COLUMBIA

What Is The Impact On Ratepayers?

Complete Site C	Terminate Site C
• Rate impact 1.1% in 2025, and 1.1% in 2026 under a rate smoothing scenario over 10 years, then decreasing (assuming revised $10.7B project cost)	• Increases rates, starting in 2020 to recover sunk and termination costs • A 12% rate increase would need to be in place for 10 years

BRITISH COLUMBIA

Impact of Terminating Site C on Customers

Results in a rate increase of 12%, effective 2020

Single Family Home, Vancouver Island

- Annual hydro bill $1,650 — **+$198 / year**

Lumber Mill, BC Interior

- Annual hydro bill $1.6 million — **+$192,000 / year**

Medium Data Centre

- Annual hydro bill $1.5 million — **+$180,000 / year**

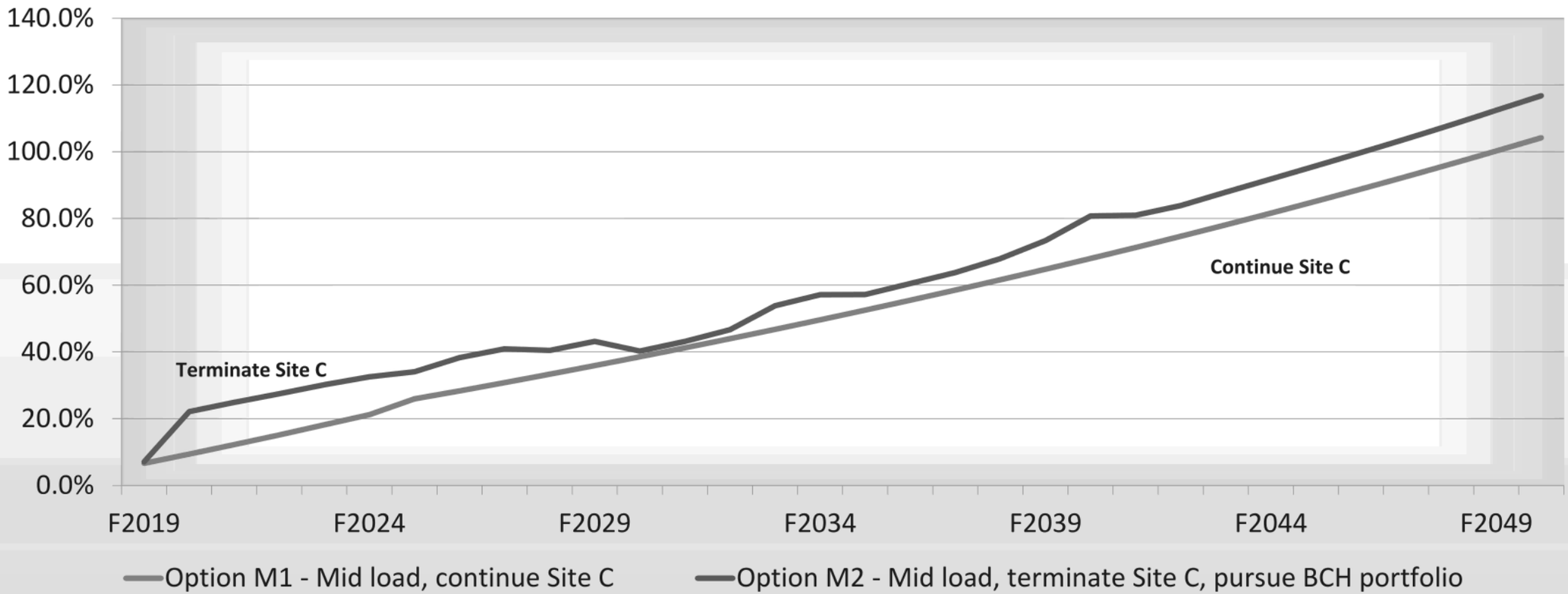
Large Lower Mainland Hospital

- Annual hydro bill $3.1 million — **+$372,000 / year**

Demand Affects Relative Rate Impact

- If demand exceeds low load forecast, relative advantage of complete scenario increases over terminate scenario

Rate Impacts Under a Mid Load Forecast



BRITISH COLUMBIA

V. Fiscal Impacts / Risks

Some Inconvenient Arithmetic

- If government decided to terminate, $4 billion in debt has to be absorbed by someone
  - Ratepayers
  - BC Hydro
  - Taxpayers
- The previous section looked at the implications if ratepayers absorbed the cost

Could BC Hydro Absorb Termination Costs?

- They could
- But this would
  - Wipe out more than 80% of BC Hydro's equity
  - The $4 billion loss would still be consolidated on the books of the Government Reporting Entity
  - Involve ongoing debt interest costs of $120-150 million per year

Biggest Risk Of The Hydro Absorb Scenario

- In a scenario where BC Hydro was to absorb the $4 billion termination costs:
  - Credit rating agencies could determine that BC Hydro was no longer a commercially viable entity
    Resulting in $20 billion debt being reclassified as taxpayer-supported debt
    - Likely leading to a downgrade of the Province's credit rating
    - Resulting in higher interest costs for the (then) $65 billion in taxpayer-supported debt

Could the Minister of Finance Absorb Termination Costs?

- Central Government's Consolidated Revenue Fund would take on the $4 billion of debt and recapitalize BC Hydro
- This would likely preserve BC Hydro's status as a commercial entity
- But…

Having the Minister of Finance Absorb Termination Costs Would

- Still entail a $4 billion loss in Government Reporting Entity
- Still involve $120-$150 million / year in interest costs that would have to be serviced
- Could lead to a credit rating downgrade, adding even more debt interest costs to taxpayers
- Crowd out room for new capital project spending
  - Schools, hospitals, housing, bridges, highways, etc.

What is $4 Billion Equivalent To?

66 secondary schools ($60 million each); or,

11 hospital projects similar to the North Island Hospitals (Province's share $365 million); or,

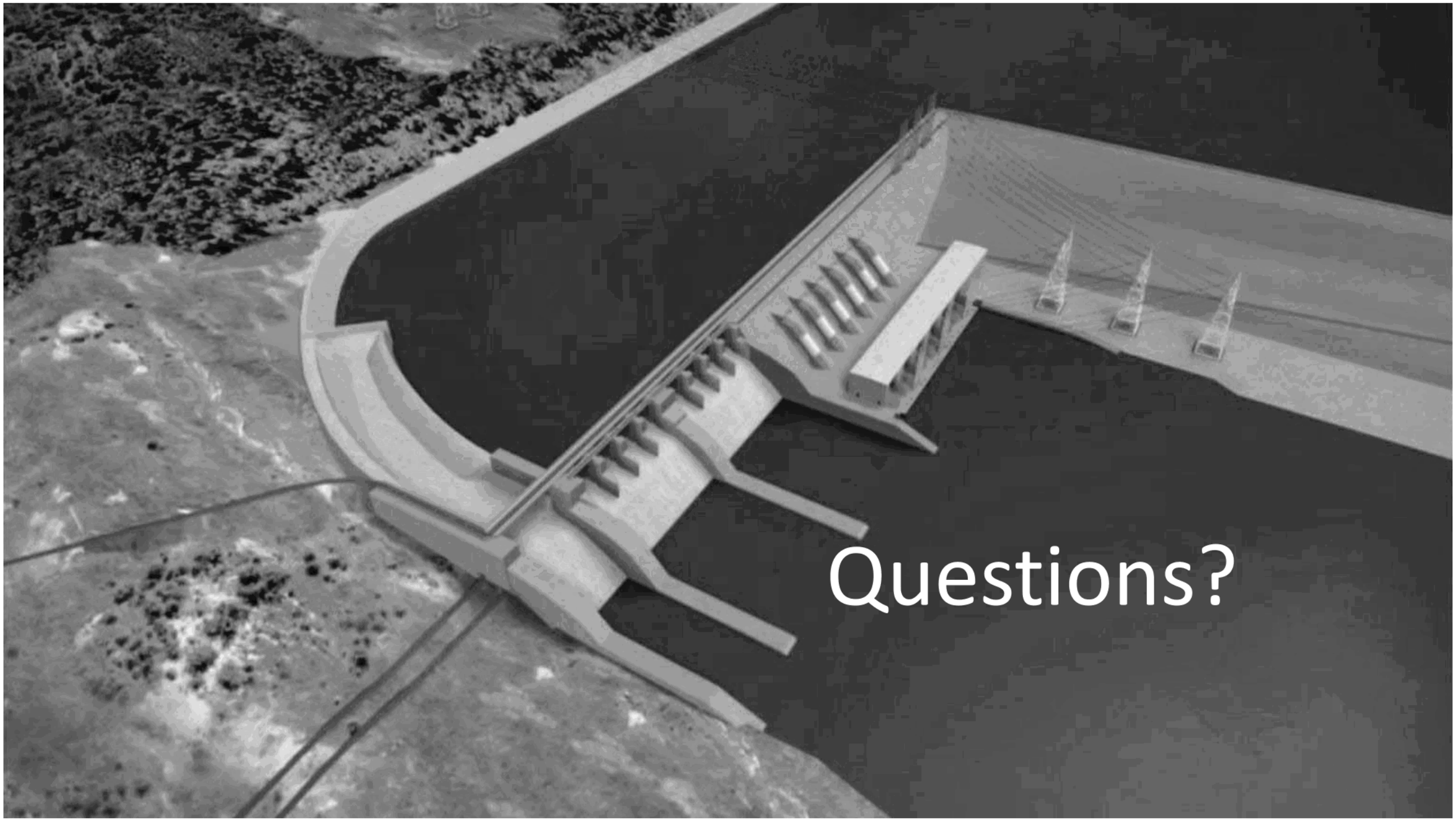
12 highway projects similar to the Okanagan Valley Corridor Project (Province's share $ 330 million); or,

3 Pattullo Bridges ($1.3 billion each).

VI. Concluding Comments

In Summary

- Very tough decision for Government
- Decision to proceed primarily driven by need to:
  - Minimize impacts on BC Hydro ratepayers
  - Preserve the fiscal room to build schools, hospitals, housing, bridges etc.


Questions?

Wright - Site C proceeding [Not for attribution]
Media Availability
Monday, December 11, 2017

By Wright/MacLaren/Foster - Site C - technical briefing3

Don Wright: To cut to the chase, after a lot of deliberation, a lot of consultation, a lot of agonizing, quite frankly, the cabinet has made the difficult decision to complete Site C construction. I'm going to give you an overview of how they came to that decisions and what some of the considerations were, and that's the outline of what I'm going to talk about over the next few minutes.

First of all, historical context. It's, I think, important to put this in the context of what's happened over the last 20 years. Over the last 20 years, starting in 2003, hydro rates have gone up pretty significantly, almost 90% over that period of time. Now, to some extent that's because new power is more expensive than the heritage assets of Hydro. These are our estimates of the cost per megawatt-hour of the heritage assets versus the average of the IPPs that have entered into contracts with Hydro and what the new cost estimates project the Site C costs will be. You'll note those IPP prices are quite high, and over this period of time, IPPs' share of the total hydro load has gone up. At the start of that period it was about 5%. It's now about 25%. That accounts for some of the arithmetic.

Over this period of time the debt of Hydro has been growing. Back at the start of the century it was about $7b. It's now almost $20b. The regulatory account balances have grown significantly as well. In the arcane world of regulatory accounting, these deferral accounts, as they're sometimes called, sit as assets on the balance sheet of the utility, but ultimately, they need to be recovered from the ratepayers, so you can think of them as stored-up rate increases for ratepayers down the road.

This is important. Under the ten-year plan that was adopted by the former government, the rates are scheduled to go up by another 30% over the next ten years. When I come to talk about the relative impact of Site C continuation versus Site C termination, we'll be talking about what the incremental impact would be over on top of those scheduled increases.

Now, I talked about how rates have gone up. I think it's important to remind ourselves that in a relative sense BC Hydro's rates are still relatively low in a North American context. These rates come from an annual survey that Hydro Quebec does of rates across a number of North American cities. We've got states and provinces there, but actually, those tend to be the leading cities in each of those jurisdictions. As you can see, British Columbia is at the low end of that.

I think it's also worth noting, when you look at the sources of the electricity by jurisdiction, it varies quite dramatically, and I think something quite interesting comes across in this graph. You will note that jurisdictions that have the benefit of significant hydro resources tend to have lower rates. The ones on the left-hand side of that chart tend to have lower rates. The ones on the right-hand side tend to have higher rates. That has historically been the case.

Going forward, as we try to make the shift to green energy, there is a trilemma that Bloomberg New Energy Finance often talks about. We want to have energy that is cheap, reliable and green. A lot of jurisdictions find a way to get two of the three, but very few to date have found a way to get all three. The few that seem to have done that, seem to be ones that have been blessed with a significant hydro resource, Quebec, British Columbia. In Europe, Norway is probably the primary example of that.

Now, what criteria did the government use in making its decision? As you can imagine, this was a very difficult, complex decision with lots of factors they had to take into account. These are a list of the most prominent ones, and I think it's fair to say that as they worked through their deliberations, those first two were the ones that really tended to dominate their decision-making.

I want to talk quickly about the revised cost estimates for the project. You'll hear the Premier go out today and talk about we are now projecting that the project will cost $10.7b to complete. These come from the most recent Hydro numbers.

A few things that I will point there is the original project was approved at about $8.3b in 2014. That was what we call the midpoint range of the estimate. The government did allow for a risk reserve of another $440m on top of that to allow for unforeseen problems. Well, the costs to date have exceeded all of the budgeted amounts. You may have heard a fair amount of talk about the one-year delay. The estimate of that one-year delay is a $610m addition to costs, and the future contracts that have yet to be let are projected to be above the budgeted amounts. So the midpoint estimate is now just a little south of $10b. It's about $1.7b over that original $8.3b. And given what has happened to date, this has been a challenging project, and the decision has been made to increase the risk reserve an extra $700m.

Here is those numbers in more detail. As Don pointed out, these slides will be available at noon, so you don't have to worry a whole lot about getting down the details, but I will make one basic comment. You will look at the contingency line in that table and look at the risk reserve line in that table. We are already well into this project, approximately $2b of the costs we know with certainty, so we don't have to provide any contingencies for them, because we already know what they are. Notwithstanding the fact that we are talking about a partial project going forward, we have increased the levels of contingencies and increased the risk reserve, because the government wanted to make sure that if it did make the decision to go ahead, there weren't going to be those surprises down the road that might invalidate the decision they made.

In terms of the [climate and the cost] escalation, the government has been and will be putting in place further things to enhance the oversight of the project. The Premier may talk about this a little bit when he makes his remarks, and we will be having more to say about that down the road.

And then the other thing I think is important to point out is when we talk about the relative impacts, we are using the $10.7b, not the $10b that the Utilities Commission used, nor the $8.3b that the original decision was made on.

So what are the rate impacts of this going to be? Before we talk about the rate impacts, I just wanted to talk a little bit about the load forecasts. Those of you that have been following the debate know that this has been perhaps the most contested part of the debate that's been going on. How much electricity does BC need? What I have on that chart is a number of different lines. First of all, the grey-shaded area is the range of BC Hydro's load forecasts. The very bottom of that grey range is the low load forecast, the very top is the high load forecast, and then the green line in the middle is their mid-load forecast. The light blue line below the green line is Deloitte's load forecast. You'll recall that Deloitte did a study for the Utilities Commission, and that was their prediction of what the load forecasts would be. Then the final line is our best estimate of the demand that would be required if we electrified sectors of the economy, trying to meet the carbon reduction commitments that the province has made in the context of the Paris accord.

I just wanted to show that to you, because there is a big range in those forecasts, and as I say, it's a very contested part of this whole debate.

In terms of looking at the rate impact analysis, we have used the BCUC low load forecast, and we have used the BCUC alternative portfolio in the scenario where we decide to terminate the Site C. We are using the $10.7b Site C cost, and then if we do terminate, we were going to amortize the $4b over a ten-year period.

This chart shows, over the time from 2019 through 2049, what the rate impacts would be on the terminate-Site-C scenario or the continue-Site-C scenario. The basic story you see is that the rates would be significantly higher in the terminate-Site-C scenario for the next ten years, then the gap would narrow a little bit, but over time, the Site C still results in lower costs. Again, I will point out that this is based on the low load forecast, and we have decided to use BCUC's alternative portfolio. It's worth noting that there has been a fair amount of debate about the feasibility of that portfolio, but we asked the Utilities Commission to do the study, and we are taking their study as the base.

In terms of what this means over the next ten years, on the terminate-Site-C we would have to raise rates by 12%, and those would need to be in place for the ten-year amortization period. In the case of complete-the-Site-C scenario, we would have to raise the rates by 1.1% in 2025 and [1.1%] in 2026 to smooth the flowing in of the new energy source over a ten-year period. Then there would be decreasing after that. I just will go back to emphasizing that these are showing the costs over and above the costs that are projected based on the current ten-year rate plan.

To try to make that a little more real, we look at some scenarios. What would a single-family home on Vancouver Island with a hydro bill of $1,650 a year.? The Site C termination would mean about $200 a year more in electricity bills.

But we've also showed you a couple of business types, because at the end of the day, hydro rates are going to affect the competitiveness of our businesses, and that affects our ability to generate jobs and income for British Columbians. You can see the numbers there. The reason we put the data centre in there.. There's a lot of talk about the new economy in British Columbia, a lot of talk about big data and what role we can play. I think it's important reminding ourselves that a lot of that new economy is going to be quite energy-intense. It's interesting that Kamloops has

become an interesting centre for data centres in the province, and that's an estimate of what a medium-sized data centre in Kamloops would have happen to its electricity bill.

And then the public sector also uses a lot of electricity. This is a large lower-mainland hospital. I don't know why we're trying to protect its anonymity, but there you go. You know, a not-insignificant increase for a large hospital, as well, too.

A final note I want to make on the rate impact is that if the demand does exceed the low load forecasts, the relative advantage to [the complete] scenario increases over the terminate scenario. That chart just gives a quick flavour of that.

One final thing I'll say about this is this only talks about rate impacts, but in the BCUC's alternative portfolio, they put higher emphasis on demand-side management. In demand-side management there is actually a ratepayer's cost that doesn't get reflected in these rates, because you reduce your demand for electricity by buying more efficient refrigerators or going to a time-of-day or whatever. Those costs don't get reflected in the hydro rates.

Let's turn and look at fiscal impact and risks. Some inconvenient arithmetic. We have heard a number of people say, well, don't worry about the $4b if you terminate. Just write it off and move on. But the sad reality is that we can't just ignore that $4. It has to be absorbed by someone, either ratepayers, BC Hydro or taxpayers. The previous section looked at what happens if we had ratepayers absorb the cost, so I'm just going to run through what the implications would be if we looked at either BC Hydro or taxpayers to absorb the costs.

