MCCULLOUGH RESEARCH

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PRINCIPAL

December 4, 2017

Premier John Horgan and Cabinet
Government of British Columbia
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Via email and by hand

Dear Premier Horgan and Honorable Ministers:

Thank you for the opportunity to meet with you and your cabinet. Although I have worked with Canadian clients for many years, this was the first time to have the chance to help government officials in such a challenging situation.

As I noted during the meeting, I approached the opportunity in the same way I would approach meeting a client – oriented primarily towards problem solving and less towards advocacy.

As I noted on Thursday, three provinces and one state have recently faced similar challenges. In Quebec and Nebraska, the government faced the issue of a troubled investment squarely.[1] When the downside risks are large and growing, it is generally best to limit your exposure. In Quebec and Nebraska, a bond rating downrating was avoided by prompt action. Rate increases were effectively eliminated through the availability of cheaper alternatives. In Manitoba and Newfoundland, the government indeed found itself "Waist Deep in the Big Muddy" and have faced rating downgrades and significant rate increases.

At the heart of the debate is a change in the industry that many find hard to adjust to. After being told for many years that energy is scarce and limited, we find that with the amazing decline in renewable prices that we can produce as much electricity as we need.[2] British Columbia Hydro places the wind potential of the province at 15,898 megawatts -- roughly fourteen times the capacity of Site C.[3] Not all of this is available on peak, of course. Hydro-Quebec, Canada's leading wind developer, counts 30% of name plate capacity as dependable capacity which equates to four and a third times the usable capacity of Site C. To

[1] The Omaha Public Power District is a governmentally owned and operated utility – comparable to a Canadian crown corporation.
[2] Lazard's levelized cost of energy analysis—Version11.0, November 30, 2017, page 10.
[3] BC Hydro Wind Data Study CSRP0009-A, May 1, 2009, page 44.

be clear, the nameplate capacity of proven renewables is sufficient to meet all of our forecasted decarbonization and electrification goals, even if it amounts to over four times the capacity of Site Cs. And this is before taking into account other renewables such as solar and geothermal. British Columbia is awash in untapped renewable potential.

Twenty-five years ago, I advised the CEO of Portland General Electric to close the Trojan Nuclear Station. Even then, this was a one-billion-dollar decision. The continued downside risks were large and effectively unlimited. The chemistry of thousand-degree water in a highly radioactive environment had effectively "rotted" the steam generators. The engineers swore they could replace the equipment for a mere $400 million. I can remember saying that he should simply double their estimates since their passion for the project was exposing the company to risks they would not personally bear. Wisely, he agreed to limit his exposure.

Recently, Duke's senior management was not so wise. As part of an effort to replace similar equipment, the containment vessel "delaminated" -- a euphemism for the failure of the containment vessel and the termination of the nuclear plant. The loss went into the many billions. This is a case I am familiar with since I was a U.S. Department of Justice in some of the following litigation. This is an example of the huge unexpected down side risks that continuation of a troubled project can entail.

There are upsides to a Site C termination.

A central issue in the Site C debate has to do with the tremendous storage capabilities of the Peace and Columbia rivers. British Columbia has more storage than the vast majority of utilities in North America. Integration of the renewables with such hydro is straightforward and economical since the existing dams are built, paid for, and available in the correct time frame. The technical term for the available storage is “Non-Treaty Storage” – five million-acre feet available at the Mica Dam. This is roughly fifty times the storage of the Site C project.

The integration of the 5,000 megawatts of wind in the Bonneville Power Administration's control area has only required one million-acre feet.

The major component of the 1,600 megawatts capacity missing in BC Hydro’s regulatory filings is the capacity and energy rent paid by U.S. utilities for the benefits of Canadian storage. BC Hydro has cited the remote possibility that the U.S. will cancel the existing Columbia River Treaty with Canada as evidence that this cannot be relied upon. If this block of power -- roughly the same size as Site C -- is not to be used in the province, it should be sold on similar long-term basis as the transaction in 1964, raising billions of dollars for infrastructure improvements and rate reductions in BC.

The unsupported reclamation cost estimate -- $1.8 billion – provides an enormous employment potential even if it is reduced to the $1.2 billion consistent with the estimates provided by Deloitte and BC Hydro.

I would be happy to visit further with your staff on the opportunities available to the province on the Canadian entitlement and the Non-Treaty Storage. I was disappointed that the schedule last Thursday left little time for such a detailed technical discussion of the Columbia River Treaty.

I would like to close by repeating how grateful I was to be invited last week.

Yours, sincerely,

Robert McCullough