Alan Wait
[redacted]

Sept 29, 2017

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

Re: Inquiry regarding Site C Clean Energy Project

I am a Civil Engineer, a retired general contractor and have since 2003 been an independent registered intervener at BCUC hearings regarding BC Hydro, including the 2012/2013/2014 Revenue Requirements Hearing of BC Hydro that the BC Government cancelled in mid hearing.

I have concentrated my efforts during interventions to maintaining the stated goals of BC Hydro from its inception that was to provide quality service at the lowest cost possible for ratepayers.

I submit my comments on the Site C project as follows:

Terms of Reference Item a. (i) Continue construction

Unless Deloitte can find significant financial miscalculations increasing the final cost of Site C, I believe continuing the project is the prudent thing to do for ratepayers and the province. The situation is not ideal with there being no full open oral public hearing where many concerns could have been expressed and mitigated before proceeding with Site C construction.

Any suspension in time of this project will result in even higher costs, as BC Hydro began construction with the following tail winds:

1. Low interest rates. At present provincial borrowing, as far as I can determine, is between 2.5% and 3% for 30 years. These are the lowest rates in the existence of BC Hydro.

2. Stopping the project now will result in $3 bil plus future interest charges of ½ bil dollars being inflicted on the ratepayers or taxpayers with nothing to show for it.

3. Contactors and equipment were readily available and competitive at this time, leading to tighter bidding and lower prices to BC Hydro.

4. It would appear that the prices of metals and oil bottomed out between Dec 2015 and Feb 2016. I expect hindsight will vindicate BC Hydro's timing for commencing construction on Site C to minimize the capital cost.

In addition to the above four items, borrowing for the Site C project is at exceptionally low rates that are projected to remain unusually low for some time yet. BC Hydro borrows lump sums for usually 30 years with the entire principle due at the end of the term. In the course of business, BC Hydro depreciates its assets each year with the depreciation money then being reinvested in the business (both equity and debt). With normal 30 year borrowing, BC Hydro will have the use of very low cost borrowing by applying the Site C project depreciation to other projects. This low interest advantage could easily reduce the nominal revenue requirements of BC Hydro by $1 bil over the duration of the Site C capital borrowing if the Site C interest rates average 2% less than new borrowings after 2024. This is just one of the synergies not obvious at first glance. I am sure there are other synergies on the operating side.

The V. Ruskin PhD submission F26-3, states on P.19, L610-L613 that: cyclic operation of its huge storage behind the Bennett dam could add around 4500 gwhr at the Shrum Generating Station for no cost. The BC Hydro submission F1-1 in item 2.1 P.9, L.21 states Site C will generate 35% as much energy as the Shrum Generating station. Therefore it would be reasonable to assume the if Shrum is operated to provide an additional 4500

gwhr of power then Site C should be able to produce an additional 1500 gwhr. Mr. Ruskin's proposal requires some serious investigation for both the context in which he used it and to modernize operating the entire system that has changed considerably over the years.

BC Hydro really wants to develop the power potential on this stretch of the Peace River because it is such natural fit to its system. BC Hydro will eventually win and build one or more power plants on this portion of the Peace River. Throwing away the present investment only to have to restart the process at higher interest rates, inflated materials costs and probably a tighter construction market makes no sense.

According to BC Hydro the project is within schedule and meeting its budget. I am in no position to dispute that position.

Site C will have a much better power profile for the system than other proposed projects as it is entirely within BC Hydro's control and benefits from the massive storage behind the Bennett dam.

Terms of Reference Item a. (ii) Put on hold

1. Suspending the Site C project for any length of time will create additional costs in terminating signed contracts that could easily end up in court creating large payouts and significant legal costs for BC Hydro.

2. I foresee possible problems restarting of the project with new contractors being concerned with the quality of the work done by the previous contactors.

3. I find it really hard to believe that interest rates will be anywhere near as low in 2024 and beyond as they are today.