Could BC Hydro absorb the termination costs? Well, they could. What that would mean is they would write down more than 80% of their equity. The government entity would still show a $4b loss in that fiscal year.

Would that make it the biggest deficit we have ever had in BC, Doug?

Then there would be ongoing interest costs of $120m to $150m per year, because we can write the project off, but we unfortunately can't tell the bond holders that they don't get the interest on the bonds that we have sold them.

Now, the biggest risk of the Hydro-absorb scenario is that if we wipe out more than 80% of Hydro's equity, there would be a legitimate question as to whether Hydro would still be considered a commercially viable entity, and if the credit rating agencies decide that it's no longer a commercially viable entity, then that $20b in Hydro debt gets reclassified as taxpayer-supported debt. That would likely lead to a downgrade in the province's credit rating, resulting in higher interest rates on the now $65b of taxpayer-supported debt.

Well, rather than doing that, could we have the Minister of Finance absorb the termination costs? In essence, the central government would recapitalize BC Hydro with $4b so that their equity remains at its current levels. That likely would preserve BC Hydro's status as a commercial entity, but having the Minister of Finance absorb the termination costs would still entail that $4b loss in the government reporting entity, still involve $120m to $150m in debt-servicing costs,

could lead to a downgrade by the credit rating agencies, adding even more debt interest cost to taxpayers. But most important -- and this was really quite significant in the cabinet's decision-making -- is that it would crowd out room for new capital project spending on schools, hospitals, housing, bridges, highways, etc.

To give you an idea of what $4b is equivalent to, it's equivalent to 66 secondary schools at $60m a pop; 11 hospital projects similar to the North Island hospitals one, where the province's share was $365b; 12 highway projects similar to the Okanagan Valley corridor project -- the province's share of that is $330m -- or three new Pattullo bridges at one $1.3b each. At the end of the day this figured very prominently in the cabinet's agonizing over this decision.

Concluding comments. Obviously, a very tough decision for government. The decision to proceed was primarily driven by the need to minimize impacts on BC Hydro ratepayers and preserve the fiscal room to invest in schools, bridges, hospitals, housing, etc.

I'm happy to answer any questions.

Q and A

Reporter: Could we look back at the chart with the two comparisons and Site C costs, current and then the revised numbers? I have a couple of questions about where those came from. Direct costs have jumped by about $1b. That's the actual costs of building the project. Why have indirect costs jumped by so much? I'm not even sure what those are.

Response [not identified]: [Inaudible] construction, which you've observed. The indirects will be things like dealing with Highway 29 and the issues that are surrounding that, dealing with transmission, the reservoir, more work on the reservoir pieces, or for accommodation. There's a variety of pieces that make up indirects, and so they all start to move. Things have a cascading effect. Once one thing happens, especially, as Don alluded to, when there's a delay scenario, there's a bunch of costs that go with that.

Reporter: The other one, I guess, is the risk reserve. Is the 708 on top the 440, or is that a new reserve, so you've increased the risk reserve by about $250m?

Response: You've increased the reserve by 250, but for part of the project [inaudible].

Reporter: You said that some of the elements of the project have gone over budget already and that.. You referred to contracts that have not been awarded yet that are over budget. That's the highways, the transmission lines and the generating station spillways. Is that in the 5.8?

Response: Yes.

Reporter: But those contracts haven't been awarded yet, so you're going on the basis of the bids that have come in but the contracts haven't been awarded yet.

Response: Yes, as well as looking at what's happening to general construction costs, material costs, so on.

Reporter: But on the transmission lines and the generating station spillway, the bids are already in. Hydro knows what the bids are -- right?

Response: The generating station, that's true.

Reporter: I thought they [inaudible] that November 30.

Response: I haven't seen the numbers.

Response: In either case, Vaughn, November 30, they would just be starting to crack open those bids if that was the case. From that perspective it's a big unknown still.

Reporter: This is not, though, the result of changing the tender calls or going out for tenders a second time?

Response: No.

Reporter: And on the highways, I believe there's three bridges and highway relocation. Do they have an estimate on that yet?

Response: Yes, they have. They've built in estimates. I can't go into the details. Treasury Board will go through that more. This factors in, the relocation and all the consequential pieces that go with it, the extensions.

Reporter: How much of the $900m direct cost increase is costs that have already been incurred, and how much of it is estimates based on stuff that hasn't been done yet?

Response: I think it would be fair to say here that the largest share will be costs yet to be incurred yet. Some is already happening, but it's based on trends of what's happening and take it into the rest of the project. That's where a big piece of the cost is.

Reporter: I'm sort of on the same ballpark. You mentioned accommodation. Are we anticipating that First Nations will receive some kind of restitution [inaudible] this project? Is there any additional costs anticipated for that?

Response: I think the accommodation Doug was talking about was accommodation of workers.

Reporter: Let's talk about First Nations accommodation. Is there an anticipation that BC is going to be on the hook for additional costs to opponents of Site C that are under the Treaty 8?

Response: The discussions with First Nations will be ongoing. As you know, a number of First Nations do have benefit agreements. There are some that we, I think, are still.one we're still negotiating with, and two at this point in time have been going to the courts to try to deal with

that. As that unfolds, as our conversations with those First Nations unfold, we'll see what happens. I think one thing, though, that's important to put it in context is when we talk about accommodation agreements and benefit agreements with First Nations in the treatied area, there is Site C, but there's also natural gas and other things. They do tend to get blended together.

I don't want to make it sound like I'm not answering your question. We haven't pencilled in any additional costs.

Reporter: On the same topic, the Premier had indicated some concerns about the tension cracks and said he wanted some assurances. Has there been an independent geotechnical analysis, or is there going to be one, to make sure that that is actually under control?

Response: Part of preparing its estimate... You may recall that at the start of the project BC Hydro has what's called a technical advisory board. This is a board that's convened of external independent experts. That same body of people has given the corporation advice in preparing these estimates and will be providing advice to the provincial Treasury Board as well. So the direct answer to your question is, yes, they were part of how this new plan and budget that goes with it was constructed.

Reporter: You're not going to send this out for any kind of independent assessment to say there is going to be a continued problem?

Response: The technical advisory board pretty well consists of all of the experts that you would go to, to ask that same question.

Reporter: Are these the same people that apparently had said that those two cracks that were on the banks had been anticipated all along?

Response: I can't respond to that except to say that at the time the FID was made in 2014, the cracks were not.. There was lot of risks at the time, but they're weren't identified expressly by any of the geotech analysis that the technical board relied on.

Reporter: Are there still just two cracks?

Response: That's correct. Justine, that north bank was known to have historical slides and slopes on it, and as a result, that's why all that material is being taken off to get to a more stable base for the north abutment of the dam.

Reporter: Mr Wright, you mentioned enhanced oversight on the rest of the project. What does that look like? Is that someone in government watching Hydro and the contractor, or is that an independent kind of watchdog?

Wright: There's multiple strands to it. As you know, one of the first things the Premier did when he took office was he put in a new chair at Hydro, somebody who knows Hydro well and is well qualified and well respected and that the Premier relies on to give him the straight goods. There's been some changes at Hydro. I think you'll start to see some new appointments to the Hydro

board that bring in some of the expertise that we think we need, but we will also be.. I don't want to get ahead of the Premier, but there is a project management board, and we'll be asking Hydro to put some outside independent experts on that board as well as we have representatives of the shareholder sitting on that management board, as well, too.

Reporter: The premise of the point of no return. Do you buy that premise that basically, in very, very short form, this project is past the point of no return? Is that an accurate way of describing it?

Wright: It's always, at the end, an arithmetic exercise. It's how much money has been spent, how much money remains to be spent, versus the alternative of getting the energy elsewhere. Yes, I do believe in the concept of a point of no return. What that point is, is going to depend on what your estimates for the costs to complete are going to be.

Reporter: There's a lot of skepticism about the $1.8b in remediation costs. Some people discount that. It's correct to say that you have accepted that figure as part of the $4b in the walkaway costs.

Wright: Yeah. I mean, as I said, we have basically said we asked the Utilities Commission to do a review. They came back, and they said use the low load forecast. They said use this alternative portfolio, and we think the best midpoint estimate of the remediation costs are that $1.8b, $1.9b. We don't know why we wouldn't accept their analysis in that regard.

Reporter: The criteria slide. I just want to be clear. You mentioned the top two were far and away the two most dominant. Is this ranked in priority in terms of what was.?

Wright: I don't want to give you a definitive answer on that, Keith, because you know, this is such a complex decision to make. Cabinet spent nine hours in three separate sessions deliberating on it. It would be difficult to say, you know, this one gets a 0.2, and this gets a 0.6.

Reporter: But the top two were?

Wright: The top two were probably the dominant ones. You know, the agriculture is at the bottom, but in a way, that was one of the more emotional issues. The cabinet didn't discount that at all, so I think you'll hear the Premier say something about the agriculture side of things.

Reporter: I just want to clarify that rate impact and have a simple summary of that. You mentioned at one point -- I think I got it down -- 30% increase over ten years? I'm not sure about that. And the thing about rate impact of stopping the project and rate impact continuing the project. I just want to make sure I've got that right.

Wright: Let's say Site C had never been on the horizon. The former government came up with a ten-year rate plan that looks like that, that has rates going up by about 30% over the next ten years. I'm happy to talk about that ten-year rate plan down the road, but this isn't about that.

Then you ask: if we do Site C or if we terminate Site C, what additional increases do you have on top of that? You know, the rough and dirty number is if you terminate Site C, you add 12% to that.

If you continue on with Site C, you do, what, 1.1%?

Unidentified: If you were to.. Just a one-time increase when it comes into service in 2024-25 would be 6.5%. We would anticipate that BC Hydro would apply to the commission to smooth that impact, and if we were to do that over ten years, it would take 1.1% for two years and then flat after that.

Reporter: I'm just wondering about the revenue side of this, how much certainty is over the revenues that will be generated once Site C is up and running.

Wright: Good question. We will have surplus energy when Site C comes on stream. It is always the essence of these big projects that you do them in lumps, and so when they come on, you have some surplus energy until demand catches up to it. In that period of time, we have assumed that we will be selling that surplus energy into probably the US market, and we've made pretty conservative estimates of what we think we will get for that.

MacLaren: Over time, as demand grows, the domestic rates are higher than the export market price, and that actually has a negative impact on rates. You've built into rates based on the lower export price. You start making more revenues, it actually has a rates positive impact over time.

Reporter: I wonder if you could go back to the slide where you compare with other potential capital project scenarios, the slide where you compare it to hospitals, schools, bridges. On this slide, and I also noticed on the last slide where you were talking about the two-point decision, you're minimizing the ratepayers impacts and preserving fiscal room to build schools, hospitals and housing, you don't mention transit, which I find very interesting, because transit is a major issue here in the lower mainland, where a large amount of people live in the province, especially a large number of NDP voters. Has the Site C project's cost pressures affected other areas where the government had said it wanted to spend, such as a major transit infrastructure in the lower mainland, or was this just a communications oversight?

Wright: We never make communications oversights.

There's two parts to your question. First of all, why do we not have transit on this slide? Well, quite frankly, when we first prepared the slide, we had nothing but lower mainland projects on it. We had Royal Columbian Hospital. We had TransLink projects. We had the Pattullo Bridge. And then we said, well, you know, there is another part of the province other than the lower mainland, so we thought we would give a set of examples that spanned the province. That's the answer to that question.

The second part of the question is are the Site C overruns causing problems for the other capital projects like TransLink? Not at this point in time and not if we go ahead and complete Site C, or, in the alternative, not if we terminated Site C but asked ratepayers to pay for that $4b in costs. If,

however, we terminated Site C and decided, either because the government didn't think it was right or, frankly, the Utilities Commission could decide that that $4b can't be recovered from ratepayers.. I'm happy to talk about that if people want to explore it. In that case, if you can't recover it from ratepayers, then you have to take it onto the government's books. That would squeeze out $4b of capital room for other projects, and then it just becomes an exercise in how many schools, how many rapid transit projects, how many bridges do you want to knock down the priority list.

Reporter: I'm just wondering how this decision will affect the timeline and when this project is expected to be on line.

Wright: I think other than the fact that we do have a delay in the river diversion project, we don't expect this to have any further impact on the timelines.

?MacLaren: That is correct, Don -- November 2024.

Reporter: You mentioned that the cabinet spent nine hours in two separate sessions on this. Is that nine hours total over two meetings or two nine-hour meetings?

Wright: Knowing that this is not for attribution, I have to say two nine-hour cabinet meetings is pretty close to my definition of hell.

No, it means nine hours in total over three sessions.

Reporter: Three sessions. When precisely was the final decision made to complete the project?

Wright: The final decision was made last Wednesday.

Reporter: I'm just wondering if you can go back, just comparing the single-family home on Vancouver Island. The 12% would be effective by 2020. Would there be any other increase beyond that?

Wright: Under the terminate scenario, the assumption is we're going to write that $4b off over ten years. You lift it up by the 12%, you maintain that over the ten years, and then it goes away.

Reporter: Can you say if there was unanimous cabinet support?

Wright: I'm not going to talk about what the deliberations within cabinet are. That has to be subject to cabinet confidentiality. But this was a difficult decision. As I said, they spent nine hours talking about it. But at the end of the day, under our system of government, when the cabinet makes a decision, all of the ministers support that decision.

Reporter: I just want to clarify. So the rate increase of 12% starts in 2020. There's no increase before 2020.

MacLaren: That's what we assumed in our analysis.

Reporter: How long would that 12% continue for after 2020?

Wright: Ten years. Just on the 2020, we have assumed that it depends on what year we actually take the write-down, and then we have to go to the Utilities Commission and get the Utilities Commission to rule on how that can be recovered by the ratepayers, and we're assuming that may take two years from now.

Reporter: For the next six, seven years, on the build, what's the biggest risk factor that would keep the engineers or the financiers awake at night? Is it geotechnical or interest rates or costs, inflation?

Wright: Well, all of the above. On the interest rates, we've got some really incredible public servants in our treasury department. If you don't mind my just doing a little bit of an advertisement for the public service, the one area where we are below the original budget is in interest costs, and that's because Jim Hopkins and his folks have done a very good job of going into the market opportunistically and locking in low rates. I think for the most part we've got those locked in for the duration of the project.

MacLaren: They've been.. Borrowing to 2024 has been hedged, and so we've locked in.

Wright: Beyond that, I think the uncertainty that remains.. There is some geotechnical worries, no question about it. We think we've got a handle on them, but one of the reasons we have allowed for more of a risk reserve is you never know until you've got the project completed. Beyond that, trying to forecast what actual construction costs will be two or three years in the future depends on, you know, what happens in all kinds of markets. Like, are steel costs going to go up? Are cement costs going to go up? Does the oil patch in Alberta rebound and therefore labour costs go up? There's all kinds of uncertainties.

Reporter: Can you go back to the slide about completing and the rate impact? If you complete, the rate impact in 2015 is 1.1, and I think Les was saying it would be 6.5% overall, and that's assuming..

MacLaren: If you did it as a one-time increase, the increase would be 6.5%. You're just looking at what is the finance cost, amortization and operating cost, on one side; revenues from power sales; and then you have to figure out what rate increase would fill that gap. And so if you did it just one time, 6.5%, or if you smooth it over ten years, you could get this result, which is 1.1 in year one, 1.1 in year two, then flat from there.

Reporter: And then do you have a dollar amount for, like, an average residential customer, ratepayer, what that would be?

MacLaren: I don't. It would be on a higher rate base at that time. But it would be, obviously, significantly less than the terminate scenario impacts.

Reporter: [Inaudible].

Wright: I go back to the.. The previous government had a ten-year rate plan that sees rates climbing more or less steadily..

MacLaren, Les EMPR:EX

From: Lloyd, Evan GCPE:EX
Sent: Monday, December 11, 2017 9:41 AM
To: Zadravec, Don GCPE:EX; MacLaren, Les EMPR:EX
Subject: FW: Final Power Point Deck
Attachments: Site C Technical Presentation, December 11 2017.pptx; Site C Technical Presentation, December 11 2017.pdf

Don – for preparation

From: "Kennedy, Christine PREM:EX" <Christine.Kennedy@gov.bc.ca>
Date: Monday, December 11, 2017 at 9:24 AM
To: "Devereux, Rick GCPE:EX" <Rick.Devereux@gov.bc.ca>, "Lloyd, Gcpe:Ex" <Evan.Lloyd@gov.bc.ca>, "Hagglund, Jarrett GCPE:EX" <Jarrett.Hagglund@gov.bc.ca>
Cc: Don Wright <Don.J.Wright@gov.bc.ca>, Don Zadravec <Don.Zadravec@gov.bc.ca>
Subject: RE: Final Power Point Deck

Here is the presentation with Don's final updates, in PowerPoint and PDF.

Christine

From: Devereux, Rick GCPE:EX
Sent: Monday, December 11, 2017 6:40 AM
To: Lloyd, Evan GCPE:EX; Kennedy, Christine PREM:EX; Hagglund, Jarrett GCPE:EX
Cc: Wright, Don J. PREM:EX; Zadravec, Don GCPE:EX
Subject: Final Power Point Deck

Hi All,

My colleague Jarrett is included in this email and is the lead in the execution of the event in Vancouver. Can he be sent the final power point when it is ready?

Please let me know if we should be contacting someone else about this.

