

Chris O'Riley
President & Chief Operating Officer
BC Hydro

October 04, 2017

Mr. Patrick Wruck
Commission Secretary and Manager
Regulatory Support
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Mr. Wruck,

**RE: British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Site C Inquiry – Round 2 Information Responses**

I write to submit further BC Hydro responses to the questions set out in the British Columbia Utilities Commission's Preliminary Report issued on September 20, 2017.

It has been very important to us in this process to be forthcoming with timely and accurate information. Today's filing provides an opportunity for us to share new information with the Commission and the public.

Like all large, complex projects, Site C faces risks and uncertainties. In our quarterly progress reports to the Commission and in our August 30, 2017 filing, we identified risks that could result in greater cost pressures for the project, including risks to the river diversion timeline. Deloitte identified those same risks in the report it delivered on September 08, 2017.

BC Hydro has encountered some geotechnical and construction challenges on the project and the risk to the river diversion timeline has now materialized. Based on the recent completion of a constructability review and an executive meeting with our Main Civil Works contractor on September 27, 2017, we have now determined that we will not be able to meet the current timeline for river diversion in 2019. While this will set some activities back a year, we had a one-year float built into our schedule and are confident we can still deliver this project on time, by November 2024.

Not meeting the current river diversion timeline has created new pressures on the project's budget. We estimate that this development in the project is expected to increase its cost by 7.3 per cent or \$610 million, for a total forecast project cost of \$8.945 billion. We've retained the contingency and it remains available to prudently manage risks on the project.

Page 2

Due to the project's complexity, we expect to continue to face risks in other areas, including our second largest procurement (i.e. the Generating Station and Spillway) that remains open and the highway realignment. We will work to mitigate those challenges.

Despite the challenges we have encountered and the risks that remain, our analysis continues to confirm that completing Site C as planned is still the most cost-effective option for our customers. Suspending, or terminating and finding the power we need from other sources – which carries its own set of uncertainties – would cost billions more than completing Site C.

We work every day to ensure that we are acting in the best interest of our customers. We remain committed to Site C and are confident in our ability to deliver the project. Site C continues to be the best option to provide a long-term supply of low cost, clean energy to British Columbians.

I will be at the Technical Panel Session on October 14, 2017, along with other BC Hydro subject matter experts, to answer the Commission Panel's questions on this submission or any other matters to assist the Commission in its final report in this Inquiry.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris O'Riley". The signature is fluid and cursive, with a large, stylized "O" in the middle.

Chris O'Riley

British Columbia Utilities Commission
Inquiry Respecting Site C

Executive Summary

Table of Contents

1	Introduction	1
2	BC Hydro Still Expects to Complete Site C on Schedule But at Additional Cost.....	3
3	Terminating the Project Would Cost Ratepayers 36 Per Cent of the Updated Cost to Build Site C, Without Any Resources in Exchange.....	3
4	Relative Resource Costs Heavily Favour Site C	4
5	Deloitte’s Alternative Portfolio is Significantly More Risky than Site C	4
6	Conclusion	5

1 Introduction

In our August 30 Filing, BC Hydro provided information in support of the Commission's task under the Terms of Reference to address the relative implications for ratepayers of continuing with Site C as planned, terminating the Project and remediating the site, or suspending the Project while maintaining the option to resume construction until 2024. Answering that question requires an examination of three broad factors:

1. The costs of completing the Project, given the significant work already accomplished;
2. The project costs of terminating and remediating or suspending and maintaining the Project; and
3. The incremental cost of alternative resources that would be needed in the absence of Site C.

The enclosed responses to the information requests from the Commission's Preliminary Report of September 20, 2017 relate to all three items above. Our responses identify risks and challenges with Site C but confirm that Site C remains the best option to provide a long-term supply of low cost clean energy and we remain confident in our ability to deliver this project.

Specifically, information filed in these responses shows that:

- As previously stated, BC Hydro has encountered some geotechnical and construction challenges on the project. Based on the recent completion of a constructability review, and an executive meeting with our Main Civil Works contractor, on September 27, 2017 we determined that we will not be able to meet the current timeline for river diversion in 2019. While this will set some activities back a year, we had a one-year float built into our schedule and we

are confident we can still deliver this project on time, by November 2024 (see the response to BCUC IR 2.3.0).

- Not meeting the current river diversion timeline has created new pressures on the project's budget. We estimate that this development is expected to increase the project cost by 7.3 per cent or \$610 million, for a total forecast project cost of \$8.945 billion (see the response to BCUC IR 2.15.0).
- If the project were terminated, ratepayers would incur approximately \$3.2 billion – roughly 36 per cent of the updated cost of the Project – to recover spent costs, terminate work and remediate the site, without anything to show for it.
- The additional ratepayer cost of securing alternative resources in the event Site C is terminated is substantially higher than the cost to complete Site C. Site C remains the most cost-effective option compared to alternative resources by a wide margin, even under the unlikely +50 per cent cost overrun scenario and coupled with highly optimistic assumptions of the future cost of alternative resource options (see the response to BCUC IR 2.46.0).
- Site C is well underway, and the progress to date has reduced a number of risks. BC Hydro's portfolio of alternatives to Site C has a risk profile that is overall higher than Site C and is much more expensive. Deloitte's proposed portfolio of alternatives would be much riskier for ratepayers, while still being more expensive than Site C (see the response to BCUC IR 2.50.1).
- Deloitte has acknowledged that their portfolio of alternative resources underestimated cost by 25 per cent, and does not provide sufficient capacity due to reliance on outdated information on BC Hydro facility upgrades (see A-17).

