

From: [REDACTED]
To: [Site C Submissions BCUC:EX](#)
Subject: Diane Culling_Submission to BCUC on Costs of Alternatives to Site C Dam
Date: Thursday, August 31, 2017 7:49:17 AM

August 30, 2017

Attn: Site C Inquiry Panel
SiteCSubmission@bcuc.com

RE: Submission to the BCUC Site C Review

Good Day,

I wish to submit the following comments regarding the question before the BCUC Review Panel: “What portfolio of generating projects and demand-side management initiatives could provide similar benefits to the Site C dam?” When comparing costs of Site C to alternatives, factors that should be considered include:

Rapid Advances in Alternative Technologies

Since the release of BC Hydro’s *Green Energy Study for British Columbia* in 2002, which explored the potential for green energy “to contribute to meeting future demand for electricity in British Columbia,”^[1] there have been many advances in technology as well as significant decreases in the cost of alternatives. Given these rapid advances in alternative energy technologies globally, coupled with the fact that electricity from the Site C dam would not be required until 2024 at the earliest^[2], it should be anticipated that an even broader array of cost-effective alternatives will be available, which could potentially result in the Site C dam becoming a stranded asset as electrical consumers move to cheaper sources of electrical generation.^[3]

Advances in technologies that improve energy efficiencies in grid systems, as well in manufactured goods and building construction are contributing to demand side management (DSM). As internationally acclaimed clean technology venture capitalist Vinod Khosla stated in a 2013 interview with Scientific America, “The greatest energy payoffs, will come from fundamentally reinventing mainstream technologies.”^[4] It is critical that these and future advances are taken into consideration when comparing the cost of Site C with alternative generating projects.

Vehicle to Grid (V2G) Technology

The future need to power electric cars is often cited as a justification to build the Site C dam. However, advances in “Vehicle-to-Grid” (V2G) technology are resulting in a “moving ground” scenario with respect to this potential demand.^[5] The need for Site C to address this demand is quickly becoming an obsolete argument.

Energy Security

True energy security requires a diversity of electrical generation sources distributed over a broad geographic area. Approximately one-third of the Province’s electricity is generated by the two existing dams on the Peace River. In the past few years the transmission corridor that links these dams with the Lower Mainland has been threatened by wildfires in the Northeast and in the Central Interior. Site C would further increase the vulnerability of the Provincial electrical grid. This geographic concentration of supply is not in the best interests of the Province and should be considered when comparing future electrical generation sources.

Long Term Maintenance Costs of the Site C Dam and Reservoir

British Columbia’s Peace River watershed downstream of the existing dams is characterized by high sediment loads. An estimated 3 million tonnes of sediment is expected to be deposited in the reservoir annually.^[6] Decades of sediment accumulation will alter the profile of the reservoir, which may affect both storage capacity and the dam’s generation efficiency. Addressing this issue may require costly remedial measures over the lifespan of the dam. Issues associated with sediment deposition in the Site C reservoir should be taken into consideration when comparing the cost of Site C with alternative generating projects.

Soundness of the W.A.C. Bennett Dam

The W.A.C Bennett Dam is approximately midway through its projected lifespan. The dam required urgent and expensive remedial work in the late 1990s to address two sinkholes that had developed.^[7] In the past few years, BC Hydro has undertaken further remedial work to address the “steady deterioration of the riprap, large boulder-sized rock, that protects the upstream slope of the dam” that has occurred since the construction of the Bennett Dam more than 45 years ago.^[8] The costs of upgrading the deteriorated portions of the rip-rap exceeded \$100 million. Issues

associated with the soundness of the two existing upstream dams, including future remedial works, should be taken into consideration when comparing the cost of Site C with smaller scale alternative generation projects.

Costs of First Nations Compensation and Alienation of Crown Land

The significant and unmitigable impacts of the Site C dam on First Nations' Treaty Rights will have to be compensated. Comparison of the cost of Site C versus alternative generating projects should factor in both monetary compensation as well as the alienation of Crown Lands that may be included in any Site C compensation package.

It is undeniable that electricity provided by British Columbia's historic system of hydro dams and reservoirs has been an asset to the Province in the latter half of the 20th Century. However, in the early decades of the 21st Century an increasing array of viable clean energy generation technologies are becoming available as cost-effective alternatives to large hydro for meeting British Columbia's future electrical energy requirements. British Columbia risks putting itself at an economic disadvantage by pursuing the Site C dam as jurisdictions around the world are developing innovative technologies that will further bring the cost of electricity down.

Cordially,
Diane Culling
Fort St. John, BC

[1] https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/environment/pdf/green_energy_study.pdf

[2] <https://www.sitecproject.com/sites/default/files/Info-Sheet-About-Site-C-November-2016.pdf>

[3] <https://www.greentechmedia.com/articles/read/big-corporations-are-starting-to-ditch-their-power-providers>

[4] <https://www.scientificamerican.com/article/in-search-of-the-radical-solution/>

[5] <https://www.enel.com/en/media/news/d201608-energy-on-wheels-v2g-innovation-renewables-and-grids.html>

[6] http://www.bchydro.com/etc/medialib/internet/documents/planning_regulatory/site_c/2010Q2/peace_river_site_c20.Par.0001.File.Peace_River_Site_C_Hydro_Project_Stage_2_-_Review_of_Potential_Downstream_Changes_from_Site_C_Operations_-_Preliminary_Findings.pdf

[7] http://www.openschool.bc.ca/courses/earth/60-Storey_Crisis.pdf

[8] <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/projects/gm-shrum/bennett-and-peace-canyon-dam-safety-updates-december-2015.p>