Thanks
Rick

Site C
Technical Briefing

Don Wright
Deputy Minister to the Premier
December 11, 2017

BRITISH COLUMBIA

After review by BCUC, meeting with Treaty 8 First Nations, advice from independent experts and lengthy deliberation

Cabinet has made the difficult decision to complete Site C construction

BRITISH COLUMBIA

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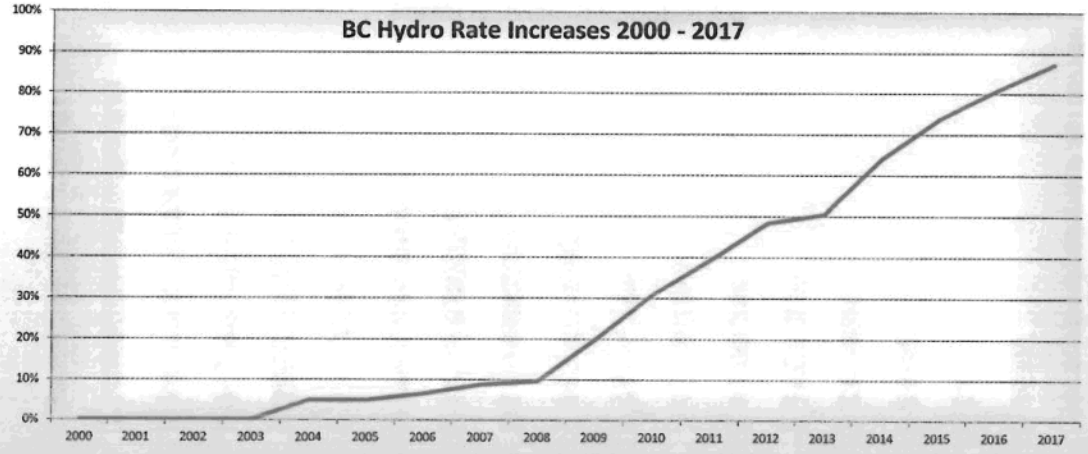
Outline of Technical Presentation

I. Historical Context
II. Government's Decision Criteria
III. Revised Cost Estimates
IV. Ratepayer Impacts
V. Fiscal Impacts/Risks
VI. Concluding Comments

I. Historical Context

Hydro Rates Have Been Rising Significantly Since 2003



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5

New Power More Expensive Than Heritage Assets

Heritage Assets	Average of IPP	Projected Site C
$32 / MWh	$100 / MWh	$60 / MWh

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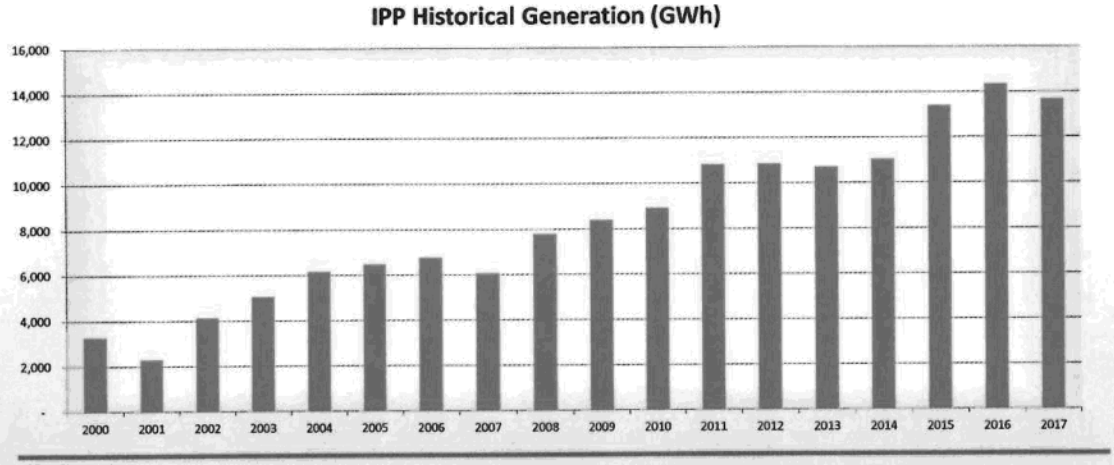
IPP Share of Supply Growing



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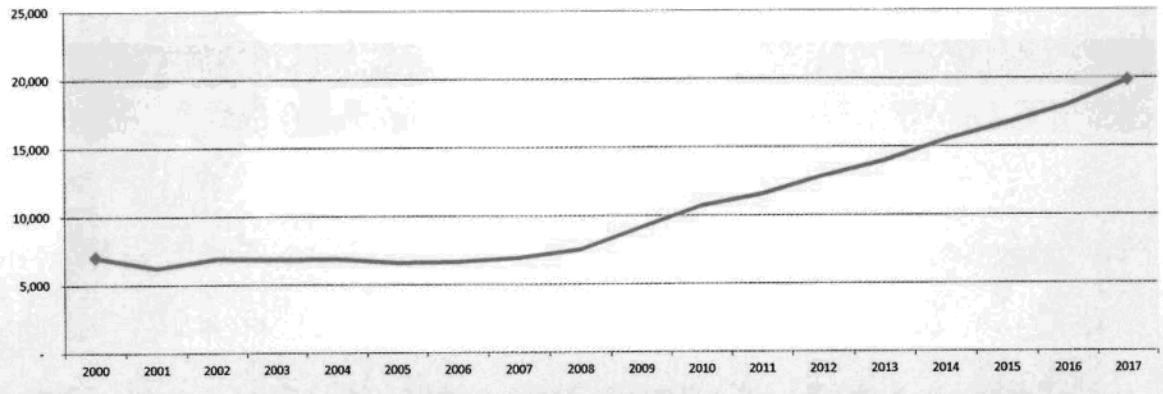
7

BC Hydro Debt is Growing



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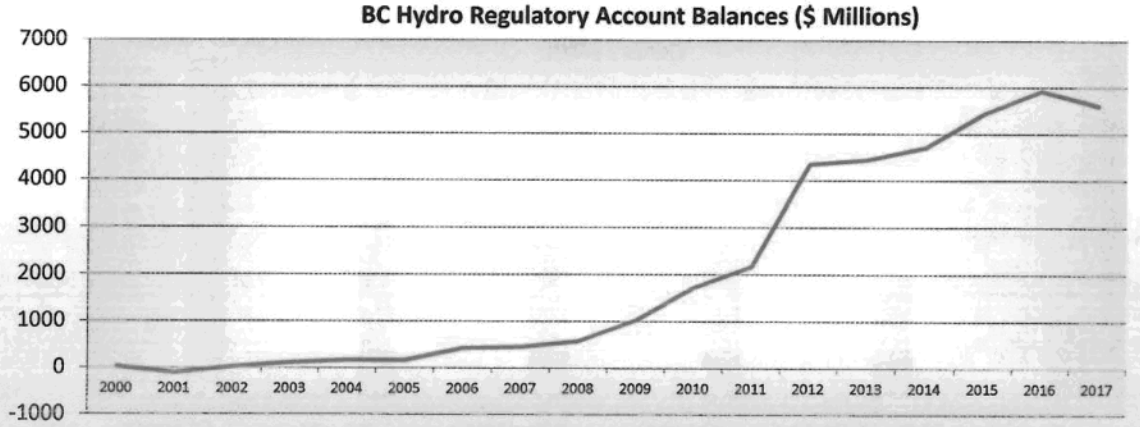
8

BC Hydro's Regulatory Account Balance Is Growing



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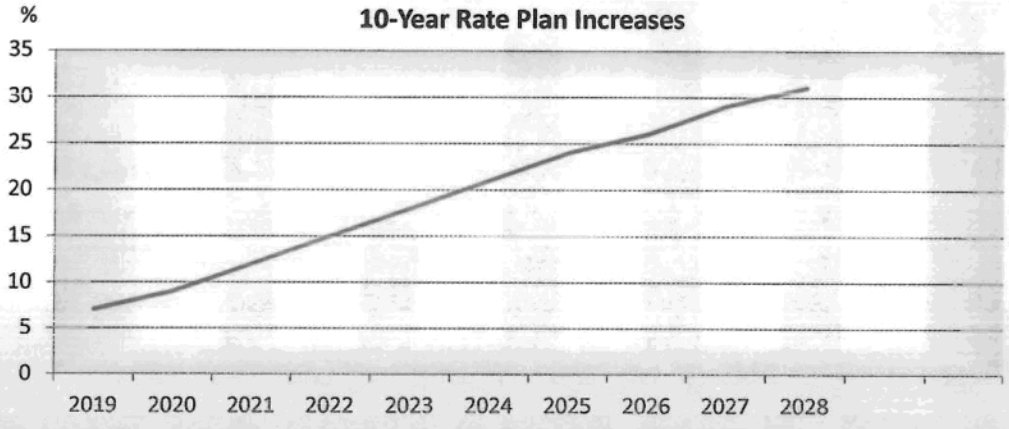
9

Current 10-Year Rate Plan Schedules Further Increases



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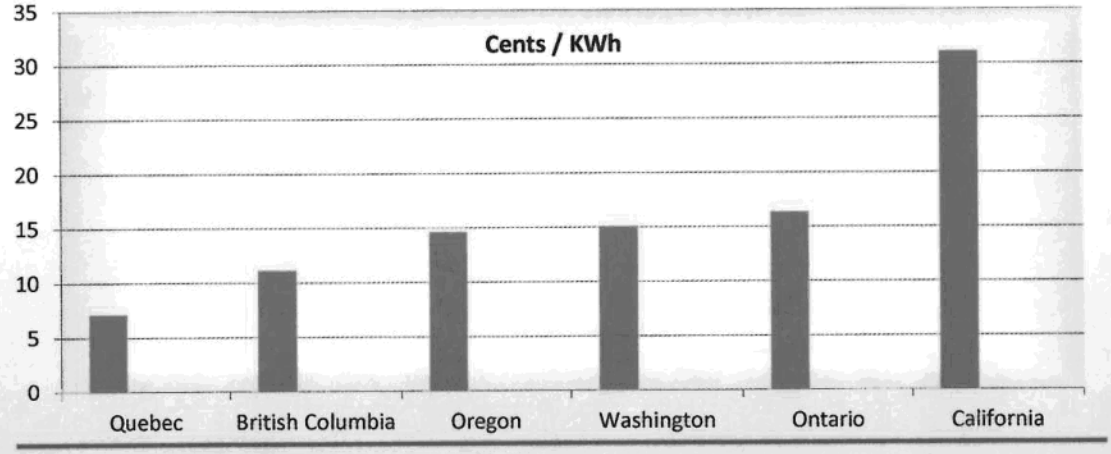
10

How Our Rates Compare, Residential

Source: Hydro Quebec, NRCAN, US EIA



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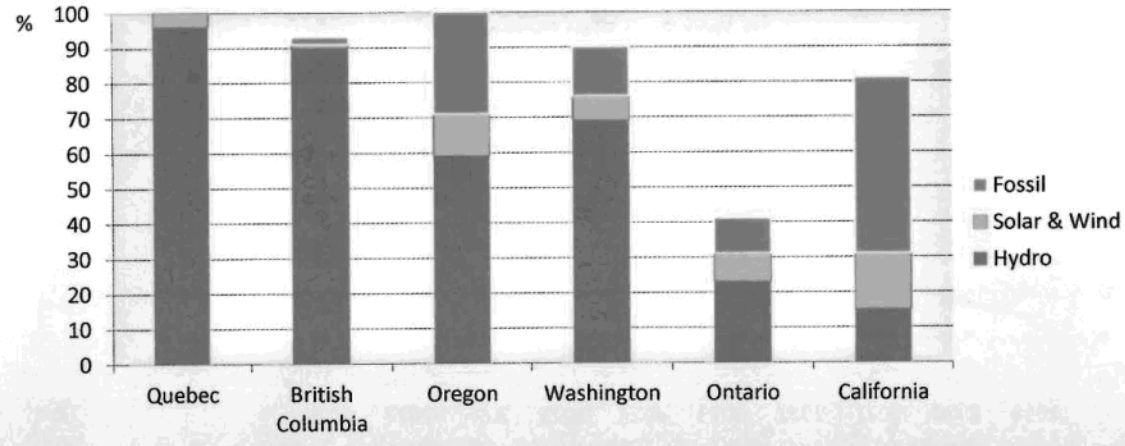
11

Sources of Electricity

Source: Hydro Quebec, NRCAN, US EIA
Other sources to 100% includes biomass, nuclear



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II. Government's Decision Criteria

Criteria

1. Ratepayer Impact
2. Fiscal Impact / Risks
3. First Nation Impacts
4. GHG Targets
5. Agriculture / Food Security

III. Revised Cost Estimates

Projected Cost to Complete: $10.7 Billion

- 2014 approval was for $8.335 billion
  - With an additional $440 million risk reserve
  - For a total of $8.775 billion
- Costs to date have exceed budgeted amounts
- One-year delay of river diversion estimated to increase costs by $610 million
- Future contracts projected to be higher than budgeted amounts
- Current mid-point estimate is now $9.992 billion
  - $1.657 billion over 2014 estimate
- Given what has happened to date, risk reserve has been increased

Change in Cost Estimate

$ millions

Cost	2014	Current
Direct Costs	4,940	5,839
Indirect and Overhead	1,194	2,010
Contingency	794	858
Interest before completion	1,407	1,285
Total Before Risk Reserve	8,335	9,992
Risk Reserve	440	708
Total	**8,775**	**10,700**

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Comments on Cost Escalation

- Government will be putting in place enhanced oversight to ensure final costs are at or below $10.7 billion
- $10.7 billion is used in making comparisons of the continue versus terminate scenarios

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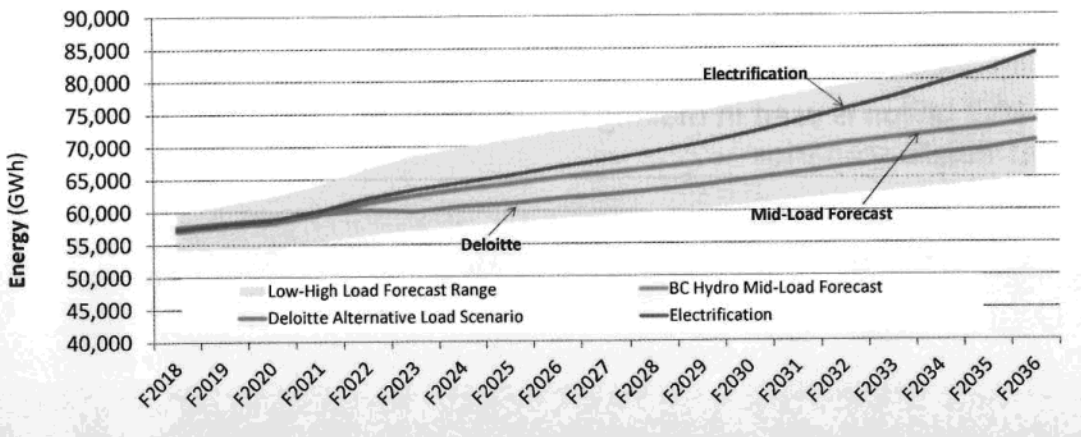
IV. Rate Impacts

Comparison of Load Forecasts



Rate Impact Analysis Assumptions

- BCUC Low Load Forecast
- BCUC "Alternative Portfolio" assumptions
- $10.7 B Site C Cost
- 10 year amortization of $4 billion in termination scenario

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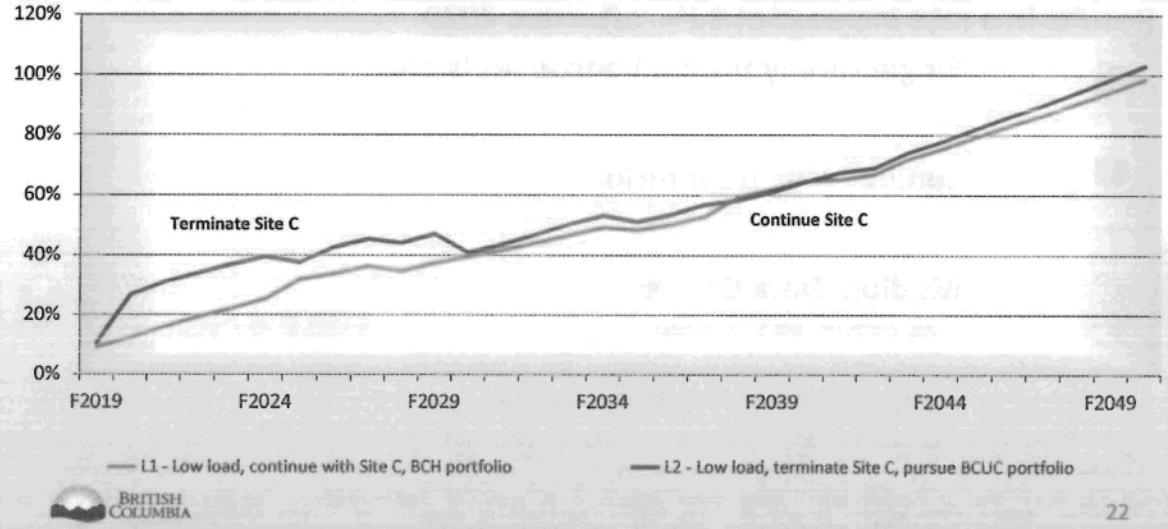
Rate Impacts Under a Low Load Forecast



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What Is The Impact On Ratepayers?

Complete Site C	Terminate Site C
• Rate impact 1.1% in 2025, and 1.1% in 2026 under a rate smoothing scenario over 10 years, then decreasing (assuming revised $10.7B project cost)	• Increases rates, starting in 2020 to recover sunk and termination costs • A 12% rate increase would need to be in place for 10 years

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Impact of Terminating Site C on Customers

Results in a rate increase of 12%, effective 2020

Single Family Home, Vancouver Island
- Annual hydro bill $1,650

+$198 / year

Lumber Mill, BC Interior
- Annual hydro bill $1.6 million

+$192,000 / year

Medium Data Centre
- Annual hydro bill $1.5 million

+$180,000 / year

Large Lower Mainland Hospital
- Annual hydro bill $3.1 million

+$372,000 / year

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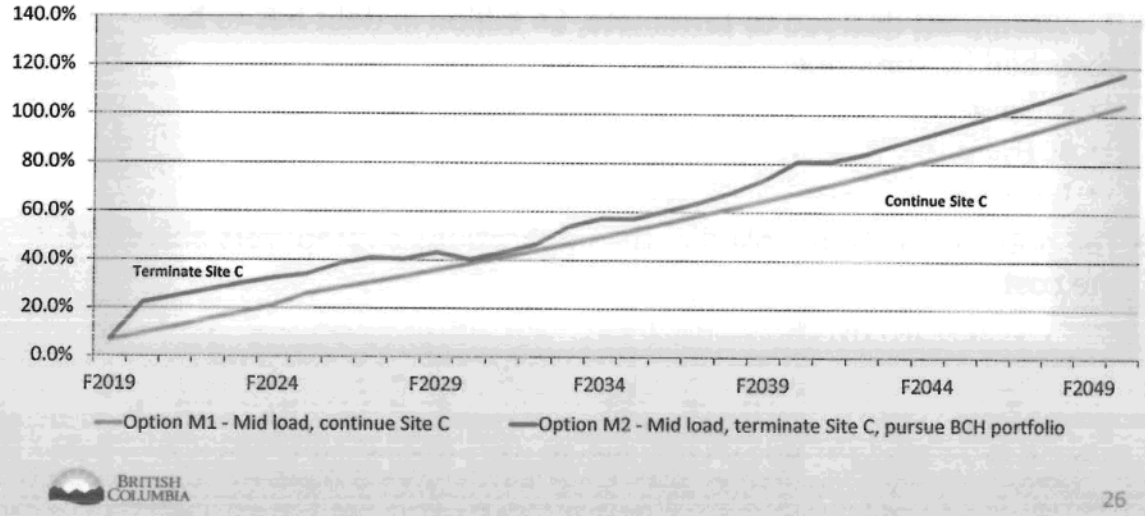
Demand Affects Relative Rate Impact

- If demand exceeds low load forecast, relative advantage of complete scenario increases over terminate scenario

Rate Impacts Under a Mid Load Forecast



V. Fiscal Impacts / Risks

Some Inconvenient Arithmetic

- If government decided to terminate, $4 billion in debt has to be absorbed by someone
  - Ratepayers
  - BC Hydro
  - Taxpayers
- The previous section looked at the implications if ratepayers absorbed the cost

Could BC Hydro Absorb Termination Costs?

