

**From:** [REDACTED]  
**To:** [Commission Secretary BCUC:EX](#)  
**Cc:** [Nash, Amber LASS:EX](#)  
**Subject:** Re: please correct table 3-8 , which BC Hydro ,due to rush,mistakenly slanted to show we need site C now.  
**Date:** Wednesday, August 30, 2017 12:45:51 PM

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Dear Mr Wruck

I am sending you my submission  
the front pages is the executive summary and conclusions  
the details are behind them and are many pages but explain my research to answer  
your questions to the best of my ability

i have no staff so

owing to shortage of time pl forgive typos

pl put me on the list of interveners wishing to present my brief in person and answer  
questions if there is a public hearing and send me copies of any instructions or  
forms i need

also pl tell me how i get copies of bc hydro and other new submissions or comments

thank you for your help

sincerely'

vern

vern ruskin

On Mon, Aug 21, 2017 at 12:38 PM, skipsalty <[REDACTED]> wrote:

Dear Mr. Wruck

Thank you for smaller pdf file in the SITE C terms of reference. But it has a material  
mistake which needs correcting, or it will mislead BCUC, ratepayers and the public.

Earlier, politicians of both NDP and Liberal politicians got the correct information, but it  
appears in the rush to get a quick review , BC Hydro overlooked to correct table 3-8 ,  
which is **mistakenly slanted to show we need site C now.**

It is 4500 gwhrs (90% of Site C) too low for energy capacity because it is based on  
*minimum* flow for Peace River generation whereas it *should be average flow of Peace*  
River.

Earlier when he was NDP energy critic, John Horgan and I discussed the benefits of Lake  
Williston having world record storage.

BC Electric specially designed Williston to operate "**cyclically**" so average flow 17000  
gwhrs can always be generated.

And any deficit in a 12500 low year can be supplemented with water carried over from a  
22,700 high flow year.

I got these numbers from BC Hydro Sept 28-30 2012 (please see attached for  
verification) thanks to a Liberal MLA Ralph Sultan, who years ago was a young engineer

doing surveys while I was BC Electric Director of Planning.

**You may wish to inform all interveners that table 3-8 needs a material correction?**

Thank you

Sincerely,

Vern Ruskin

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*PS Details*

*The mistake is due to wrongly assuming that the BC hydro system was designed, like all other hydro systems in North America, where system firm capacity was limited by the low flow year*

*BUT the BC hydro system is DELIBERATELY designed based on the AVERAGE flow year which is much greater. Please see exhibit from Doug Robinson (Secretary of the Canadian entity of the Columbia River Treaty.*

*That was requested by BC Electric CEO Dal Grauer and VP Tom Ingledow, who in 1956 asked me to write a paper to explained why BC Hydro (despite enough untapped hydro for many future years) was installing the Burrard Thermal plant ( ref 41 Ruskin, Vernon, "Thermal plants for firming up hydro" recommended by the American Institute of Electrical Engineers, Committee on Power generation, for presentation at the AIEE Winter General meeting in New York, Jan 21 ,1957).*

*BC Electric successfully minimized electricity rates, using around average 750 gwhr thermal, operated very little only in low years, firmed up and gained around 5,000 gwhrs firm hydro capacity at lowered cost to ratepayers.*

*Lake Williston, is an underused heritage from WAC Bennett, planned by BC Electric.*

*It took 20 years to fill and now stores 340,000 gwhrs energy.*

*It holds*

*5 times as much water as the Grand Coulee Dam, Washington State,*

*.11 times more water than Lake Shasta Dam, California,*

*3 times more water than Hoover Dam, Lake Mead on Colorado River (bordering Arizona and Nevada).*

**Lake Williston is like a world-record ... "giant rechargeable battery"**

We planned to operate to achieve the same benefit of lowered rates for electricity to ratepayers, using the huge Lake Williston, by multi-year ("cyclic" ) carryovers of water stored over 20 years, **thereby averaging low and high flows FOREVER** .

Thus we don't need Burrard Thermal plant any longer, and the **BC hydro grid is now 100% clean carbon-free energy fully, complying with the Paris climate change accord.**

I also checked there was diversity between Peace River and Columbia River.

The low flow at each of these watersheds is not synchronized, so there is plenty of time for cyclic scheduling.

Technically the flows on the Columbia are now set by Bonneville Power Administration. Lake Williston behind WAC Bennett Dam (Site A ) holds 20 years of Peace River flows, so it smoothes out any high and low flow years. The water from Lake Williston is used "cyclically" so the combined Columbia River and Peace River gwhr energy supply uses the same average 17,000 gwhrs Peace River flow level every year. That is 4,500 gwhrs greater than the low flow level of Peace and Columbia Rivers combined which BC Hydro now refers to as 'firm dependable'.

The average flow level is automatically updated by a moving average.

**There is NO EXTRA COST for this extra 4500 gwhr energy, which now counts as firm dependable capacity.** This no extra cost energy could halt the rate spiral for ratepayers.

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Vern

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Vern

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