Though Site C is now expected to cost more to complete than originally budgeted, proceeding with Site C is better for ratepayers.

2 BC Hydro Still Expects to Complete Site C on Schedule But at Additional Cost

BC Hydro expects to miss the planned 2019 river diversion milestone but we expect the project will still be completed on time, with the last generating unit to be placed into service by November 2024. This will be achieved by using the one year of float held by BC Hydro for the activities associated with river diversion.

Missing the 2019 river diversion milestone is estimated to increase project costs by \$610 million. This is a 7.3 per cent increase in project costs from \$8.335 billion to \$8.945 billion. Additional cost risk remains with the project but our analysis shows that Site C remains less risky and more cost-effective than alternative portfolios.

See BCUC IRs 2.3.0, 2.10.0, 2.14.0, 2.15.0, 2.46.0 and 2.50.1.

3 Terminating the Project Would Cost Ratepayers 36 Per Cent of the Updated Cost to Build Site C, Without Any Resources in Exchange

In the event of termination, ratepayers would be required to pay approximately \$3.2 billion (36 per cent) of the updated cost of Site C without any resources, and there is a real risk this cost could be significantly higher. Alternative resources, addressed in section 5 below, would still need to be developed.

- The Commission has made preliminary findings that by December 2017, there would be \$2.1 billion in sunk costs, and that termination and remediation would cost \$1.1 billion.¹ The total of \$3.2 billion represents roughly 36 per cent of the updated cost to build Site C.
- This estimate contemplates a remediation program that renders the site safe and environmentally sound, and not a program that returns the site to its original condition. The cost estimate would increase if an environmental

¹ Commission's Preliminary Report, pages 43-44.

assessment and/or more substantial remediation work required. Returning the land to its original condition, if even possible, would increase the remediation costs and timelines substantially.

See BCUC IR 2.50.0.

4 Relative Resource Costs Heavily Favour Site C

BC Hydro has completed the analysis necessary to respond to Commission information requests regarding availability and costs of alternative resources. This analysis shows:

- The Project is the most cost-effective in each of, and all combinations of, scenarios with: (i) cost overruns on Site C; (ii) low load growth; and (iii) highly optimistic cost assumptions regarding alternatives.
- Even under the unlikely +50 per cent cost overrun scenario and coupled with highly optimistic assumptions of the future cost of alternative resource options, completing Site C is lower cost to ratepayers than a portfolio of alternatives.

See BCUC IR 2.42.0 and 2.46.0.

5 Deloitte's Alternative Portfolio is Significantly More Risky than Site C

Deloitte filed answers to BC Hydro IRs on October 2, 2017 (A-17) with updated portfolios costs that shows it underestimated the cost of alternatives resources by roughly 25 per cent and included insufficient capacity resources. Deloitte's proposed portfolio of alternatives is much riskier for ratepayers, while still being more expensive than Site C.

Deloitte has contemplated that low cost geothermal resources would represent a large portion of BC Hydro's total resources by 2036. In effect, Deloitte assumes that BC Hydro would build more geothermal resources than currently exist in Iceland,

which has the highest geothermal potential in the world due to advantageous environment conditions that do not exist in B.C. Given that exploration to date in B.C. has not identified any viable geothermal resources, there is a reasonable prospect that ratepayers would have to pay for higher cost resources to make up for geothermal when it does not materialize.

There are other assumptions Deloitte has made that add risk, such as the assumption that all of the resources in the alternative portfolio would be developed by BC Hydro, not Independent Power Producers, at our lower cost of financing. Given BC Hydro's mandate, we believe this is a highly unlikely assumption and one that would expose ratepayers to significant additional cost risk.

Development, permitting and construction cost risks exist on all resource projects to varying degrees. Site C is well under way with significant work already complete. For instance, Site C has its key permits and approvals; BC Hydro has awarded and is well into the largest contract for the Project; other large contracts such as the worker accommodation and turbines and generators contract are awarded and ongoing. As a result, portfolios with Site C have a lower risk profile than alternatives.

See BCUC IRs 2.50.1 and 2.61.1.

6 Conclusion

We recognize that these responses identify material project cost developments. However, ratepayers are still best off in a scenario where BC Hydro proceeds with Site C as planned. We will elaborate further on our conclusions in our submission to be filed on October 11, 2017. As well, BC Hydro representatives will be in attendance at the Technical Panel Session on October 14, 2017 to speak about the Project and to answer the Commission Panel's questions.