- They could
- But this would
  - Wipe out more than 80% of BC Hydro's equity
  - The $4 billion loss would still be consolidated on the books of the Government Reporting Entity
  - Involve ongoing debt interest costs of $120-150 million per year

Biggest Risk Of The Hydro Absorb Scenario

- In a scenario where BC Hydro was to absorb the $4 billion termination costs:
  - Credit rating agencies could determine that BC Hydro was no longer a commercially viable entity
    Resulting in $20 billion debt being reclassified as taxpayer-supported debt
    - Likely leading to a downgrade of the Province's credit rating
    - Resulting in higher interest costs for the (then) $65 billion in taxpayer-supported debt

Could the Minister of Finance Absorb Termination Costs?

- Central Government's Consolidated Revenue Fund would take on the $4 billion of debt and recapitalize BC Hydro
- This would likely preserve BC Hydro's status as a commercial entity
- But...

Having the Minister of Finance Absorb Termination Costs Would

- Still entail a $4 billion loss in Government Reporting Entity
- Still involve $120-$150 million / year in interest costs that would have to be serviced
- Could lead to a credit rating downgrade, adding even more debt interest costs to taxpayers
- Crowd out room for new capital project spending
  - Schools, hospitals, housing, bridges, highways, etc.

What is $4 Billion Equivalent To?

66 secondary schools ($60 million each); or,

11 hospital projects similar to the North Island Hospitals (Province's share $365 million); or,

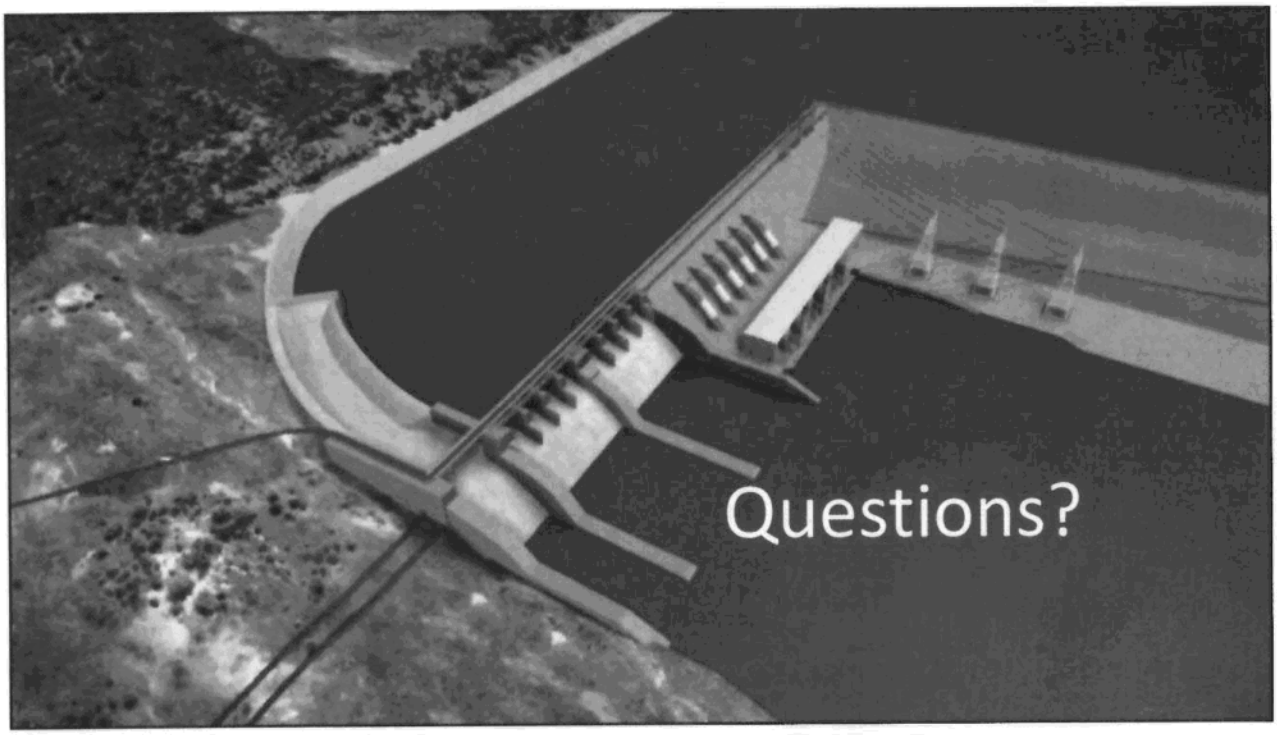
12 highway projects similar to the Okanagan Valley Corridor Project (Province's share $ 330 million); or,

3 Pattullo Bridges ($1.3 billion each).

VI. Concluding Comments

In Summary

- Very tough decision for Government
- Decision to proceed primarily driven by need to:
  - Minimize impacts on BC Hydro ratepayers
  - Preserve the fiscal room to build schools, hospitals, housing, bridges etc.



MacLaren, Les EMPR:EX

From:	Haslam, David GCPE:EX
Sent:	Monday, December 11, 2017 8:20 AM
To:	Nikolejsin, Dave MNGD:EX; MacLaren, Les EMPR:EX
Cc:	Rowe, Katherine EMPR:EX; Cutler, Scott EMPR:EX; Grewar, Colin GCPE:EX; Plummer, Glen GCPE:EX; Sovka, David GCPE:EX; Giles, Alison GCPE:EX; Dalal, Suntanu GCPE:EX
Subject:	Site C materials
Attachments:	s.13 Backgrounder 3 Site C Termination Implications for BC Hydro Customers and BC Taxpayers - Dec10V1.docx; Backgrounder 2 Site C -From Private Power to Site C Dec10-V1.docx; Backgrounder 1_Site C Mitigation Elements - Dec10V2.docx; s.13 : SiteC-NR-Dec10V2.docx

All – attached are the final Site C materials. Please note: This is still unofficial in that these have not gone through Writing & Editorial services yet. s.13 . Just an FYI. Secondly, we're re-working the QA s.13 Colin Grewar is working on it. Glen Plummer (cc'd) is getting the materials thru the editors and will send finals. Thanks - David

BRITISH COLUMBIA

NEWS RELEASE

For Immediate Release
[release number]
Dec. 11, 2017

Office of the Premier

Government will complete Site C construction

Will not burden taxpayers or Hydro customers with previous government's debt

VICTORIA – The B.C. government will complete construction of the Site C hydroelectric dam, saying that to do otherwise would put British Columbians on the hook for an immediate and unavoidable $4-billion bill – with nothing in return – resulting in rate hikes or reduced funds for schools, hospitals, and important infrastructure.

"Megaproject mismanagement by the old government has left B.C. in a terrible situation," said Premier John Horgan in making today's announcement. "But we cannot punish British Columbians for those mistakes and we can't change the past, we can only make the best decision for the future.

"It's clear that Site C should never have been started. But to cancel it would add billions to the province's debt – putting at risk our ability to deliver housing, child care, schools and hospitals for families across B.C. And that's a price we're not willing to pay," said Horgan.

Had government decided to cancel Site C, it would have taken on the project's $3.9 billion in debt, made up of $2.1 billion already spent and another $1.8 billion in remediation costs. As public debt, it would become the responsibility of BC Hydro customers or taxpayers.

"We will not ask British Columbians to take on $4 billion in debt with nothing in return for the people of this province and, even worse, with massive cuts to the services they count on.

"The old government recklessly pushed Site C past the point of no return, committing billions of dollars to this project without appropriate planning and oversight. Our job now is to make the best of a bad deal and do everything possible to turn Site C into a positive contributor to our energy future."

The premier says that in moving forward with the project, his government will launch a Site C turnaround plan to contain project costs while adding tangible benefits. The plan will include:

- A new Project Assurance Board that will provide enhanced oversight to future contract procurement and management, project deliverables, environmental integrity, and quality assurance – all within the mandate of delivering the project on time and budget. Based on current projections, BC Hydro has revised the budget to $10.7 billion.
- Establishing new Community Benefits Programs, mandated with making sure that project benefits assist local communities, and increasing the number of apprentices and First Nations workers hired onto the project.
- A new BC Food Security Fund – based on Site C revenues – dedicated to supporting farming and enhancing agricultural innovation and productivity across BC.

In addition to funding for provincewide food security initiatives, the turnaround plan will:

- Ensure the Peace River Legacy Fund implements solutions to longer-term environmental, social and economic issues.
- Activate the $20-million agricultural compensation fund to offsets lost sales and stimulate long-term productivity enhancements in Peace Valley agriculture.

"We're taking the steps the previous government showed no interest in: a solid budget, enhanced review and oversight, community benefits, and an eye to the future," said Horgan.

"We're putting an end to the years of energy policy that put politics ahead of people – where government forced BC Hydro into costly contracts, hiking rates for homeowners and renters, and delivering dividends to government it simply couldn't afford."

Horgan adds his government will also be pursuing an alternative energy strategy to put B.C more firmly on the path to green, renewable power that helps the province exceed its climate goals.

"I respect and honour the commitment of people who oppose Site C, and share their determination to move B.C. to a clean, renewable energy future and to embrace the principles of reconciliation with Indigenous communities," said Horgan, who acknowledged that Site C does not have the support of all Treaty 8 First Nations. "We know this decision is not what some First Nations wanted. Their voices were heard and their perspectives were an important part of the deliberations on a very challenging decision."

"As we move forward, I welcome ideas from across our province as we define an energy strategy that protects our environment, delivers on our climate responsibilities, powers future generations, and creates jobs and opportunities for all British Columbians."

- 30 -

Media contact:
Jen Holmwood
etc

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
Dec. 11, 2017

Site C Quick Facts & Mitigation Elements

Quick Facts:

- The Site C project is already two years into construction.
- To date, $2.1 billion has already been spent; it's estimated that another $1.8 billion would be needed for site remediation (which, even then, would not restore the site to its previous condition).
- The $4 billion in Site C termination costs is equivalent to $860 for every British Columbian, or eliminating taxpayer-supported capital projects:
    - 66 secondary schools ($60 million each); or,
    - 11 hospital projects similar to the North Island Hospitals (Province's share $365 million); or,
    - 12 highway projects similar to the Okanagan Valley Corridor Project (Province's share $ 330 million); or,
    - 3 Pattullo Bridges ($1.3 billion each).
- 99 per cent of Class 1-5 agricultural lands (capable of crop production) in the Peace Agricultural Region will not be affected by Site C. Permanent loss of approximately 3,800 hectares of class 1-5 agricultural lands leaves approximately 2.7 million hectares of Class 1 to 5 lands available for agricultural production in the Peace Agricultural Region.

New Management Direction

- A new Project Assurance Board – made up of BC Hydro, independent experts and government representatives - will provide enhanced oversight to future contract procurement and management, project deliverables, environmental integrity, and quality assurance – all within the mandate of delivering the project on time and budget. Based on current projections, BC Hydro has revised the budget to $10.7 billion.
- *EY Canada* has been retained by BC Hydro to provide dedicated budget oversight, timeline evaluation and risk assessment analysis for the duration of the project.

Agriculture

- Activate the $20 million agricultural compensation fund established to offset lost sales and stimulate agriculture enhancements in the Peace region.
- Government will establish a new dedicated BC Food Security Fund – based on Site C revenues – dedicated to supporting farming and enhancing agricultural innovation and productivity across BC.

Community Benefits

- New Community Benefits Programs will be established with a mandate to ensure that project benefits flow to local communities, and increase the number of apprentices and First Nations workers hired onto the project.

- The Peace River Legacy Fund will be used to implement solutions to longer-term environmental, social and economic issues.

- Government will explore options for relocating Site C worker accommodations, post completion, to a local skills-training institution.

First Nations

- As a component of the comprehensive review of BC Hydro, the Province and BC Hydro will consider the development of a new procurement stream for smaller scale renewable electricity projects where Indigenous Nations are proponents or partners to create local employment and commercial opportunities throughout B.C. as well as environmental benefits with the replacement of diesel or fossil fuel-based energy installations. The Ministry of Energy, Mines and Petroleum Resources and the Ministry of Finance will bring these proposals to government by fall 2018.
- BC Hydro and the Ministry of Transportation and Infrastructure will work with Treaty 8 First Nations and others to redesign the Highway 29 realignment at Cache Creek to reduce impact on potential burial sites and sacred places. BC Hydro will invite proposals from Treaty 8 First Nations for this roadbuilding work.
- The Ministry of Indigenous Relations and Reconciliation and BC Hydro will continue to engage Treaty 8 First Nations to seek additional solutions to mitigate the adverse impacts of Site C, and to advance reconciliation.
- The Province will continue recent direct government engagement with First Nations to seek input into the design of a Peace River Legacy Fund and establish a collective Treaty 8 project advisory committee.
- Work will continue in addressing cultural concerns, enhancing business opportunities, and retaining funding/land transfers and contract opportunities.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
Dec. 11, 2017

From Private Power to Site C: Bad Decisions that Shaped B.C.'s Electricity Policy

Government's decision to proceed with the completion of Site C was driven, in large part, by a series of bad energy policy decisions made over the past decade and a half that put politics ahead of people. These decisions significantly increased the Province's intermittent electricity energy supply and forced upward pressure on electricity rates.

In 2002, the previous government introduced the Energy Plan that mandated that all new power generation opportunities were reserved for private power producers. Through the extensive use of electricity purchase agreements, the board of BC Hydro made long-term commitments to purchase a large supply of new intermittent power, primarily through run-of-river power projects, at prices considerably higher than produced by BC Hydro's heritage hydroelectric assets.

The board of BC Hydro committed to more than 135 contracts with an average term of 28 years. And while power generated by BC Hydro's heritage assets cost $32 per MWh, power from IPPs cost $100 per MWh. Today these contracts represent future financial commitments of over $50 billion.

The Energy Plan also changed the structure of BC Hydro and established a standalone BC Transmission Corporation to allow private power producers to access the transmission system and to sell directly to large consumers.

At the same time that BC Hydro was directed to accommodate this new supply of intermittent power, the previous government also instructed BC Hydro to decommission its Burrard Generating Station in Metro Vancouver to address growing concerns about local air pollution and greenhouse gas emissions.

As BC Hydro lost needed electrical capacity to backstop its new intermittent power supply, it was forced to seek new capacity or "firm" power, the type traditionally provided by hydroelectric facilities like Site C.

In 2010, the old government introduced the Clean Energy Act, which exempted a number of BC Hydro projects and power procurement activities from independent review by the BC Utilities Commission including Site C, the Clean Power Call, the Smart Metering Program and the Northwest Transmission Line.

The former government then compounded the financial problems at BC Hydro by directing the corporation to pay dividends to the province from funds BC Hydro had to borrow. The cost of this debt is a direct cost to BC Hydro ratepayers.

Between 2001 and 2017, the old government directed BC Hydro to increase its liabilities held in regulatory accounts from $116 million to $5.597 billion. These costs will have to be recovered from ratepayers in the future.

As a result of these earlier policy decisions, the old government saddled BC Hydro with a new supply of long-term expensive intermittent power, without the electrical capacity to maintain reliable service to its customers.

Faced with challenges of its own making, the old government decided to push ahead with Site C without allowing review by B.C.'s independent regulator, the BC Utilities Commission.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
Dec. 11, 2017

Site C Termination Implications for BC Hydro Customers and BC Taxpayers

The decision to proceed with construction of Site C was primarily driven by a determination that British Columbians should not have to take on $4 billion in debt with nothing in return for the people of this province and, even worse, with massive cuts to the services they count on.

Analysis conducted by the Ministry of Finance, Ministry of Energy, Mines and Petroleum Resources, and external experts on the BC Utilities Commission (BCUC) report concluded that completing Site C will be significantly less costly to British Columbians than cancelling the project.

In its report, the BCUC estimated that BC Hydro would need to spend an additional $1.8 billion for termination and site remediation costs if it were to cancel the project. This is in addition to the $2.1 billion of sunk construction and planning costs that will have been spent by the end of December 2017.

Faced with an immediate and unavoidable $4 billion debt, the Province would have to recover these costs from either BC Hydro customers or taxpayers. As a regulated utility, BC Hydro is obligated to file a plan with the independent BCUC who would ultimately determine which course of action it deemed most appropriate.

The BCUC did not take a position with respect to the options for debt recovery, however, government conducted extensive analysis of the fiscal and rate implications of likely debt recovery options.

If the BCUC determined that BC Hydro could recover the nearly $4 billion in Site C costs from its customers, the Commission would then have to decide what the repayment period should be:

- Under a 10-year recovery period, BC Hydro customers could face a one-time 12.1% rate increase that would last for the next decade. This would be in addition to any other rate increases required to cover BC Hydro's ongoing debt servicing and other operating costs, including recovery of its rate deferral accounts.
- Under a longer recovery period of 70 years, customers would not face short-term rate impacts. Such a move would, however, force future generations to pay for a valueless asset from which they never receive benefits. This course of action would also increase the risk that provincial bond rating agencies would bring into question BC Hydro's financial sustainability, thus increasing the risk that BC Hydro's entire debt load becomes viewed as non-commercial. This would place significant pressure against the Province's AAA credit rating and annual borrowing costs.

If the BCUC decided that BC Hydro should not recover the $4 billion of Site C debt from its customers, the corporation and the Miniser of Finance would face two options that would significantly impact BC taxpayers.

If BC Hydro retained the $4 billion debt:

- It would first be obligated to write off the Site C costs as unrecoverable thus causing BC Hydro and the Province to slip into significant deficits. The corporation would then face an even higher risk of no longer being viewed by rating agencies as self-supporting and having its entire debt reclassified as non- commercial.
- Such a move would significantly risk the Province losing it's AAA rating with a resultant increase in borrowing costs, thus reducing the annual budget available for key priority spending areas.

