From: [redacted]
To: Site C Submissions BCUC:EX
Subject: Simplified Review of Site C
Date: Wednesday, August 30, 2017 11:18:01 PM
Attachments: Site C Analysis.xlsx

August 30, 2017

Commission Secretary
B.C. Utilities Commission Sixth Floor,
900 Howe Street Vancouver, BC Canada V6Z 2N3

Attention: Mr. Patrick Wruck

Dear Mr. Wruck:

Re: Site C Path Forward

I have worked in the electricity sector for over 25 years and accordingly have an interest from both a professional perspective, as well as that of a ratepayer. I am submitting this letter as a ratepayer.

I have taken a little time to familiarize myself with the most recent BC Hydro (BCH) 2016/2017 Annual Service Plan Report. Ending March 31, 2017, BC Hydro earned 5.2 B$ selling approximately 57.65 GWh of energy domestically for a per unit revenue of 92.18 $/MWh. I also understand that BCH has spent approximately 25% of the 8.8 B$ budget for Site C or 2.2 B$.

In my simple analysis:

The current average cost of debt to BC Hydro is 4.4% so assuming that any cancellation amounts could be 100% debt financed (interest only and assuming no increase in the cost of debt due the additional debt burden impact on BCH credit rating), cancelling Site C would add anywhere from $88 million (2 B$ spent) to $176 million (4 B$ expenditure accounting for current spend and potential cancellation fees) to the current annual revenue requirement. This would increase the cost to consumers up by anywhere from 1.7% to 3.4%. Obviously not welcome as there is no incremental benefit to ratepayers nor local business (taxpayers).

Assuming Site C is built as envisioned, then at the 8.8 B$ budget, assuming 100% debt financing @ 4.4% and an incremental annual Site C operations cost of $76.5 million, the incremental burden on rate payers would be $464 million or an 8.9% rate increase. This increase could anywhere from zero, if load growth is 8.9% between now and the commercial operations date of Site C, to the full 8.9% if load growth is zero. I personally do not expect load growth to be zero.

If Site C costs rise to 12 B$ as some have suggested, and load growth is zero, the incremental burden on ratepayers is estimated under the same assumptions as above at approximately $605 million or an 11.6% increase in revenue requirement. This extreme increase can be reduced by about 1/3 sale or power at current Trade rates of 33$/MWh. This implies an effective 85$/MWh subsidy by local ratepayers to buyers south of the border and/or in Alberta. This does not appear to be a very palatable outcome for BC.

That being said, a combination of 8% load growth over the next 7-8 years until Site C reaches commercial operations suggests would reduce this incremental cost even at a 12 B$ cost for Site C to ratepayers to 3.6% - very similar to the cost of cancelling Site C at 4 B$. This 3.6% could be reduced further still with sale of Trade energy, even at a loss by about 1/3 or 1.2% resulting in a 2.4% rate increase to ratepayers.
So to summarize, while I have made some overarching simplifications, if the cost of cancellation

reaches 3-4B$, the annual cost to ratepayers will be 2.6-3.4 % indefinitely. If Site C is completed and costs even as much as 12 B$, a not unreasonable load growth projection of about 1%/annum will reduce the incremental burden to ratepayers to 3.6% and any Trade sales will reduce this amount to as little as 2.4%. Additional services provided to BC Hydro as a result of the operation of Site will generate jobs and tax revenues.

While I started this exercise thinking that it would be a “no brainer” to cancel Site C, I do believe that it is in the realm of reasonableness to move forward. If costs can be controlled to the 10 B$ range and a reasonable load growth projection of 1% per annum can be expected to be achieved then building Site C offers some hope for future benefits from the project with lesser impacts to ratepayers than by cancelling now. Cancelling Site C locks in incremental costs that provide no possibility of benefit to the province or the ratepayers. Frankly I find myself more than a little surprised and it is possible that my simplifying assumptions are just that, too facile. Based upon this I hope reasoned analysis, I would have to suggest that going forward still seems to be the best path. I have, however not addressed any external stakeholder impacts from the project (either going forward or from being canceled) and they are a factor over and above the pure financials examined in this work. I am well aware that these could easily sway a decision by government from one direction to the other.

My simple spreadsheet is attached.

Sincerely;

Ron Hankewich
[redacted]
New Westminster

I

		Project Cancellation Costs B$						Project Construction Costs B$					
Estimated Site C Capital Cost (Billions $)	**2017 Current**	**2.0**	**3.0**	**4.0**	**5.0**	**6.0**	**7.0**	**8.8**	**9.0**	**10.0**	**11.0**	**12.0**	**13.0**
Site C Energy Production GWh		-	-	-	-	-	-	5.1	5.1	5.1	5.1	5.1	5.1
2017 Domestic Demand GWh	**57.652**	57.652	57.652	57.652	57.652	57.652	57.652	57.652	57.652	57.652	57.652	57.652	57.652
Cost of Debt (Current Weighted Av of Bonds) (assume 100% debt financed and no impact to Credit Rating)	**4.40%**												
Assumed Amortization Term years (interest only payments)	**100.0**												
Annual Interest Costs of incremental spend on Site C millions $		88.0	132.0	176.0	220.0	264.0	308.0	387.2	396.0	440.0	484.0	528.0	572.0
Annual Incremental Operating Costs for Site C @ 15$/MWh (Millions $)								76.50	76.50	76.50	76.50	76.50	76.50
Domestic Revenue Required million $	**5,199.0**	5,287.0	5,331.0	5,375.0	5,419.0	5,463.0	5,507.0	5,662.7	5,671.5	5,715.5	5,759.5	5,803.5	5,847.5
Current Domestic Revenue per Unit $/MWh	**90.18**	91.71	92.47	93.23	94.00	94.76	95.52	98.22	98.37	99.14	99.90	100.66	101.43
% increase Required Revenue from Current Base Revenue		1.7%	2.5%	3.4%	4.2%	5.1%	5.9%	8.9%	9.1%	9.9%	10.8%	11.6%	12.5%
Incremental Revenue Required to Service Debt Interest an Operating Costs								463.7	472.5	516.5	560.5	604.5	648.5
Per Unit Revenue Required of Excess Site C Energy $/MWh								90.92	92.65	101.27	109.90	118.53	127.16
Current Trade Revenue per Unit $/MWh								33.44	33.44	33.44	33.44	33.44	33.44
Variance Between Required Revenue and Current Trade Revenue $/MWh								- 57.48	- 59.21	- 67.83	- 76.46	- 85.09	- 93.72