

# FortisBC Okanagan Transmission Reinforcement CPCN

## Intervenor Submission

by Alan Wait  
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I find it somewhat strange, that in order to increase electrical supply to Kelowna through Penticton, a new substation is required at Oliver. I am further concerned with the rate at which FortisBC is proposing to increase capital expenditures in 2009 and 2010 to \$178.8 mil. and \$181.1 mil. respectively, in the FortisBC Capital Expenditure and System Development Plans.

The following things also bother me about the proposed 1A option preferred by FortisBC:

1. Both circuits are on a single pole, leading to safety issues each time one circuit must be worked on.
2. The height of the new poles will require equipment with much a higher reach than any of FortisBC's other lines in the Okanagan.
3. The construction of the new steel poles will require large concrete bases to anchor the poles against wind loads from the wires. This will create considerable disturbance to private property on the right-of-way, plus large heavy lifting equipment will be needed to erect the 100 foot poles proposed.
4. As stated by Mr. Barnett on page 207, line 20 and continuing on page 208 of the transcript:

"It will be—the existing line will be shut down at different stages. The line, existing 161 kV lines, we envision staying in place to be returned to short-service notice while the foundations are being installed. In the case when the actual poles are being erected, it will have to be likely removed. Same with the conductor installation. So there will be a period when the existing line is not in place."

The closeness of the new poles to the existing 76 line could result in 76 line being de-energized during construction and at some point maybe even removed before the new line can be completed. Can Penticton be kept at N-1 reliability through the construction of option 1A?
5. According to section 4.1 of Appendix C, there are roughly 24 of these 100-foot steel poles that will have to be installed using helicopters. I would expect, if there are problems of access for new construction on the brownfield right-of-way, there must also be access problems for maintenance on that existing right-of-way.
6. During the BC Hydro Revenue Requirements Hearing for F2005 and F2006, an Information Request from the BC Old Age Pensioners et al indicated that painting some of BC Hydro's large single steel poles with 230kv lines could cost up to \$50,000 each in an up coming contract. FortisBC should know before choosing these single steel poles what their maintenance costs will run, including something like painting and would one or both circuits have to be de-energized to carry out the work.

7. If the cost of 2B is discounted at 8% plus inflation, the usual practice, for the 2 years longer it will take to come into service, then the cost is actually less or comparable to option 1A.

There was an alternative that was never considered, due to the oral part of the hearing not dealing with the Engineering Design, except pole selection. I was unable to clarify many questions that I still had regarding the Oliver and Bentley Substations.

That option, call it option #4, would proceed with 2-H frame circuits on mainly wood poles along the Alternative #2B route for Vaseux to Penticton. Reconnect 40 and 76 lines at Vaseux and down grade the combined 40 and 76 line to 63kv coming off a very well energized Anderson 63kv bus ,and connect it to the 63 kv bus at Oliver.

The advantages the option #4 configuration are as follows:

1. No additional voltages at Oliver, and an existing line that can move in the range of 80MW at 63kv between Oliver and Penticton.
2. Major changes at Oliver can be delayed until the 161kv 11-line has its voltage reduced to 138kv, expected to be 4 to 6 years longer.
3. The existing 76-line and right-of-way is maintained and used.
4. Existing assets, 40 and 76 lines are not lost.
5. Minimal down time for the existing 76-line. Better supply security for Penticton during construction.
6. The Vaseux substation is designed to accommodate a third 500/230kv transformer and the total energy from Vaseux would then roughly equal the capacity of the two new proposed circuits. If, in the future reliability requires a third 230kv line from Vaseux to Penticton, then that line could go on the existing right-of-way. Right of way will never get easier to acquire than now, as the development and population increase.
7. No changes to the existing lines for the residents along the existing right-of-way for now and the likelihood of only a single H frame line slightly higher than the existing line would be built in the future.
8. Will keep major high voltage transmission line mainly out of populated areas.
9. Greater safety working on the lines as well as less concerns of energized lines during construction.
10. Greater ease of maintenance and safety for FortisBC personnel with two separated circuits.
11. All poles would be at heights that FortisBC already works with, and has the equipment for in the Okanagan.
12. The changeover of 11-line to 138kv in the future can be handled at Oliver and the new Bentley Substation with no expenditures to accommodate the 161kv voltage that now exists.
13. This would delay spending something in the range of \$40 mil. at Oliver and Bentley until the changeover to 138kv, as compared to option 1A.

From FortisBC's Final Argument and my questions at the Oral Hearing, it appears the FortisBC has done very little investigating of the upland route or the strength of the First Nations Timber Claim in that area. To me, having a second right-of-way between Vaseux and Penticton's Anderson Substation makes a lot of sense.

In the short term, there is a supply problem if the present 76-line into the Anderson Substation is lost at a period of high demand, as a result of the contractual demand limitation for supply from Vernon. The contracted supply limitations, from my reading of the Vaseux Substation hearing

documents, seems to be dropping faster than the demand in Kelowna is rising (South Okanagan Supply Reinforcement Project in 2003, Appendix A, P.27, Table 5.1 and also Peak Load Projections Appendix A, P.11, Table 4.1). While the Vernon Substation supplies the BC Hydro Vernon area and the FortisBC Kelowna area, I would not expect the BC Hydro Vernon area demand is increasing faster than the FortisBC Kelowna area demand. It is not unreasonable to expect that there is still some cushion in the demand limit available through Vernon. The time delay to acquire the upland right-of-way could very well be covered by an increased ability to draw power from Vernon.

I hope that BC Hydro and FortisBC can get together to discuss arrangements for peak loads and emergency supply at Vernon, only until the uplands route can be completed. Of course, a little nudge from the BCUC would also be helpful.

In my experience as a contractor, often the schedule is affected by the delivery dates of major equipment, so that a two-year delay in finalizing the uplands route need not necessarily result in a full two-year delay in the OTR project completion. Transformers, breakers etc. can be ordered so as not to be a factor in completion timing.

I simply do not think that the 100 foot steel poles, with all the foundation support required and access problems of a built-up area, belong on the existing right-of way, if that can possibly be avoided. Securing additional right-of-way for high voltage lines in the Okanagan would be a smart and sensible thing to do before more people move into the area. In the future, acquiring new right-of-way on privately held property, will be far more difficult and expensive, so I think the effort should be made now while there is a chance that it can be done competitively.

I believe it would be wise for the BCUC to ask FortisBC to investigate my option #4 more extensively, before making a commitment to option 1A. Namely:

1. The right-of-way acquisition time
2. Strength of the First Nations Timber Claim, and possible arrangements that might be required
3. Cost and technical requirements to switch 40 and 76 lines to 63kv.
4. Assess the Oliver Substation's ability to continue providing good service for another 8 yrs, until the 138 kv conversion
5. Cost the new Vaseux to Penticton circuits using mainly wood poles
6. Quantify the capacity that is actually available from BC Hydro at Vernon for the extra 2 years it will take to complete the project using Al Wait's option #4 or the 2B option

If we fail to look forward and allow for future growth, then the ratepayers are doomed to pay more.