If government itself chose to assume the nearly $4 billion of Site C debt – thus safeguarding BC Hydro:

- It would immediately increase B.C.'s level of taxpayer-supported debt from about $44.6 billion to $48.6 billion.
- This increase would also erode the Province's key fiscal sustainability debt-to-revenue ratio by 7-8 percentage points – a measure critically assessed by provincial bond-rating agencies and ultimately determines the Province's borrowing and debt-servicing costs.
- Taking on the Site C debt into government taxpayer-supported debt would likely eliminate planned increases in provincial capital spending over the next two years. For context, $4 billion in assumed Site C debt could pay for the equivalent of:
    - 66 secondary schools ($60 million each); or,
    - 11 hospital projects similar to the North Island Hospitals (Province's share $365 million); or,
    - 12 highway projects similar to the Okanagan Valley Corridor Project (Province's share $ 330 million); or,
    - 3 Pattullo Bridges ($1.3 billion each).
- This additional taxpayer-supported debt load would also increase operating costs in the provincial budget by $120 million to $150 million annually – putting at risk the services British Columbians count on.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources 250 952-0628

Page 129 to/à Page 131

Withheld pursuant to/removed as

s.13

Page 133 to/à Page 136

Withheld pursuant to/removed as

s.13

MacLaren, Les EMPR:EX

From: Foster, Doug FIN:EX
Sent: Sunday, December 10, 2017 4:07 PM
To: Wright, Don J. PREM:EX
Cc: MacLaren, Les EMPR:EX; Nikolejsin, Dave MNGD:EX
Subject: RE: Draft Technical Presentation
Attachments: Technical Draft 5.pptx

I'm sending a further slightly revised deck.
I have spoken with Les and with Hydro.
s.13

s.13,s.17

d.

From: Foster, Doug FIN:EX
Sent: Sunday, December 10, 2017 3:47 PM
To: Wright, Don J. PREM:EX
Cc: MacLaren, Les EMPR:EX; Nikolejsin, Dave MNGD:EX
Subject: FW: Draft Technical Presentation

thanks. some comments:

my thoughts.
d

From: Wright, Don J. PREM:EX
Sent: Sunday, December 10, 2017 1:33 PM
To: Nikolejsin, Dave MNGD:EX; MacLaren, Les EMPR:EX; Foster, Doug FIN:EX
Subject: FW: Draft Technical Presentation

As discussed, if you could review this and make sure I am not putting saying anything that is wrong. Thanks.

From: Christine Kennedy <Christine.Kennedy@gov.bc.ca>
Date: Sunday, December 10, 2017 at 1:30 PM
To: Don Wright <don.j.wright@gov.bc.ca>
Subject: Draft Technical Presentation

For version management purposes in the short time available, please have anyone that reviews send their changes / comments as e-mail text rather than making changes in the deck.

Site C

Technical Briefing Session

After review by BCUC, meeting with Treaty 8 First Nations, advice from independent experts and lengthy deliberation

Cabinet has made the difficult decision to complete Site C construction

2

Outline of Technical Presentation

I. Historical Context
II. Government's Decision Criteria
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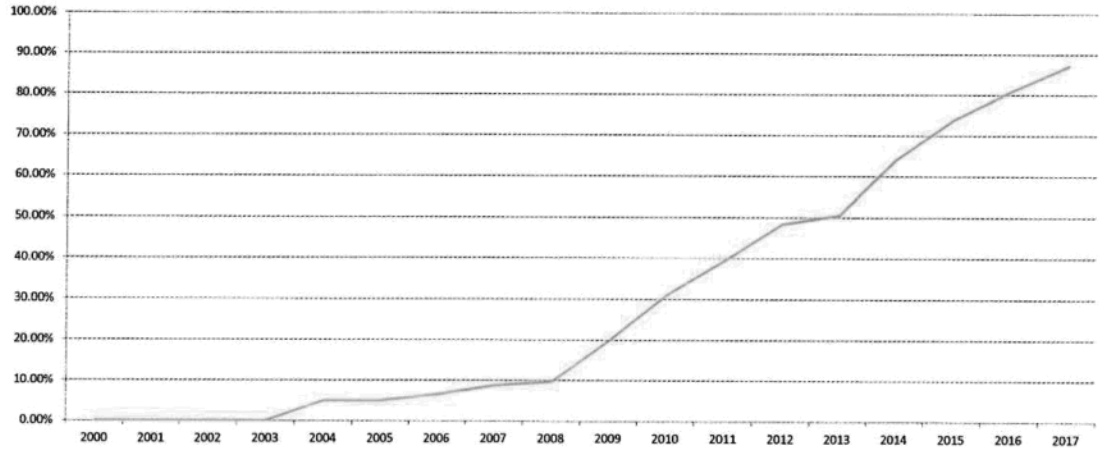
V. Fiscal Impacts/Risks
VI. Concluding Comments

3

I. Historical Context

4

Hydro Rates Have Been Rising Significantly Since 2003



5

New Power More Expensive Than Heritage Assets

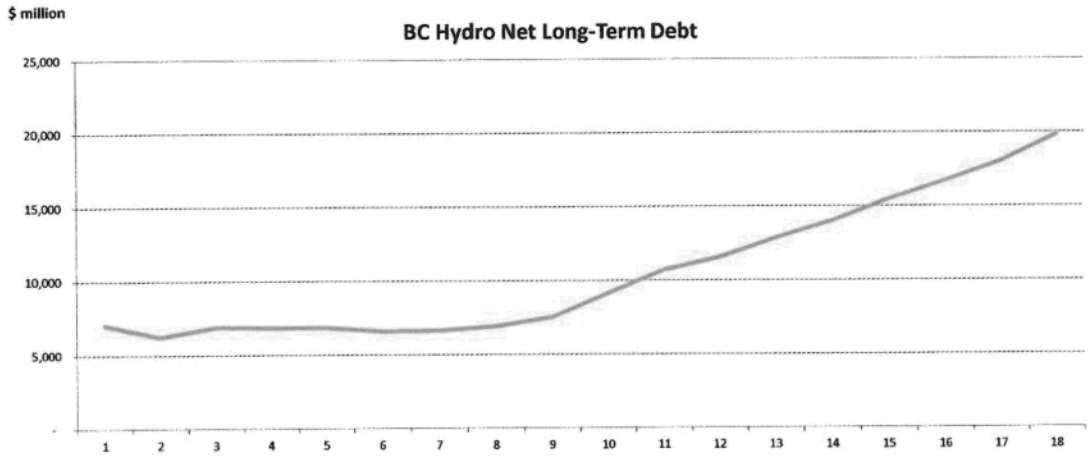
Heritage Assets	Average of IPP	Projected Site C
$32 / Mwh	$100 / Mwh	$60 / Mwh

6

IPP Share of Supply Growing

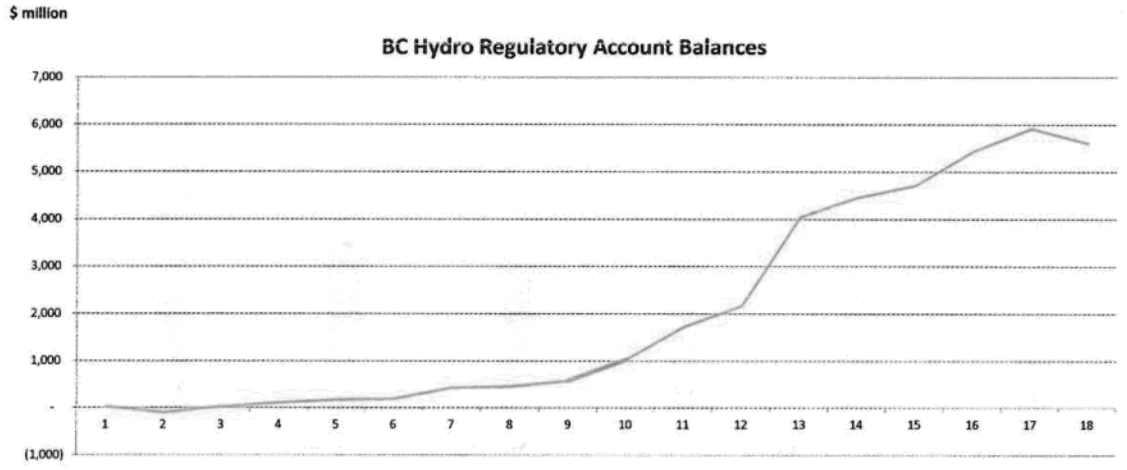
7

BC Hydro Debt is Growing



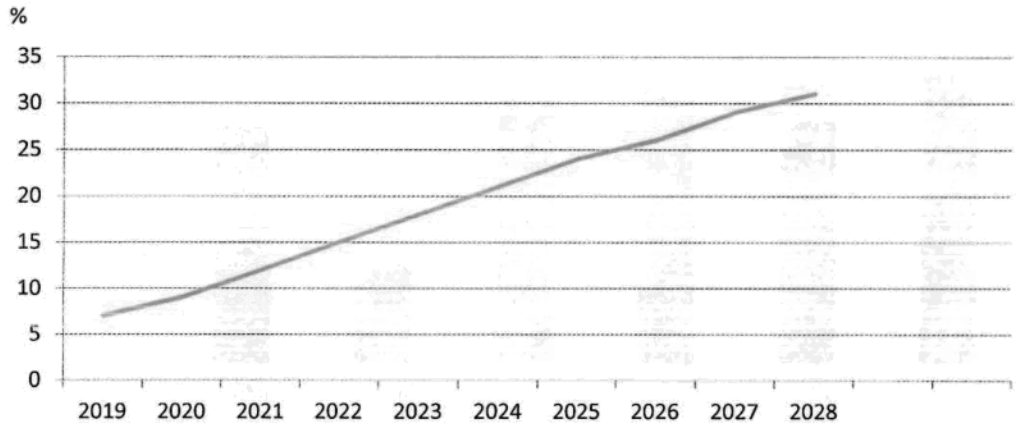
8

BC Hydro's Regulatory Account Balance Growing



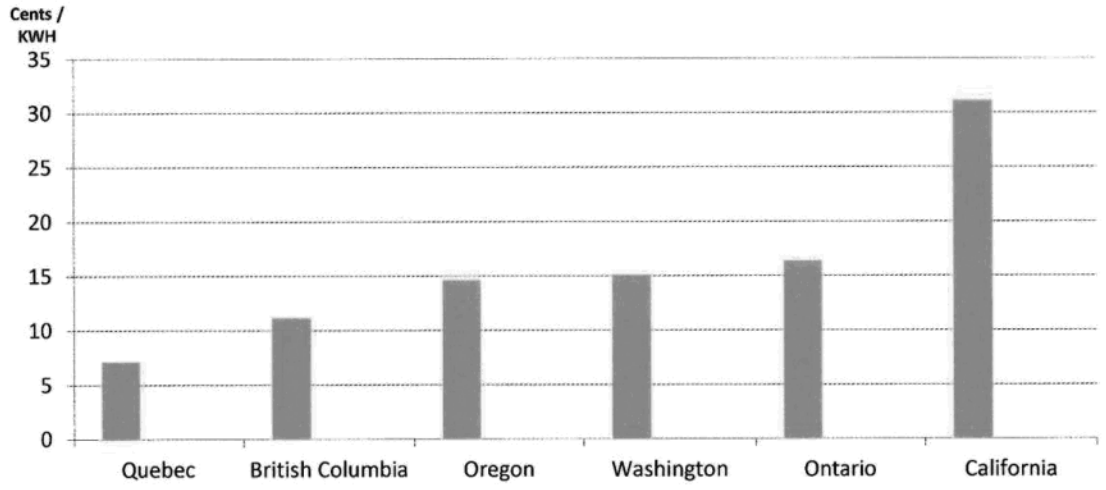
9

Current 10-Year Rate Plan Schedules Further Increases



10

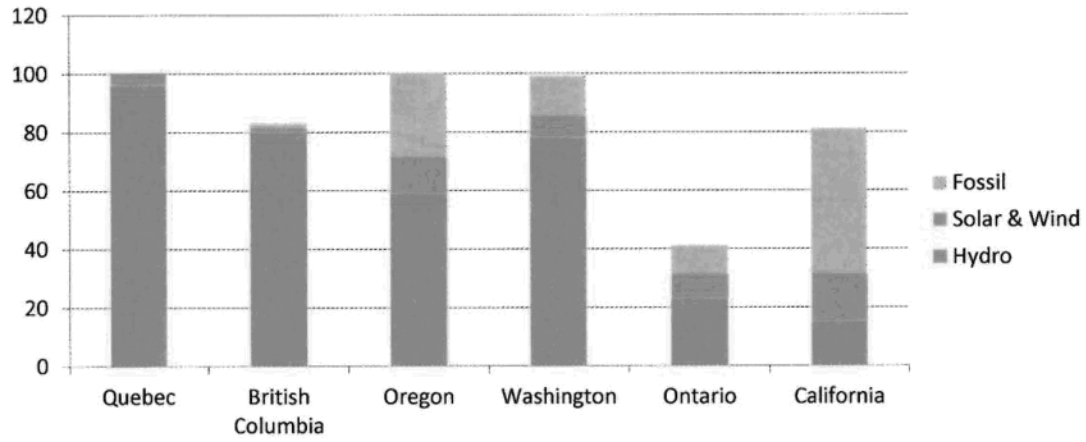
How Do Our Rates Compare, Residential



Source: Hydro Quebec, NRCAN, US EIA

11

Sources of Electricity



Source: Hydro Quebec, NRCAN, US EIA

12

II. Government's Decision Criteria

13

Criteria

1. Ratepayer impact
2. Fiscal impact / Risks
3. First Nation Impacts
4. GHG Targets
5. Agriculture / Food Security

14

III. Revised Cost Estimates

15

s.13

s.13,s.17

Comments on Cost Escalation

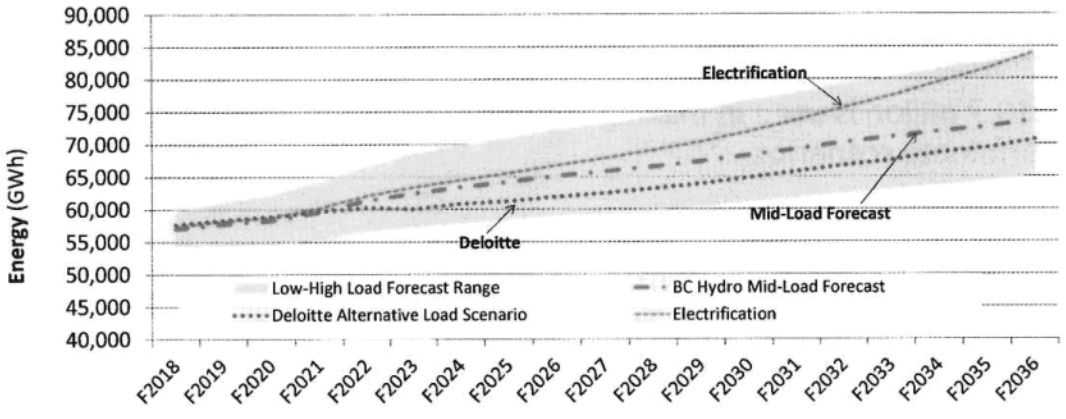
- Government will be putting in place enhanced oversight to ensure final costs are at or below $10.7 billion
- $10.7 billion is used in making comparisons of the continue versus terminate scenarios

18

IV. Rate Impacts

19

Comparison of Load Forecasts Including Electrification



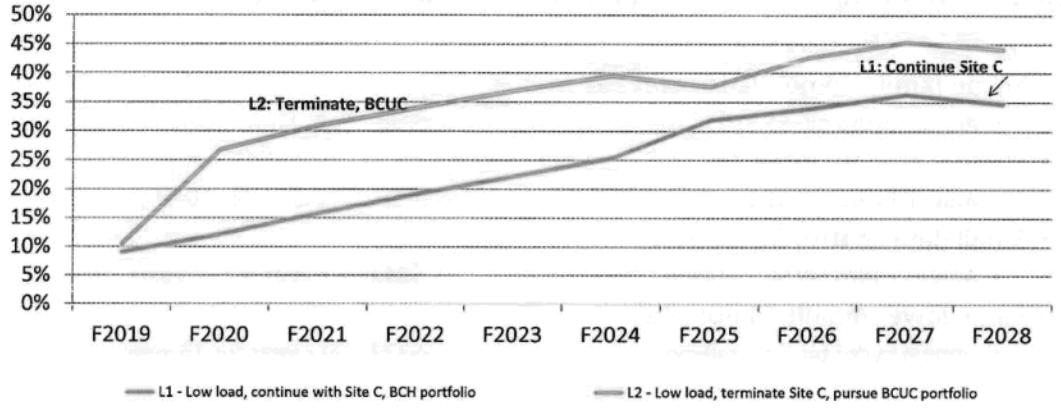
20

Rate Impact Analysis Assumptions

- BCUC Low Load Forecast
- BCUC "Alternative Portfolio" assumptions
- $10.7 B Site C Cost
- 10 year amortization of $4 billion in termination scenario

21

Rate Impacts Under a Low Load Forecast



22

What Is The Impact On Ratepayers?

Complete Site C	Terminate Site C
• Rate impact 1.1% in 2025, and 1.1% in 2026 under a rate smoothing scenario over 10 years, then decreasing (assuming revised $10.7 billion project cost)	• Increases rates, starting in 2020. to recover sunk and termination costs • A 12% rate increase would need to be in place for 10 years • Rates likely to escalate over time to pay for higher cost alternatives

23

Impact of Terminating Site C on Customers

- **Results in a rate increase of 12%, in place for 10 years**
  - Single family home, Vancouver Island
    - Annual hydro bill $1,650 — **$198 / year for 10 years**
  - Lumber mill, BC Interior
    - Annual hydro bill $1.6 million — **$192,000 / year for 10 years**
  - Small data centre, BC Interior
    - Annual hydro bill $0.7 million — **$84,000 / year for 10 years**
  - Large lower mainland hospital
    - Annual hydro bill $3.1 million — **$372,000 / year for 10 years**

24

Higher Rate Impact Of Terminate Scenario

- Remains over longer time frames
  - Modeled through 2050
- Grows as demand exceeds low load forecast
- E.g. in deep decarbonization scenario

25

V. Fiscal Impacts / Risks

26

Some Inconvenient Arithmetic

- If government decided to terminate, $4 billion in debt has to be absorbed by some party
  - Ratepayers
  - BC Hydro
  - Taxpayers
- The previous section looked at the implications if ratepayers absorbed the cost

27

Could BC Hydro Absorb The Cost?

- Yes...
- But this would
  - Wipe out more than 80% of Hydro's equity
  - The $4 billion loss would still be consolidated on the books of the Government Reporting Entity s.13
  - Have ongoing debt interest costs of $120-150 million per year

28

Biggest Risk Of The Hydro Absorb Scenario

- In a scenario where BC Hydro was to absorb the $4 billion termination costs:
  - Credit rating agencies could determine that BC Hydro was no longer a commercially viable entity s.13
  - Resulting in $20 billion debt being reclassified as taxpayer-supported debt
    - Likely leading to a downgrade of the s.13 Province's credit s.13
    - Resulting in higher interest costs for the (then) $65 billion in taxpayer supported debt

29

Could the Minister of Finance Absorb?