4. New contracts to continue Site C construction will likely happen at a time when low interest rates, relatively low material costs and contractors desperate for work are no longer the order of the day. Hence higher costs to ratepayers.

5. Stopping Site C now will result in the loss of a great many very well paid union jobs now, as well as other losses in the local community that has geared up for Site C construction.

6. If this choice is made, ALL costs charged to Site C should be placed in a separate account that is charged only the interest as well as a yearly principle reduction payment to eliminate the account over a reasonable period of time. This is because the project costs incurred will likely not add much in savings to the restarting of Site C. Under no circumstances should BC Hydro be able to receive any equity revenue because of the Site C project on the amounts spent up to and including postponement charges.

Terms of Reference Item a (iii) Cancel project completely

1. This project is so coveted by BC Hydro that at the next change of government Site C could easily be resurrected. In the meantime, $3 bil plus interest charges will have been dumped onto the ratepayers for nothing.

2. When you look at all the work that has already gone into the Site C: environmental approvals, first nations agreements, engineering designs and contracts let, I see a project that has gone too far to be cancelled.

3. Site C provides dependable callable power that allows BC Hydro to fit larger amounts of wind and solar into its system. Wind and solar capital costs are expected to continue falling. The first buyers of any technology always pay the most and prices come down over time with better more efficient equipment. Battery technology may also become competitive in the not too distant future.

4. If this choice is made, ALL costs charged to Site C should be placed in a separate account that is charged only the interest as well as a yearly principle reduction payment to eliminate the account over a reasonable period of time. Under no circumstances should BC Hydro be able to receive any equity revenue because of the Site C project.

5. Under the BC Liberal administration BC Hydro was prevented from developing new hydro resources beyond the Peace River, the Columbia River and their existing power plants. This restriction makes no sense and should be ordered rescinded by the BCUC no matter which option is recommended.

CONCLUSIONS

BC Hydro may well have picked one of the best times to start Site C in the supply demand balance of the construction, material, oil and interest rate markets. Nobody really knows how many people will get on the carbon reduction bandwagon between now and 2024 with new heat pumps, electric mobility scooters and electric cars. BC Hydro is better off being ahead of the curve than behind.

If Mr. Ruskin's assertions of more power being available by reworking the Shrum operating criteria are correct, future generation additions could be delayed even further than BC Hydro currently anticipates.

Large projects of this nature always factor in future growth in demand so that the system should have the capacity to meet any reasonably anticipated demand. We don't want projects obsolete at completion. They are expensive at first but as the years go by, the depreciation slowly reduces the revenue requirement unlike IPP power that increases at ½ the inflation rate.

Clearly the provincial Liberals blew it by not convening an oral public hearing for this $8 bil project. However, Site C has now proceeded too far already to cancel or postpone it.

I do have a major concern about the cost being added to ratepayers and with BC Hydro drifting away from its stated aim of low cost power. In order to mitigate the high cost of Site C hitting the ratepayers, I will suggest that the debt/equity ratio allowed BC Hydro be changed back to 80/20 from the present 60/40. Special Direction # 1 in 1984 and later Special Direction #8 from the last NDP administration had BC Hydro working towards an 80/20-

debt/equity ratio. Any equity above 20% defeats the original concepts at BC Hydro's founding.

BC Hydro develops its Revenue Requirements based on the operating costs incurred to provide power, depreciation charges, a rate of return on equity (about 12%) plus interest costs (Site C I expect to be in the 2.5% to 4% range while the present average BC Hydro interest rate is close to 6%). So reducing the exorbitant 40% equity to 20% equity as was originally targeted when BC Hydro was created, would conservatively save ratepayers as a ballpark figure (6% X [$30 bil X 20%]) = $360 mil per year on completion of Site C. The 6% being the difference between the average debt and equity rates.

I recommend that the BCUC approve the continuation of Site C on the condition that the debt/equity ratio of BC Hydro is rolled back to 80/20.

Respectfully submitted,

Alan Wait