

October 11/17.

Dear Panel,

Please accept these comments with regard to the question of the viability of alternative energy supply. I see viability as a combination of cost, environmental and social impacts, feasibility of deployment and availability of product.

I realize that you have heard much about the case for alternatives to Site C with BCH vigorously downplaying or disputing its viability and with many presenters, experts and others, making the case in favour of the viability, importance and inevitability of alternatives.

There are 3 points I would like to address in this submission.

1. disruption
2. vision
3. climate change

1. Disruption:

Disruption in the form of technological change is with us now in a similar manner as climate change. In many ways they are two faces of the future - hope and fear. Both are paradigm shifts. Both are inevitable.

As per my written submission of Aug 30/17 I submit that the Panel must include the question of disruption as central to its review of Site C.

In this submission I offer two recent and related examples for your consideration.

- At the first public consultation session of Sept 23/17 in Vancouver, the Panel heard from Mr. Jason Bak, chairman and CEO of Solar Alliance Energy, a B.C. company (see page 118 of the transcript). I will highlight a few of his remarks to illustrate my point about what disruption looks like in real life and that it is happening now:
 - We've developed over **300 megawatts of wind projects now operational or in construction, equivalent to about a billion dollars of capital cost**, including the Meikle project in the Peace region...
 - The **capital of the homeowner** was used to build this, not the province, not the ratepayer, not the taxpayer.
 - with solar, and utilizing BC Hydro's net metering program, is **net zero energy uses from the grid. Over a year.**
 - We've installed solar in North Vancouver. The system cost was **\$23,000 for a 7 kilowatt system that has a fifteen year payback**. Payback is what people should focus on, not the fact that it's too rainy for solar power in Vancouver or British Columbia. The payback is what matters.

- Solar is visceral. People, when they have solar on the rooftop .. engage other people and **it changes consumer behaviour. It changes the ratepayer's behaviour.** It changes people's interest in where their energy comes from.
 - California's self-generation incentive program ... **provides the grid with stability, load shifting and back-up power. This is happening today.**
- An article in the Sept 25th/17 Tyee by Mitchell Anderson, creates an intellectual context for the example provided by Mr Bak. I have included the link and I will highlight some of his comments:
 - https://thetyee.ca/Opinion/2017/09/25/Site-C-White-Elephant/?utm_source=weekly&utm_medium=email&utm_campaign=250917
 - Between 1995 and 2010, the cost of lithium ion batteries fell by 14 per cent each year. Since 2015, those costs reductions have accelerated to 20 per cent annually due to huge **investments** from the trillion-dollar automotive sector's new interest in electric cars. **Large scale grid-level battery storage is just starting to gain traction, but will soon transform how we consume electricity.**
 - A doubling every two years means that solar is on track to replace all installed global energy generation by 2030. Obviously there will be other sources of energy than solar in our future. However the **overall economic trends for renewables are crushing for conventional energy sources.**
 - Mr Anderson's identifies a range of alternatives that are currently operational or on the near horizon and raises a pertinent question and answer: **"In fact, new renewable investment of any kind before 2030 has already been nixed by BC Hydro. Why? An Eisenhower-era dinosaur named Site C."**

From the two examples above I submit that failure to address the disruptive effects of innovation, human behaviour, economic drivers and to diminish the value of abundant new opportunities, would be to offer unrealistic, unhelpful advice to government. In my review of BC Hydro's submission and answers to the Panel I found a blind commitment to justifying a single option for energy provision in BC and to making every other option unacceptable. Even deep DSM! This is not a wise direction for BC. **Energy provision needs to be rethought and the only way to achieve this is to terminate the project. Continuation or Suspension will keep us tied to the past.**

2. Vision

Should we accept BCH's view that nothing else but Site C and this single model for energy provision can meet BC's energy needs for the same cost? I believe the Panel will find that view outdated, unrealistic and ultimately destructive for BC's energy and economic future.

I accept that within the constrained timeline of the current review the Panel may be unable to identify a clear picture of what the alternative portfolio would look like or exact costs. However the Panel must not close the door to the reality of disruption and the need for BC to embrace the reality of alternatives as the most prudent way forward.

I agree with other presentations and submissions that identify the need for BC Hydro to undergo a revisiting of its mandate, role and responsibilities and vision for BC's future energy provision. I agree with the view that BC absolutely needs to renew our public crown corporation with a broad vision and mandate for an innovative, research based, diversified portfolio that provides desperately needed leadership and responsive energy provision in the public interest.

3. Climate Change

I submit that climate change is the dark horse of disruptive forces. In my review of studies and articles I found that the changes will be both cumulative and exponential in severity. Climate change adaptation requires maximizing flexibility, innovation and diverse options.

If we accept climate change is real then wise decision making must include not making things worse and the development of adaptive behaviours. I agree with those who caution the protection of the remaining Peace River Valley farmland and intact biodiverse ecosystems as a critical adaptive measure. We know this intuitively even when the arguments of numbers and importance are incomplete. The precautionary principle must be applied to support future adaptive capacity for BC.

Somewhat less attention has been paid to projected longer term impacts of climate change. Given the expected 100+ yr life span of Site C this information requires our attention. Two anticipated changes include the loss of glaciers impacting river flows, inundation of prime lower mainland agricultural areas. This is inside a 70 year time frame which may well become shorter.

The contention that Hydroelectricity (from mega dams like Site C) is clean energy is no longer supported by science and research. Researchers in 2016 identified new problems not considered in BCH's planning for Site C. This recent information must be factored into our current understandings of the climate change impacts of Site C.

In the next 20 years, a critical period for reducing climate changing emissions, Site C can be expected to release 25% more methane than previously understood. Particularly incomprehensible is BCH's practice of mulching many large and most small trees and leaving that biomass mixed up on the ground with the soils.

For example, an excerpt from "The Guardian's report on the study states:

“Hydroelectric dams contribute more to [global warming](#) than previously estimated, according to a study [published in BioScience](#). It appears that the current and planned boom of [hydroelectric projects](#) would double the current cover of dams in the world and will aggravate the problem.

Researchers found that rotting vegetation in the water means that the dams emit about a billion tonnes of greenhouse gases every year. This represents 1.3% of total annual anthropogenic (human-caused) global emissions.

When considered over a 100-year timescale, dams produce more methane than rice plantations and biomass burning, the study showed.

“We estimate that dams emit around 25% more methane by unit of surface than previously estimated,” said Bridget Deemer, from the School of Environment at the Washington State University in Vancouver, and lead author of the study.

“Methane stays in the atmosphere for only around a decade, while CO2 stays several centuries, but over the course of 20 years methane contributes almost three times more to global warming than CO2, a relevant period for policymakers,” she added.”

<https://www.theguardian.com/global-development/2016/nov/14/hydroelectric-dams-emit-billion-tonnes-greenhouse-gas-methane-study-climate-change>

Conclusion:

The single most important responsibility of this BCUC review is to assist Government to identify the best way forward for BC to develop, access and distribute energy in the near and longer term.

Inertia and the status quo in the face of the future’s inevitable disruptions is the destructive path of continuing to build Site C Dam. To help government account for the less well known costs and the real potential of alternative energy options will best serve the public interest.

In the midst of concerns surrounding the short term decision of cancelling Site C lies the critical question of “Can we not do better?” I ask the Panel to err on the side of hope, innovation, and creativity.

Thank you for considering these comments.

Sincerely
Lynn

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