- Central Government's Consolidated Revenue Fund would take on the $4 billion of debt and recapitalize BC Hydro
- This would likely preserve Hydro's status as a commercial entity

....

30

But This Would

- Still entail a $4 billion loss in Government Reporting Entity s.13
s.13
- $120-$150 million / year in interest costs would still have to be serviced
- Could lead to a credit rating downgrade, s.13
s.13
- Crowd out ~~$4 billion in~~ room for s.13
  - Schools, hospitals, s.13 bridges, highways, etc.

31

What is $4 Billion Equivalent To?

- 66 secondary schools ($60 million each); or,
- XX new hospitals in rural BC ($xx million each); or,
- XX highway projects ($xx million each); or,
- 3 Pattullo Bridges ($1.3 billion each).

32

VI. Concluding Comments

33

In Summary

- Very tough decision for Government
- Decision to proceed primarily driven by need to:
  - Minimize impacts on BC Hydro ratepayers
  - Preserve the fiscal room to build schools, hospitals, bridges etc.

34

Questions?

35

MacLaren, Les EMPR:EX

From:	MacLaren, Les EMPR:EX
Sent:	Sunday, December 10, 2017 10:18 AM
To:	Haslam, David GCPE:EX; Kristianson, Eric GCPE:EX; Foster, Doug FIN:EX
Cc:	Zadravec, Don GCPE:EX; Lloyd, Evan GCPE:EX; Plummer, Glen GCPE:EX; Grewar, Colin GCPE:EX; Sovka, David GCPE:EX; Sanderson, Melissa EMPR:EX
Subject:	RE: Backgrounders
Attachments:	Backgrounder 3 Site C Termination Implications for BC Hydro Customers and BC Taxpayers LM.docx; Backgrounder 2 Site C -From Private Power to Site C LM.docx

Some tracked suggestions.

In Backgrounder 2, I didn't think the use of a regulatory account for smart meters was a big issue (I believed the BCUC approved that one). The document needs better flow from IPPs to debt/regulatory accounts then back to IPPs.

In Backgrounder 3, the numbers were based on BCUC's $10B. At $10.7B we can go with $60/MW.h for Site C, versus BCUC's $70/MW.h assuming 20 year amortization of sunk and termination costs (p.7 of response to DM's letter).

Les

From: Haslam, David GCPE:EX
Sent: Sunday, December 10, 2017 9:55 AM
To: Kristianson, Eric GCPE:EX; Foster, Doug FIN:EX; MacLaren, Les EMPR:EX
Cc: Zadravec, Don GCPE:EX; Lloyd, Evan GCPE:EX; Plummer, Glen GCPE:EX; Grewar, Colin GCPE:EX; Sovka, David GCPE:EX; Sanderson, Melissa EMPR:EX
Subject: RE: Backgrounders

Thx. Eric. Including my team so all in the loop on latest.

From: Kristianson, Eric GCPE:EX
Sent: Sunday, December 10, 2017 9:37 AM
To: Foster, Doug FIN:EX; MacLaren, Les EMPR:EX
Cc: Zadravec, Don GCPE:EX; Lloyd, Evan GCPE:EX; Haslam, David GCPE:EX
Subject: Backgrounders

Les and Doug,

Attached are two backgrounders. While you've reviewed earlier versions, there have since been some minor changes. Could I impose on you to review these one more time for factual accuracy?

Thanks

Eric Kristianson
ADM Strategic Issues
GCPE
778-584-1248

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

Site C Termination Implications for BC Hydro Customers and BC Taxpayers

The decision to proceed with construction of Site C was primarily driven by government's determination to ensure that British Columbians were not forced to absorb the unacceptabe costs associated with project termination.

Analysis conducted by the Ministry of Energy, Mines and Petroleum Resources, the Ministry of Finance and external experts on the BC Utilities Commission (BCUC) report concluded that completing Site C is more cost effective for ~~will provide~~ BC Hydro ratepayers ~~customers a benefit of between $250 and $825 million as~~ compared to terminating the project and developing a new alternative portfolio of power projects.

In its report, the BCUC estimated that BC Hydro would need to spend an additional $1.8 billion for termination and site remediation costs if it were to cancel the project. This is in addition to the $2.1 billion of sunk construction and planning costs that will have been spent by the end of December 2017.

Faced with nearly $4 billion of debt-financed spending for which ratepayers and taxpayers would receive no assets or benefits, the Province would have to recover those costs from either BC Hydro cutomers or taxpayers.

As a regulated utility, BC Hydro is obligated to file a plan with the independent BCUC who would ultimately determine which course of action it deemed most appropriate.

If the BCUC determined that BC Hydro could recover the nearly $4 billion in Site C costs from its customers, the Commission would then have to decide over what period those debt-financed costs would be recovered:

- If the BCUC opted for a 10-year recovery period, BC Hydro customers' could face a one-time 12.1% rate increase that would last for the next decade. This would be in addition to any other rate increase required to cover BC Hydro's ongoing debt servicing and other operating costs, including recovery of its ~~rate~~ regulatory deferral accounts.

- If the BCUC decided on a 30-year recovery period, BC Hydro customers would face an immediate 6.1% rate increase, in addition to any other BC Hydro increases to cover operating costs.

- If the BCUC opted for a longer recovery period of 70 years, customers would ~~not~~ face lower short-term rate impacts. Such a move would, however force future generations to pay for a valueless asset from which they never receive benefits.

This course of action would also increase the risk that provincial bond rating agencies would bring into question BC Hydro's financial sustainability thus increasing the risk that BC Hydro's entire debt load becomes viewed as non-commercial. This wouldplace significant pressure against the Province's AAA credit rating and annual borrowing costs.

If the BCUC decided that BC Hydro should not recover the $4 billion of Site C debt from its customers, the corporation and the Miniser of Finance would face two options that would significantly impact BC taxpayers:

- If BC Hydro retained the $4 billion debt, it would first be obligated to write off the Site C costs as unrecoverable thus causing BC Hydro and the Province to slip into significant deficits. The corporation would then face an even higher risk of no longer being viewed by rating agencies as self-supporting and having its entire debt reclassified as non-commercial.

- Such a move would significantly risk the Province losing it's AAA rating with a resultant increase in borrowing costs, thus reducing the annual budget available for key priority spending areas.

- If government itself chose to assume the nearly $4 billion of Site C debt – thus safeguarding BC Hydro – it would immediately increase BC's level of taxpayer-supported debt from about $44.6 billion to $48.6 billion.

- This increase would also erode the Province's key fiscal sustainability debt-to-revenue ratio by 7-8 percentage points – a measure critically assessed by provincial bond-rating agencies and ultimately determines the Proince's borrowing and debt-servicing costs.

- Absorbing the Site C debt into government taxpayer-supported debt would likely eliminate planned increases in provincial capital spending over the next 2 years. For context, $4 billion in assumed Site C debt could pay for the equivalent of:

  — 3 Royal Columbian Hospitals
  — 66 secondary schools
  — 3 Evergreen Line transit projects
  — 3 Pattullo Bridge replacements

- This additional taxpayer-supported debt load would also increase operating costs in the provincial budget by $120 million to $150 million annually – with nothing to show for it.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources 250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

From Private Power to Site C: Bad Decisions that Shaped BC's Electricity Policy

Government's decision to proceed with the completion of Site C was driven, in large part, by a series of bad energy policy decisions made over the past decade and a half that put political interests ahead of BC Hydro's customers' interests. These decisions significantly increased the Province's intermittent electricity energy supply and forced upward pressure on electricity rates.

In 2002, the previous government introduced the Energy Plan which mandated that all new power generation opportunities were reserved for private power producers. Through the extensive use of Electricity Purchase Agreements, ~~the Board of~~ BC Hydro made long-term commitments to purchase a large supply of new intermittent power, primarily through run-of-river power projects, at prices considerably higher than prodced by BC Hydro's heritage hydroelectric assets.

~~The Board of~~ BC Hydro has now committed to more than 135 contracts with an average term of 28 years. And while power generated by BC Hydro's heritage assets cost $32 per MWh, power from IPPs cost $100 per MWh. Today these contracts represent future financial commitments of over $50 billion.

The Energy Plan also changed the structure of BC Hydro and established a stand-alone BC Transmission Corporation to allow private power producers to access the transmission system, and to sell directly to large consumers.

At the same time that BC Hydro was directed to accomdate this new supply of intermittent power, the previous government also intructed BC Hydro to decommission its Burrard Thermal generation facility in the Lower Mainland to address growing concerns about local air pollution and greenhouse gas emissions.

As BC Hydro lost needed electrical capacity to backstop its new intermittent power supply, it was forced to seek new capacity or "firm" power, the type traditionally provided by hydroelectric facilities like Site C.

In 2010, the previous government introduced the Clean Energy Act, which exempted a number of BC Hydro projects and power procurement activities from independent review by the BC Utilities Commission including Site C, the Clean Power Call, the Smart Metering Program and the Northwest Transmission Line.

The former government then compounded the financial problems at BC Hydro by requiringed BC Hydro to pay dividends to the province from funds BC Hydro had to borrow. The cost of this debt is a direct cost to BC Hydro ratepayers.~~imposing two additional burdens on the corporation.~~

~~First, the former government enabled the use of regulatory accounts to finance $300 million of the $1 billion Smart Metering and Infrastructure Program that resulted in some costs being recovered over a longer time than without regulatory accounts.~~

~~Second, the previous government required BC Hydro to pay dividends to the province from funds BC Hydro had to borrow. The cost of this debt is a direct cost to BC Hydro ratepayers.~~

Between 2001 and 2017, the former government also directed BC Hydro to increase its liabilities held in regulatory accounts from $116 million to $5.597 billion. These costs will have to be recovered from ratepayers in the future.

As a result of these earlier policy decisions, the previous government saddled BC Hydro with a new supply of long-term expensive intermittent power, without the electrical capacity to maintain reliable service to its customers.

Faced with challenges of its own making, the previous government determined that Site C was the most cost-effective option to ~~both~~ increase capacity in B.C.'s electrical system, to increase supply to address future load growth, and to provide flexibility to add more intermittent renewable power sources in the future.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

MacLaren, Les EMPR:EX

From: MacLaren, Les EMPR:EX
Sent: Sunday, December 10, 2017 8:54 AM
To: Haslam, David GCPE:EX
Cc: Grewar, Colin GCPE:EX; Plummer, Glen GCPE:EX; Sovka, David GCPE:EX; Zadravec, Don GCPE:EX; Sanderson, Melissa EMPR:EX; Nikolejsin, Dave MNGD:EX
Subject: RE: Latest KMs-QA
Attachments: KMs-QA_Site C Decision_Dec09_408pm LM.docx

I have tracked some suggestions to your document. s.13 Not sure of the status of the legacy fund. We still need to nail down the mitigation measures.

Les

From: Haslam, David GCPE:EX
Sent: Saturday, December 9, 2017 4:38 PM
To: MacLaren, Les EMPR:EX
Cc: Grewar, Colin GCPE:EX; Plummer, Glen GCPE:EX; Sovka, David GCPE:EX; Zadravec, Don GCPE:EX; Sanderson, Melissa EMPR:EX; Nikolejsin, Dave MNGD:EX
Subject: Fwd: Latest KMs-QA

Les. See below and attached for your review. I suspect there will be tinkering with the mitigation policies. But this is the latest and a very helpful doc for don w.

Sent from my iPhone

Begin forwarded message:

> **From:** "Grewar, Colin GCPE:EX" <Colin.Grewar@gov.bc.ca>
> **Date:** December 9, 2017 at 4:23:04 PM PST
> **To:** "Haslam, David GCPE:EX" <David.Haslam@gov.bc.ca>
> **Subject: Latest KMs-QA**
>
> Hi David: Just in case someone should ask, here is the latest version of the KMs-QA, now reflecting the materials we received late yesterday afternoon, adding a question on the 10 Year Rates Plan, and adding a few bits and pieces from BC Hydro's QA.
>
> Colin

Page 167 to/à Page 214

Withheld pursuant to/removed as

s.13

MacLaren, Les EMPR:EX

From: MacLaren, Les EMPR:EX
Sent: Friday, December 8, 2017 3:46 PM
To: Laaksonen-Craig, Susanna ENV:EX
Cc: Wieringa, Paul EMPR:EX
Subject: RE: Confidential: Possible questions

A few tweaks below.

From: Laaksonen-Craig, Susanna ENV:EX
Sent: Friday, December 8, 2017 2:10 PM
To: MacLaren, Les EMPR:EX
Subject: FW: Confidential: Possible questions

If you could let me know asap if you are comfortable with these, I have edited some detail out as not necessary for MGH to go there.

From: Lesiuk, Tim ENV:EX
Sent: Thursday, December 7, 2017 9:03 PM
To: Laaksonen-Craig, Susanna ENV:EX
Subject: RE: Confidential: Possible questions

Responses:

Site C is 1,100 megawatts (MW) of installed generating capacity
Site C can will generate an average of 5,100 gigawatt-hours (GWh) of electricity each year

· **What are the province's long term, forecast electricity demands, taking into account adoption of all of the Climate Leadership Team's recommendations?**

2030: 343 Petajoules or 95,300GWh – 10,300 GWh more than today
2050: 423 Petajoules or 117,500 GWh – 17,300 GWh more than today

· **Would Site C provide enough electricity to meet our 2030 and 2050 GHG reduction goals?**

Site C would not provide enough electricity to meet the 2030 demand. BC would need a second site C or 1000MW of additional firm capacity by 2030. BC would need almost two more Site C's by 2050.

· **Is Site C essential to moving towards a decarbonized B.C. economy or could increased electrification demands be met by alternate sources like wind and geothermal?**

Government's decarbonization objectives could be met with Site C or other resources, such as wind for energy and pumped storage for capacity. The analysis shows that Site C is more cost effective for ratepayers.

Site C can provide firm power and store electricity from one year to the next. Site C is like a battery, and would add enough storage to support significant intermittent resources coming online.

Without a significant new storage resource, new intermittent resources will gradually reduce the flexibility BC uses to take advantage of the western electricity trade.

· **At what point after completion of construction do you forecast increased electricity generated by Site C being met by increased electrification of the economy, towards achieving GHG reduction goals?**

New generation would be needed in the mid-2030s, or earlier depending on the pace of electrification. Imports could also meet this new demand

· In the meantime is there any discussion about selling excess power from Site C to help other provinces decarbonize their economies? ie: could electricity generated from Site C be used to electrify Alberta's oilsands through an intertie?

Yes. Alberta and California.

Electricity from Site C could help Alberta manage residential and commercial electricity price increases from coal shut-downs.

Most oilsands operations generate their own electricity from natural gas and don't need Site C.

Site C is not a long term generating option for Alberta but could help them transition to renewables by providing shaping (supply when wind not blowing) and time to build new renewables. Renewables take longer to build than gas turbines.

California could be a more lucrative market for Site C's energy and storage.

Tim Lesiuk
Executive Director, Business Development and Chief Negotiator
Climate Action Secretariat, Province of British Columbia
Mobile: 250.216.5893
Email: tim.lesiuk@gov.bc.ca

MacLaren, Les EMPR:EX

From:	Haslam, David GCPE:EX
Sent:	Friday, December 8, 2017 1:07 PM
To:	Sanderson, Melissa EMPR:EX; McNish, James EMPR:EX
Cc:	Plummer, Glen GCPE:EX; Dalal, Suntanu GCPE:EX; Grewar, Colin GCPE:EX; Sovka, David GCPE:EX; Giles, Alison GCPE:EX; Nikolejsin, Dave MNGD:EX; MacLaren, Les EMPR:EX
Subject:	FW: Final Event Plan
Attachments:	EP_Site C Decision Final V1.docx

All – attached just arrived. Keep it in house for now. Suntanu/Alison – please work with Melissa to nail down block of time for stakeholder and media calls. The media calls are based on previous recommended that Suntanu produced. Our goal is to produce a doc specifically for MMM schedule. Including Dave and Les so they're aware.

From: Devereux, Rick GCPE:EX
Sent: Friday, December 8, 2017 12:45 PM
To: Zadravec, Don GCPE:EX
Cc: Badger, Joleen GCPE:EX
Subject: Final Event Plan

Hi Don,

Here is the final event plan – we will let you know if any changes are needed.

Thanks
Rick

Rick Devereux
Director, Event Services | Government Communications and Public Engagement
rick.devereux@gov.bc.ca | 250-812-1207

DRAFT
SITE C DECISION ANNOUNCEMENT
Event Proposal/Roll-out Plan
Date TBC

Summary:

Cabinet is anticipated to make a decision regarding Site C in the first few weeks of December. This proposal articulates how the decision will be announced and the timeframes associated with various activities. An overview of key stakeholders to be advised prior to and post announcement is included.

Key Stakeholders contacted pre-announcement

- Government Caucus
- Green Caucus
- Federal Government
- Local Government
- First Nations

Media Technical Briefing

- Media lock up where an overview of the decision and mitigation actions will be provided by:
  - DM to the Premier, Don Wright
  - DM of EMPR, Dave Nikolejsin
  - DM of Finance, Lori Wanamaker (TBC, or someone else from Finance)
- Legislature Press Theatre, Victoria
- 10:30 AM, Monday, December 11
- One phone line connection to a lockup at the Vancouver Caucus Office

Province of BC public announcement

- Press Conference:
  - Premier John Horgan
  - Michelle Mungall, Minister of Energy, Mines and Petroleum Resources
  - George Heyman, Minister of Environment and Climate Change Strategy
- Dial-in capability provided (with Q&A)
- Location: Library Rotunda, Legislative Building
- News Release/Backgrounders distributed province-wide

Post-announcement

- Specific follow-up media responses by Minister Mungall and others TBC

British Columbia Engagement Plan

- Executive staff/and or Ministers with the Ministry of Energy, Mining and Petroleum Resources (EMPR) and the Ministry of Indigenous Relations and Reconciliation (IRR) will be contacting key stakeholders and First Nations.
- Key Business/Industry, Environmental, Finance, and Regional calls TBD (lists below)

Roll-Out:

Time	Activities & Details
9:00 am	Prime Minister of Canada and the Premier of British Columbia phone call TBC.
10:30 am – 11:15 am	Media Technical Briefing (secured) – Legislature Press Theatre
11:30 am – 12:15 pm	**SITE C ANNOUNCEMENT: Premier, Ministers Mungall, James, Heyman– Press Conference in Library Rotunda** Premier will announce decision followed by Q&A.
12:30 pm – 1:30 pm	**Premier/Ministers – targeted media calls**
Mid-day	Provincial executives and/or Ministers conduct calls with key stakeholders, including First Nations (and potentially others as identified below).

EVENT PARTICIPANTS:

Media Technical Briefing:

Deputy Minister to the Premier, Don Wright
Deputy Minister of Energy, Mines and Petroleum Resources, Dave Nikolejsin
Deputy Minister of Finance, Lori Wanamaker (TBC or substitute)

Public Announcement:

Premier Horgan
Minister of Energy, Mines and Petroleum Resources, Michelle Mungall
Minister of Environment and Climate Change Strategy George Heyman

Media Technical Briefing Itinerary

Event Summary	**Technical Briefing on Site C Decision** **Location: Press Theatre** **Participants: Led by DM Don Wright, joined by:** **DM Dave Nikolejsin, DM Lori Wannamaker (or alternate from Finance, tbc)**
Time	**Event Itinerary**
9:00 AM	Call in line and presentation link to Vancouver is tested and established. Any final set up details will be confirmed. On site for set up will be Rick Devereux, cell: 250-812-1207 and Joleen Badger, cell: 604-916-3551
10:00 AM	Media begin to arrive and sign in, Media Contact: Jen Holmwood, cell: 250-818-4881
10:00 AM	Final Pre-brief with Don Wright and the other DM's in Don Wright's Office, led by Don Zadravec, cell:778-584-1252
10:25 AM	DM's move into position, with Don Wright at podium, flanked by two people at a table on one side of podium: DM of EMPR and DM of FIN Jen Holmwood is at the moderation mic
10:30 AM	**EVENT BEGINS** – Jen Holmwood goes over a few ground rules and introduces Don Wright, the other DM's and then welcomes Don Wright to go over the presentation
10:32 AM	Don Wright goes through the Presentation
10:50 AM	Presentation Concludes. Don Zadravec opens up the floor to questions, with media assistance from Jen Holmwood.
11:12 AM	Don Zadravec announces that we will be wrapping imminently/last question
11:14 AM	Don Zadravec announces that we need to wrap up and encourages people to head upstairs to the library.
11:15 AM	Event concludes, media heads upstairs to the library.

Media Announcement

Event Summary	**Media Announcement on Site C Decision** **Location: Library Rotunda** **Participants: Led by Premier John Horgan, joined by:** **Minister Mungall, Minister Heyman**
Time	**Event Itinerary**
8:00 AM	Tech crew arrives for set up. On site for set up will be Rick Devereux, cell: 250-812-1207 and Joleen Badger, cell: 604-916-3551
10:00 AM	Media CAMERAS begin to arrive. Media Contact: Jen Holmwood, cell:250-818-4881
10:00 AM	Final Pre-brief run through with Premier and Ministers in the West Annex, led by Sage Aaron and others.
10:15 AM	Media event location set up is complete, phone line connection is set up with Q&A, connection to Vancouver is established and tested, everything is ready to go.
10:30 AM	Anyone in the West Annex who wants to see/hear the Tech Briefing questions should establish a connection to do so.
11:15 AM	Post Technical Briefing, one final chance in West Annex to go over any last notes, and cover any questions of interest from the media in the technical briefing with Premier and Ministers.
11:25 AM	Premier and Ministers depart the West Annex for the Library.
11:29 AM	Media in the venue are given a heads up that we are about to begin
11:30 AM	**EVENT BEGINS** - Premier Horgan and Ministers enter the Library Rotunda and Premier Horgan takes the podium flanked by Ministers Mungall and Heyman.
11:30 AM	Premier makes announcement
11:37 AM	Premier thanks everyone and announces that he and the Ministers will take questions
11:37 AM	Moderated by Sheena, the Premier and Ministers take questions.
12:00 PM Approx.	Sheena calls last question, event ends. Premier and Ministers depart Rotunda and return to West Annex
1:00 PM	Tech Crew departs

MacLaren, Les EMPR:EX

From: MacLaren, Les EMPR:EX
Sent: Wednesday, December 6, 2017 2:26 PM
To: Grewar, Colin GCPE:EX
Cc: Rowe, Katherine EMPR:EX; Beaupre, Darren GCPE:EX; Sovka, David GCPE:EX; Haslam, David GCPE:EX
Subject: RE: NR and Three Backgrounders
Attachments: Backgrounder 3_Site C New Direction_Dec04_602pm_BCH edits LM.docx; Backgrounder 2_Climate Action_Dec04_558pm_BCH edits LM.docx; Backgrounder 1_Impact on Rates_Dec04_542pm_BCH edits.docx

Some tracked suggestions

Les

From: Grewar, Colin GCPE:EX
Sent: Wednesday, December 6, 2017 8:45 AM
To: MacLaren, Les EMPR:EX
Cc: Rowe, Katherine EMPR:EX; Beaupre, Darren GCPE:EX; Sovka, David GCPE:EX; Haslam, David GCPE:EX
Subject: FW: NR and Three Backgrounders

Hi Les: I note that you have reviewed backgrounder 4 (including BC Hydro's suggested edits) as attached. Wondering if you'd had a chance to review backgrounders 1,2 and 3 yet.

Thanks,
Colin

BRITISH COLUMBIA
Ministry of Energy, Mines and Petroleum Resources

Colin Grewar
Public Affairs Officer
Government Communications and Public Engagement
Ministry of Energy, Mines and Petroleum Resources
Phone: 250-952-0650
Colin.Grewar@gov.bc.ca

From: Grewar, Colin GCPE:EX
Sent: Monday, December 4, 2017 6:12 PM
To: MacLaren, Les EMPR:EX
Cc: Rowe, Katherine EMPR:EX; Haslam, David GCPE:EX; Beaupre, Darren GCPE:EX; Sovka, David GCPE:EX
Subject: FW: NR and Three Backgrounders

Hi Les: Further to our phone conversation with David this afternoon, please find attached for your review the four backgrounders.

Backgrounders 1, 2 and 3 have been reviewed by BC Hydro.

Backgrounder 4 (How We Got Here) was drafted by GCPE HQ.

Colin

BRITISH COLUMBIA
Ministry of Energy, Mines and Petroleum Resources

Colin Grewar
Public Affairs Officer
Government Communications and Public Engagement
Ministry of Energy, Mines and Petroleum Resources
Phone: 250-952-0650
Colin.Grewar@gov.bc.ca

From: Magre, Leela [mailto:Leela.Magre@bchydro.com]
Sent: Monday, December 4, 2017 2:58 PM
To: Haslam, David GCPE:EX; MacLaren, Les EMPR:EX; Rowe, Katherine EMPR:EX
Cc: Beaupre, Darren GCPE:EX; Grewar, Colin GCPE:EX; Sovka, David GCPE:EX; Sauer, Darwin
Subject: RE: NR and Three Backgrounders

Hello all,

Attached are the backgrounders fact checked with notes tracked. Thank you for the opportunity to review.

A few things:

- Backgrounder 1: We are still confirming our recommendation on how the rate impact should be stated

s.13

- Backgrounder 2: We cannot confirm the information highlighted in green. I'm going to have the Energy Planning team calculate this for us and will send through the info ASAP.

Thank you,
Leela

Leela Magre | Manager, Policy & Research

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Smart about power in all we do.

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

Finishing Site C will keep rates affordable

Keeping rates affordable for residents, businesses and industry was Government's primary focus in reviewing the Site C project.

The provincial government's extensive analysis clearly shows rates will be kept low with Site C moving forward.

Finishing Site C:

There is no effect on today's BC Hydro rates from Site C.

Costs of the project do not impact customer rates until the project begins generating electricity around 2025. This ensures that the costs for Site C are paid by the ratepayers who are benefiting from the project.

In accordance with accounting rules, the cost of Site C will be amortized over the expected useful life of the asset (approximately 70 years) to ensure that the costs for Site C are paid by the ratepayers who are benefiting from the project.

Site C will improve predictability in customer rates, compared to implementing an alternative portfolio of sources of power. Operating costs will be stable and predictable because the majority of costs are incurred during construction. Site C will bring savings to ratepayers over the long-term as the upfront capital costs of the project are repaid and financing costs decrease, and because Site C is lower cost than alternative power sources.

BC Hydro's proposal for smoothing out the costs of Site C anticipates incremental rate impacts of 1.~~10.5~~% in fiscal 2025, and 1,~~10.5~~% in fiscal 2026, then decreasing. [FACT CHECK PENDING - FINANCE]

Cancelling Site C:

Alternatively, cancelling Site C would mean BC Hydro would need to recover up to $4 billion in sunk, termination and remediation costs starting in 2019, and over a shorter period of time – likely 10 to 30 years. A shorter timeframe is expected because future ratepayers should not pay for a benefit they are not receiving. The recovery period would be determined by the BC Utilities Commission.

Ratepayers not even born yet should not have to pay for the costs of terminating Site C. Whereas for Site C, the costs can be spread over 70 years because future generations will benefit from the power provided by Site C and the revenue it generates.

If sunk and termination costs of $4 billion were recovered over a 10-year period, a 12.1% rate increase would need to be added to every BC Hydro bill for 10 years. A rate impact of 12.1% means the typical residential household would pay almost $1,300 more over the 10-year period. For example, in the Lower Mainland:

- A customer that lives in a single family home and has electric heat would pay $194 more in 2019.
- A customer that lives in a townhome and has electric heat would pay $128 more in 2019.
- A customer that lives in an apartment and has electric heat would pay $55 more in 2019.

Even if sunk and termination costs were recovered over a longer, 30-year amortization period it would mean rate increases of about 6% on every bill for 30 years.

Cost of Site C vs. Alternative Portfolio:

When sunk and termination costs are included in the calculations, Site C is significantly less costly for ratepayers when compared to the costs of termination and developing alternative sources of generation (wind, pumped storage) regardless of how quickly the costs of termination are recovered.

Also, Site C has a lower unit energy cost than alternatives when sunk and termination costs are factored in.

For example, based on calculations provided by the BCUC (assuming Site C costs are amortized over 70 years):

- When sunk and termination costs are recovered over 20 years, an alternative portfolio:
  - Costs $883 million more than Site C, and
  - The unit energy cost of alternatives is $70 per megawatt hour (MWh) compared to $57 per MWh for Site C.

Additionally, it's important to note that the numbers above assume a low-load forecast for demand which does not account for extra electricity supply to serve low-carbon electrification, and assumes that BC Hydro would develop energy projects in the alternative portfolio at its lower rate of capital financing instead of independent power producers (IPPs). Alternatively:

- In a mid-load forecast assuming IPPs develop the projects, the costs of an alternative portfolio increase $512 million.
- In a high-load forecast, assuming IPPs develop the projects, the costs of an alternative portfolio increase $710 million.

- In a low-load forecast assuming IPPs develop the alternative projects at their higher rate of capital financing, the cost of an alternative portfolio increases an additional $212 million.

Taken together, including sunk and termination costs that are recovered over 20 years, and assuming a more likely mid-load forecast and that IPPs develop and finance alternative energy projects at their cost of capital, finishing Site C instead of cancelling the project and pursuing alternatives will save ratepayers approximately$1.4 billion.

Additional actions to keep rates affordable:

Working with BC Hydro we are developing further actions to help British Columbians reduce their electricity bills and help us achieve a clean energy future, including:

- The rate freeze currently before the BCUC for a decision.
- A comprehensive review of BC Hydro to find savings to pass along to ratepayers.
- Continuing to offer incentives to customers to help them reduce their electricity consumption and lower their power bills.
- Additional measures to be announced early in the new year.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

Site C supports climate action

Site C supports British Columbia's fight against climate change by providing firm, reliable power that can be used for low-carbon electrification – the transition from using fossil fuels to power our vehicles, homes and buildings, businesses and industries to using clean, renewable electricity to reduce greenhouse gas (GHG) emissions.

Low-carbon electrification is required to meet aggressive climate action goals. For example:

- The Province is planning on legislating an interim target of 40% overall reduction in carbon emissions from 2007 levels by 2030 to set it back on course to meet a reduction target of 80% by 2050.
- The City of Vancouver has set a target to reduce community-based GHG emissions by by at least 80% below 2007 levels before 2050, and to derive 100% of the energy used in Vancouver from renewable sources before 2050.
- The Pan Canadian Framework on Clean Growth and Climate Change agreed to by Canada's First Ministers calls for a 30% reduction in GHG emissions by 2030 from 2005 levels.
- As a signatory to the Paris Climate Agreement, Canada committed to reduce GHG emissions to 30% below 2005 levels by 2030.

British Columbia's electricity supply is already 98% clean. The joint federal-provincial environmental review of Site C confirmed that the project will produce the lowest greenhouse gas emissions per unit of energy of any resource option except nuclear, maximizing the greenhouse gas reductions associated with low-carbon electrification.

However, currently over 60% of total energy consumption in B.C. is still ~~gasoline~~ petroleum or natural gas, so meeting GHG targets requires aggressive electrification and ~~a lot of electrical capacity (the maximum amount of electricity that can be supplied on demand)~~new electricity generation.

To put it into context:

- To reduce GHG emissions by 30% by 2030 could require about 19,000 gigawatt hours more new energy, the equivalent output of about three and a half Site Cs, or Site C plus about 25 wind farms (150 megawatts) with 1,300 turbines (plus backup resources to ensure the energy is available when needed).

- To reduce GHG emissions by 80% by 2050 could require about 34,000 gigawatt hours more new energy, the equivalent output of about six and a half Site Cs, or Site C plus about 55 wind farms with 2,800 turbines plus backup resources.

- ~~Switching 30% of fossil fuel use to electricity by 2030 could require about 12,500 gigawatt hours of new power, the equivalent energy output of three Site Cs, or Site C plus 24 windfarms with 480 turbines.~~
- ~~Switching 80% by 2050 could require about 34,000 gigawatt hours of new power, the equivalent of seven Site Cs, or Site C plus 110 wind farms with 2,200 turbines.~~

Reliable electric capacity from Site C means the Province working with BC Hydro can:

- Ramp up efforts to get more electric vehicles on the road and more charging stations around B.C., and electrify ports, ferries, airports and mining operations.
- Provide clean energy to help carbon-emitting industries like the upstream natural gas sector and LNG facilities switch to electricity to run their operations
- Satisfy the energy needs of a rapidly growing innovation and technology sector
- Integrate more generation from alternative sources like wind and~~,~~ solar, ~~and geothermal~~which are intermittent.

The fight against climate change is a race against time. The annual global temperature record has been broken five times since 2005, including the last three years.

Site C provides British Columbia with the means to drive the province's electrified, low carbon economy moving forward.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 11, 2017

Ministry of Energy, Mines and Petroleum Resources

New directions for B.C. energy

The decision to proceed with the Site C project paves the way for British Columbia to tackle the challenges of climate change. Protecting B.C.'s environment means making tough decisions, finding solutions and getting to work creating good jobs and a sustainable, clean energy economy that puts people first. The government will turn Site C into the driver for a clean energy economy solution, beginning with a strategic approach to address concerns identified in our review of Site C.

Project Oversight

- An independent expert project assurance team will work with BC Hydro to ensure that the project is completed by November 2024, at a total cost not to exceed $10.7 billion.

Launch an Electrification Strategy

- The Ministry of Energy, Mines and Petroleum Resources will:
  - Examine opportunities for further electrification as a strategy to achieve the Province's greenhouse gas (GHG) emission targets as part of the upcoming review of BC Hydro; and
  - Work with BC Hydro to embed an electrification strategy within the energy roadmap that the Ministry is developing, and the climate action strategy the Ministry of Environment and Climate Change Strategy is developing.

Treaty 8 First Nations and other Indigenous people

- BC Hydro and the Ministry of Transportation and Infrastructure will work with Treaty 8 First Nations and others to re-design the Highway 29 re-alignment at Cache Creek to reduce impact on potential burial sites and sacred places.

s.13,s.17

- The Ministry of Indigenous Relations and Reconciliation and BC Hydro will continue engage Treaty 8 First Nations to seek additional solutions to mitigate the adverse impacts of Site C, and to advance reconciliation.

s.12,s.13

Agricultural, Communities, Environmental and other interests

- The Ministries of Agriculture, Jobs, Trade and Technology and Forests, Lands, and Resource Operations and Rural Development will explore the potential for a Peace River Legacy Fund, and/or Northern Agricultural Centre of Excellence, in consultation with Peace Valley and provincial agricultural producers, Treaty 8 First Nations, Peace Valley residents and local governments, and interested stakeholders.s.12,s.13

s.12,s.13

Commented [LM1]: I am not sure whether this landed.

Workers and Jobs

- BC Hydro will implement ~~a~~ project labour agreements for all new Site C procurements, to ensure opportunities for BC's skilled labour trades.
- The Ministry of Advanced Education and Skills and Training will review existing training and apprenticeship programs in the northeast, and address any deficiencies as soon as possible, and within existing budget allocations.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

MacLaren, Les EMPR:EX

From: MacLaren, Les EMPR:EX
Sent: Wednesday, December 6, 2017 6:48 AM
To: 'Magre, Leela'; Haslam, David GCPE:EX
Cc: Sauer, Darwin; Grewar, Colin GCPE:EX
Subject: RE: NR and Three Backgrounders
Attachments: Backgrounder 4-How We Got Here DH edits LM.docx

Some tracked suggestions.

Les

From: Magre, Leela [mailto:Leela.Magre@bchydro.com]
Sent: Tuesday, December 5, 2017 6:41 PM
To: Haslam, David GCPE:EX
Cc: MacLaren, Les EMPR:EX; Sauer, Darwin
Subject: RE: NR and Three Backgrounders

Hi David,

Attached is backgrounder 4, fact checked with notes tracked.

I'm including a smaller group on this email for the rate impact information below. This is likely useful for the discussions tomorrow.

Here is what we would suggest using for rate impact (as found in Backgrounder 1). The only difference between the two bullets is whether the Site C cost estimate will be presented as $10 billion or $10.7 billion (which I understand to be the P90 estimate) and the resulting rate impact percentages. The differences are shown in red and are underlined.

- BC Hydro provided an indicative approach and estimated rate impacts associated with bringing a completed Site C project into rates during the BC Utilities Commission Inquiry. BC Hydro subsequently updated our analysis for a Site C project cost of $10 billion. If we proposed to smooth the impacts of bringing the project into rates over a 10 year period, we estimate that this would require a rate increase (over and above rate increases related to other costs) of 0.9% in the first year (fiscal 2025), and an additional 0.9% rate increase in the second year (fiscal 2026). No further incremental rate increases would be needed related to Site C costs for the remaining 8 years of the 10 year period. At the end of the smoothing period, there would be a decrease in rates related to these costs at the end of the 10 year period.

- BC Hydro provided an indicative approach and estimated rate impacts associated with bringing a completed Site C project into rates during the BC Utilities Commission Inquiry. BC Hydro subsequently updated our analysis for a Site C project cost of $10.7 billion. If we proposed to smooth the impacts of bringing the project into rates over a 10 year period, we estimate that this would require a rate increase (over and above rate increases related to other costs) of 1.1% in the first year (fiscal 2025), and an additional 1.1% rate increase in the second year (fiscal 2026). No further incremental rate increases would be needed related to Site C costs for the remaining 8 years of the 10 year period. At the end of the smoothing period, there would be a decrease in rates related to these costs at the end of the 10 year period.

Let me know if you have any questions.

Best,
Leela

Leela Magre | Manager, Policy & Research

BC Hydro
333 Dunsmuir St, 15th floor
Vancouver, BC V6B 5R3

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E leela.magre@bchydro.com

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Smart about power in all we do.

From: Haslam, David GCPE:EX [mailto:David.Haslam@gov.bc.ca]
Sent: 2017, December 04 3:07 PM
To: Magre, Leela; MacLaren, Les EMPR:EX; Rowe, Katherine EMPR:EX
Cc: Beaupre, Darren GCPE:EX; Grewar, Colin GCPE:EX; Sovka, David GCPE:EX; Sauer, Darwin
Subject: RE: NR and Three Backgrounders

Thanks, Leela. We'll review. Attached is the fourth backgrounder – How We Got Here. Please fact check as well. Colin – please save. Cheers – David

---

From: Magre, Leela [mailto:Leela.Magre@bchydro.com]
Sent: Monday, December 4, 2017 2:58 PM
To: Haslam, David GCPE:EX; MacLaren, Les EMPR:EX; Rowe, Katherine EMPR:EX
Cc: Beaupre, Darren GCPE:EX; Grewar, Colin GCPE:EX; Sovka, David GCPE:EX; Sauer, Darwin
Subject: RE: NR and Three Backgrounders

Hello all,

Attached are the backgrounders fact checked with notes tracked. Thank you for the opportunity to review.

A few things:

- Backgrounder 1: We are still confirming our recommendation on how the rate impact should be stated

s.13

- Backgrounder 2: We cannot confirm the information highlighted in green. I'm going to have the Energy Planning team calculate this for us and will send through the info ASAP.

Thank you,
Leela

Leela Magre | Manager, Policy & Research

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Vancouver, BC V6B 5R3

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Smart about power in all we do.

From: Haslam, David GCPE:EX [mailto:David.Haslam@gov.bc.ca]
Sent: 2017, December 01 4:37 PM
To: MacLaren, Les EMPR:EX; Rowe, Katherine EMPR:EX
Cc: Beaupre, Darren GCPE:EX; Grewar, Colin GCPE:EX; Sovka, David GCPE:EX; Sauer, Darwin; Magre, Leela
Subject: NR and Three Backgrounders

All – note below and attached. Darwin – I shared you doc. Let me know if there are any edits. I expect a lot of edits on the narrative from the folks below. Obviously I'll consider all recommendations that improve the products. That said I ask that you please focus on the factual information to ensure accuracy. Cheers - David

---

From: Haslam, David GCPE:EX
Sent: Friday, December 1, 2017 4:31 PM
To: Lloyd, Evan GCPE:EX; Kristianson, Eric GCPE:EX; Zadravec, Don GCPE:EX; Howlett, Tim GCPE:EX; Sanderson, Melissa EMPR:EX
Subject: NR and Three Backgrounders

All – as discussed attached are draft com materials for the proceeding scenario:

- News Release
- Rates Backgrounder
- Climate Action Backgrounder
- New Direction Backgrounder

Eric is working on a fourth backgrounder – How we got here

These materials are based on the narrative attached. I've also attached Post Decision Strategies produced by Les' team that include policy options for both proceeding and cancelling. The policies in the attached backgrounders reflect proceeding only. The next step for me is to produce a suite of materials for the cancellation scenario. I will action that upon receiving the cancellation narrative document.

I've also attached a BC Hydro document (Site C Responses Dec 1) on the rates scenarios Evan requested – in the email below. It also includes the windfarm cancellation scenarios requested. I will share this information with Les so he can make the edits to the deck Evan requested. Specifically – slides 35/38/39. I've attached the Nov 29 deck for your reference – currently being revised. Finally – I've attached Don's latest critical path so you have all the relevant docs in one email.

I note that Les has not reviewed these materials so I will share with him and take his edits in addition the edits Don collects from the group. Upon receiving the edits – assuming on Monday. I will weave into the KM/QA doc (which we've been working on for a number of weeks and should be able to turn around by EOD Monday – Tuesday am). Cheers – David

Email from Evan

As you know we are moving rapidly to a decision and announcement. Thinking ahead to next week – we need to have accomplished significant completion of our communications planning and materials.
I know we have a meeting on Friday, but in advance of that I wanted to underline the urgency of the tasks and to add some additional detail.

In no particular order we need to finalize the items listed in our roll-out no later than Dec 6.

I appreciate there will be continued uncertainty with respect to the final message – obviously we'll be in position to finalize this in absolute terms no sooner than a decision itself. However, I'll endeavor to provide additional input into draft scenario messages by the end of Friday.

There are some outstanding items that we need to achieve this – most notably we need a suite of examples of the impact of a 12% rate hike in terms of a typical household – ideally by region and household type. For ex. a four bedroom home in Surrey – or a two bedroom townhouse in Maple Ridge or similar homes on Vancouver Island or Kamloops etc – you get the picture. See page 38 of the latest deck.

Similarly slide 35 – we need complimentary information concerning what an alternative portfolio would look like – in a terminate scenario. So ...to meet 30% and 12,500 GWh by 2030 means X wind farms with Y turbines, capacity resources to back up (define this!) and transmission (define this)
We also need to make real the # of new transmission (what – lines? Kms?) required to knit this together (this is a serious issue for the tinfoil brigades). Same for 80% target.
Generally, we need to take these and related summary information and render them in even more plain language terms for the purpose of Q&A, talking points, etc.

One other area where it is clear we need good answers and examples is the flooding and agricultural impacts.

So Q&A – on key issues
Talking Points and key facts

If it hasn't happened already – David – I want to see an audit of the key opposition points as presented in say, the Sierra Club web site or other such online resources now swirling about – list these in summary order – and draft the most cogent response/facts. This will be invaluable inasmuch as we should anticipate such positions will form the bulk of public questions and concerns in the wake of a decision (should it be to terminate).

I'll have more to add to this list tomorrow.

I think it would be helpful if we three could touch base sometime tomorrow to check our progress and clarify deliverables for our meeting on Friday.

Don please arrange this with Linda

Thanks

BRITISH COLUMBIA

BACKGROUNDER

For Immediate Release
[release number]
Dec. 8, 2017

Ministry of Energy, Mines and Petroleum Resources

From IPPs to Site C: Bad Decisions that Shaped BC Electricity Policy

Government's decision to proceed with the completion of Site C was driven, in large part, by a series of decisions made over the past decade and a half that affected the Province's energy supply and electricity rates.

In 2002, the previous government introduced an Energy Plan which mandated that all new power generation opportunities were reserved for the private sector. Through the extensive use of Electricity Purchase Agreements with private power producers (IPPs), BC Hydro made long-term commitments to purchase a large supply of new intermittent power, primarily through run-of-river power projects, at prices considerably higher than the cost of BC Hydro's heritage hydroelectric assets. Today these contracts represent future financial comitments of over $50 billion. [FACT CHECKED – POLICY, HAVE REMOVED SELF-SUFFICIENCY WHICH I BELIEVE CAME IN 2007 AND ADJUSTED SOME WORDING HERE]

~~In 2001~~That Energy Plan also ~~, the previous government~~ changed the structure of BC Hydro and established a stand-alone BC Transmission Corporation to allow Independent Power Producers to access the transmission system and to sell directly to large consumers. [FACT CHECKED – BCH POLICY.]

~~In an effort to increase private sector participation in electricity generation~~

~~In 2002, the previous government introduced the BC Energy Plan which required that the province become energy self-sufficient by 2016 and mandated that all new power generation opportunities were reserved for the private sector. Through the extensive use of Energy Purchase Agreements, BC Hydro made long-term commitments to purchase a large supply of new intermittent electrical power, primarily through run-of-river power projects, at rates considerably higher than BC Hydro had paid historically.~~

~~At the same time that BC Hydro was acquiring this new supply of intermittent power, the previous government directed BC Hydro to de-commission its Burrard Thermal Generation facility in the Lower Mainland to address growing concerns about local air pollution and GHG greenhouse gas emissions. As a result, over the past decade, BC Hydro has been forced to seek new electrical capacity or "firm" power that it could use to backstop intermittent power~~ [BC HYDRO CANNOT CONFIRM THAT THIS IS CORRECT. WE DO NOT KNOW WHAT THE "LARGER AND MORE EXPENSIVE SUPPLY" REFERS TO. WE'VE ADDED CAPACITY AT MICA WHICH WAS A PRUDENT UPGRADE TO AN EXISTING FACILITY. THE ARGUMENT THAT IF WE COULD RELY ON BURRARD, WE WOULDN'T NEED SITE C IS ONE THAT IS NORMALLY ADVANCED BY OPPONENTS OF THE PROJECT. IT IS ALSO INCONSISTENT WITH A FOCUS ON CLIMATE CHANGE THAT WE ARE SEEING IN BACKGROUNDER 2.]

In 2010, the previous government introduced the Clean Energy Act, which exempted ~~most~~ a number of BC Hydro projects and power procurement activities ~~and infrastructure upgrades~~ from independent review by the BC Utilities Commission including Site C, ~~IPPs~~the Clean Power Call, the Smart ~~meter~~ Metering Program and the Northwest Transmission Line. [FACT CHECKED – POLICY]- [redacted] [BC HYDRO CANNOT CONFIRM THIS STATEMENT. TO THE EXTENT THAT THESE PROJECTS CAUSED HIGHER DEBT, THAT WAS CAUSED BY DOING THE PROJECTS IN THE FIRST PLACE, NOT BY THE EXEMPTION FROM BCUC REVIEW.]

As a result of these earlier policy decisions, BC Hydro found itself saddled with a new supply of long-term expensive intermittent power, ~~reduced electrical~~ without the electrical capacity to maintain reliable service to its customers,~~and a~~ [redacted]. [AS ABOVE, BC HYDRO CANNOT CONFIRM THIS STATEMENT] Faced with these challenges, BC Hydro determined that Site C was the ~~least expensive~~ most cost-effective option to both increase capacity in BC's electrical system, ~~and~~ to increase supply to address future load growth, and to provide flexibility to add more intermittent renewable power sources in the future.

Contact:
Suntanu Dalal
Media Relations
Ministry of Energy, Mines and Petroleum Resources
250 952-0628

MacLaren, Les EMPR:EX

From: MacLaren, Les EMPR:EX
Sent: Saturday, December 2, 2017 9:53 AM
To: Wieringa, Paul EMPR:EX; Rowe, Katherine EMPR:EX; Sopinka, Amy EMPR:EX
Subject: FW: For Chris's review
Attachments: Site C Responses 1 Dec 2017 v2.docx; ATT00001.htm

Info

From: O'Riley, Christopher [mailto:Chris.Oriley@bchydro.com]
Sent: Saturday, December 2, 2017 9:29 AM
To: Nikolejsin, Dave MNGD:EX; MacLaren, Les EMPR:EX
Subject: Fwd: For Chris's review

Termination rate increase put in terms of customer bills.

Sent from my iPhone

Begin forwarded message:

> **From:** "Clarke, Gareth" <Gareth.Clarke@bchydro.com>
> **Date:** December 2, 2017 at 9:15:46 AM PST
> **To:** "O'Riley, Christopher" <Chris.Oriley@bchydro.com>
> **Subject: Fwd: For Chris's review**
>
> Sorry, should be there now?
>
> Sent from my iPhone.
>
> Begin forwarded message:
>
> > **From:** "Magre, Leela" <Leela.Magre@bchydro.com>
> > **Date:** December 1, 2017 at 14:29:38 PST
> > **To:** "Clarke, Gareth" <Gareth.Clarke@bchydro.com>
> > **Subject: For Chris's review**
> >
> > Hi Gareth,
> >
> > We've been asked to pull together some info on Site C for Gov. Could you have Chris review before the end of the day? Sorry, I know I'm not giving much time.
> >
> > This has been approved by the relevant business groups.
> >
> > Thanks,
> > Leela

Leela Magre | Manager, Policy & Research

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Vancouver, BC V6B 5R3

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Smart about power in all we do.

Site C Responses

1. **Examples of the impact of a 12% rate hike in terms of a typical household - ideally by region and household type.**

- If Site C is terminated and costs are recovered over 10 years, a rate impact of 12.1% means the typical residential household would pay about $1000 over the 10-year period.

    - Lower Mainland
        - A customer that lives in a single family home and has electric heat would pay $194 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $128 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $55 more in 2019.

    - Vancouver Island
        - A customer that lives in a single family home and has electric heat would pay $200 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $139 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $57 more in 2019.

    - Southern Interior
        - A customer that lives in a single family home and has electric heat would pay $193 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $116 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $73 more in 2019.

    - Northern Interior
        - A customer that lives in a single family home and has electric heat would pay $187 more in 2019.
        - A customer that lives in a townhome and has electric heat would pay $168 more in 2019.
        - A customer that lives in an apartment and has electric heat would pay $61 more in 2019.

[Supporting data follows]

			Illustrative Bill Difference with 12.1% Increase	
Region	**Housing Type**	**Heating Type**	**Annual Bill**	**Average Monthly Bill**
Lower Mainland	**Single Family Dwelling**	Electric Heat	$ 194	$ 16
		Non Electric Heat	$ 100	$ 8
	Townhome	Electric Heat	$ 128	$ 11
		Non Electric Heat	$ 69	$ 6
	Apartment	Electric Heat	$ 55	$ 5
		Non Electric Heat	$ 37	$ 3
Vancouver Island	**Single Family Dwelling**	Electric Heat	$ 200	$ 17
		Non Electric Heat	$ 104	$ 9
	Townhome	Electric Heat	$ 139	$ 12
		Non Electric Heat	$ 63	$ 5
	Apartment	Electric Heat	$ 57	$ 5
		Non Electric Heat	$ 37	$ 3
Southern Interior	**Single Family Dwelling**	Electric Heat	$ 193	$ 16
		Non Electric Heat	$ 103	$ 9
	Townhome	Electric Heat	$ 116	$ 10
		Non Electric Heat	$ 79	$ 7
	Apartment	Electric Heat	$ 73	$ 6
		Non Electric Heat	$ 48	$ 4
Northern Interior	**Single Family Dwelling**	Electric Heat	$ 187	$ 16
		Non Electric Heat	$ 98	$ 8
	Townhome	Electric Heat	$ 168	$ 14
		Non Electric Heat	$ 77	$ 6
	Apartment	Electric Heat	$ 61	$ 5
		Non Electric Heat	$ 45	$ 4

Data Source: 2014 REUS and F2015 Billing Data, as cited in 2015 RDA, BC Hydro's response to BCOAPO IR 1.59.6

Illustrative consumption is the Median Consumption of each segment

2. What would an alternative portfolio look like in a terminate scenario (renewables, capacity, transmission)? To meet 30% GHG reductions by 2030, and 80% by 2050.

- If we don't build Site C by 2030 we would need about 600 MW of wind and 1,000 MW of pumped storage by 2030 in addition to higher levels of conservation.

- 1,100 hectares of land impacts to accommodate about 200 wind turbines and one large pumped storage facility (equivalent to 3 times the size of Stanley Park).

- Meeting 2030 and 2050 GHG emission reduction targets would require more resources:

  - In 2030 <u>with</u> Site C – we need about 4,300 MW of wind, 5,000 MW of pumped storage capacity and three new high-voltage transmission lines:
    - 12,000 hectares of land impacts (equivalent to 30 times the size of Stanley Park covered with wind turbines and pumped storage facilities) to accommodate about 1,400 wind turbines and five large pumped storage facilities
    - 700 km of transmission corridors

  - In 2030 <u>without</u> Site C – we need an additional 1,600 MW of wind and 1,000 MW of pumped storage for a total of 5,900MW of wind and 6,000MW of pumped storage:
    - 9,000 total hectares of land impacts to accommodate a total of 2,000 wind turbines and six large pumped storage facilities (equivalent to 21 times the size of Stanley Park)
    - 700km of transmission corridors for three new high-voltage transmission lines (same as with Site C)

  - By 2050 (with or without Site C) – we would need an additional 9,600 MW of wind and 7,000 MW of pumped storage capacity and seven more new high-voltage transmission lines (over and above what is required in 2030):
    - 13,000 hectares of land impacts beyond the impacts above to accommodate about 3,200 more wind turbines and seven more large pumped storage facilities (equivalent to an additional 33 times the size of Stanley Park).
    - 1,700 km of transmission corridors beyond the 700 km above.

<u>Important notes:</u>

- The land impacts identified above are "direct" impacts only.
  - For wind, this consists of the turbine base, roads and transmission to the point of interconnection. The actual permitted size of the wind farm will be substantially larger as there is spacing among the wind turbines. Some land use (such as agriculture) can continue in this permitted but not directly impacted land.

- Our best assessment today is that wind projects will average approximately 3MW per turbine. The actual turbine size for a project would be determined after investigative and design studies, and may vary from this amount. As a result, the number of turbines and the amount of land required will vary from our estimates.

- We have made approximations for the land impact of transmission and roads required for the wind and pumped storage projects. The actual transmission and road impact would be determined after investigative and design studies, and may vary from this amount.

- This is an approximate impact that assumes wind and pumped storage continue to be the most cost effective resources.

3. The facts about flooding and agricultural impacts.

- The Site C Project will flood approximately 5,550 hectares of land resulting in a permanent loss of about 3,800 hectares of Class 1 to 5 agricultural lands.
    - *Due to moisture limitations, there is no Class 1 land in the project area, including the reservoir area.*

- About 2.7 million hectares of Class 1 to 5 lands will remain available in the Peace Agricultural Region.

- In the Peace River valley, more than 16,000 hectares (or more than 80 per cent) of Class 1 to 3 land would remain available for agricultural use including agricultural land downstream of the Site C project to the B.C. / Alberta border.

- On May 1, 2014, the Joint Review Panel submitted its report on Site C to the federal and provincial governments, as part of the independent environmental assessment process.

- The Joint Review Panel wrote (page 150): *"The Panel concludes that the permanent loss of the agricultural production of the Peace River valley bottomlands included in the local assessment area of the Project is not, by itself and in the context of B.C. or western Canadian agricultural production, significant."*

- Mitigation measures, including a $20 million agricultural compensation fund, will support agricultural programs and projects to improve production in the region.

- Other proposed mitigation measures include the implementation of individual farm mitigation plans to support the continued farm operations for farms directly affected by the project.

- On BC Hydro's proposed agricultural compensation fund, the Panel wrote (page 149): *"The current value of annual crops from the portion of the valley that would be inundated is but $220,000... The proposed $20 million agricultural investment fund, to be spent on improvements outside the inundation zone, is generous by comparison."*