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British Columbia Utilities Commission
6th Floor, 900 Howe Street
Box 250
Vancouver, B.C.
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By e-mail to: commission.secretary@bcuc.com

Attention: Robert J. Pellatt, Commission Secretary

Dear Sir:

**Re: British Columbia Transmission Corporation (BCTC)
Project No. 3698395 /Order No. G-70-05
Certificate of Public Convenience and Necessity (CPCN)
Application Vancouver Island Transmission
Reinforcement Project (VITR)**

Please find attached for electronic filing, Mr. Karsten Holmsen's responses and comments to Intervenors' arguments regarding the above project.

Respectfully submitted,

Yours sincerely,

Original signed by:

Karsten Holmsen, R.P.F. (ret.)
Intervenor C-1

Copies to: BCTC
BCUC e-mail distribution list

**IN THE MATTER OF THE *UTILITIES COMMISSION ACT*
R.S.B.C. 1996, Chapter 473**

and

**Re: British Columbia Transmission Corporation (BCTC)
Project No. 3698395 /Order No. G-70-05
Certificate of Public Convenience and Necessity (CPCN)
Application Vancouver Island Transmission
Reinforcement Project (VITR)**

**Response by Karsten Holmsen
to Intervenors' Arguments**

1. The Intervenors, British Columbia Hydro and Power Authority (BC Hydro), BC Old Age Pensioners' Organization (BCOAPO), Commercial Electricity Consumers of BC (CEC), and Joint Industry Electricity Steering Committee (JIESC), are all in support of BCTC's request for BCUC's approval of BCTC's Option 1, the overhead transmission line route through the residential area of Tsawwassen.

Their preference and choice of this option are primarily focusing on that this is the lowest cost alternative proposed by BCTC which will have the least impact on the ratepayers. The impacts on residents living along, and near the proposed transmission line, socio-economic, health and environmental aspects are considered by these groups as of little or no consequence in the choice of route for VITR.

2. JIESC states: "*Option 1 is the most cost-effective option and can likely be constructed at or near the projected cost.*"¹

¹ JIESC Final Argument, pg. 7, 11(b)

3. BCOAPO states: *“BCOAPO submits the only reasonable VITR alternative route through South Delta that balances the interest of all parties and properly takes into account the interests of BC Hydro’s ratepayers is Option 1.”*²

4. CEC states: *“Based on the evidence in this hearing, the CEC is of the view that Route Option 1 for the VITR Project is the best option.....”*³

5. BC Hydro states: *“BC Hydro acknowledges that other matters may be relevant where two proposals are equally cost-effective. To the extent an individual or group of individuals is directly affected by two otherwise equivalent projects, that impact may be worth taking into account. In this case, this observation may be relevant when comparing alternative routes proposed by the British Columbia Transmission Corporation (“BCTC”). However, before considering these secondary factors, the Commission should first determine whether it has a cost-effective proposal before it at all.”*⁴

6. Truly, BC Hydro’s statement is very appropriate. It is submitted that BCTC has not put before the Commission the most cost-effective proposals or alternatives which would have the least impact on groups of individuals. There are viable alternatives put before the Commission by Intervenors, and there are other more cost-effective alternatives which should have been put before the Commission by BCTC.

7. CEC states: *“the CEC believes that the evidence in this hearing clearly establishes that BCTC had not examined all the reasonable alternatives for the VITR Project.”*⁵

8. Although some recognize that not all reasonable alternatives have been adequately examined, judging from the statements and opinions expressed by the above mentioned intervenors, VITR should be constructed under the premise that lowest cost to the ratepayers is the over-riding factor, with little or no consideration given to socio-economic and public health issues. BCTC

² BCOAPO Final Argument, pg. 17, para 2

³ CEC Final Argument, pg. 4, para 12

⁴ BHydro Final Argument, pg. 3, para 5

⁵ CEC Final Argument, pg. 9, para 30

and its supporting intervenors are recommending to BCUC that an overhead transmission line, the original Option 1 through Tsawwassen be approved.

9. Option 1, the overhead transmission line through Tsawwassen, was as a result of local opposition, assisted by BC Government support, taken off the table by BCTC on March 31, 2005, because it was *not in the public interest*. (Jane Peverett)⁶ The densely populated Tsawwassen area was deemed an inappropriate location for the new higher voltage overhead lines.

10. Since BCTC, and its supporting intervenors, now consider it acceptable to construct VITR overhead lines through a developed residential neighbourhood, it is submitted that a similar low cost construction method for the Highway 17, BC Hydro ROW, needs to be assessed and presented to the Commission for consideration before approval is given for Option 1 of the VITR Project. Because this overhead line proposal would also affect a residential neighbourhood, that of the Tsawwassen First Nation (TFN), although to a much lesser extent than Option 1 through Tsawwassen, it was previously not considered appropriate, or responsible, to propose this route.

11. Therefore, the Highway 17 alternative, which would offer the most favourable cost/benefit to the BC ratepayers, was never presented to the Commission:

- (a) overhead line construction on the existing BC Hydro, Pole 1, DC 175-foot ROW along Highway 17, past the existing Tsawwassen Beach Terminal (TBT) to a point about 2 km along the south side of the BC Ferries' Causeway;
- (b) a new cable terminal located on the south side of the causeway;
- (c) submarine cables placed southward to the location of BCTC's proposed southern cable route.

⁶ TR 16, pg. 2756, lines 3-19

12. Compared to Option 1, the overhead lines through the residential areas in Tsawwassen, this alternative would have an estimated cost/benefit to the ratepayers of \$ 8-10 million in terms of lower overall construction costs and potential sub-divisional value of the BC Hydro properties at English Bluff:

- (a) existing ROW available;⁷
- (b) no site acquisition required for cable terminal on causeway;
- (c) fewer poles required;
- (d) easier construction access;
- (e) less costly site rehabilitation;
- (f) less traffic interruptions;
- (g) less ROW vegetation maintenance;
- (h) easier access for line maintenance;
- (i) less visual impact along Highway 17 by exchanging Pole 1 lattice steel towers with single steel poles;
- (j) Pole 1 and Pole 2 DC circuits can remain in service to provide bridging and emergency stand-by electricity transmission to Vancouver Island;
- (k) subdivision value of BC Hydro English Bluff lands can be realized;
- (l) Stage 2 construction costs would also be reduced.

Environmental advantages would include the location of submarine cables, in low sloping, foreshore areas, outside the intertidal eelgrass zone.

13. Paraphrasing Mr. Gable⁸, that if all things were equal, BCTC would prefer to place the transmission lines away from residential areas. This is an example where much less residential area would be affected, and at a lesser cost than Option 1, the least cost VITR option proposed by BCTC. In terms of balancing the interest of the stakeholders, this would meet the requirement of: *“Ensuring that the electricity and transmission services are provided in the most cost-effective manner possible consistent with public interest.”*⁹

14. It is submitted that neither Option 1 or Option 2 for the VITR as proposed by BCTC, is in the public interest and convenience, therefore BCTC’s request for approval of either of these options should be denied.

⁷ TR 25, pg. 4782, lines 10-15

⁸ TR 9, pg. 1306, line 20 to pg. 1307, line 4

⁹ JIESC Final Argument, pg. 6, para 7(a)

15. CEC states: “*Option 1 is the least cost option, had fewest issues with right of way, has impact on the fewest number of people, has the least impact on the municipality, has minimal environmental considerations, has minimal First Nations Issues, has minimal archaeological issues, has seismic issues that can be mitigated at reasonable costs, has lower EMFs at the ROW edge than exists now and as good as Option 2 and better than Option 3, has neutral to marginal improvements on property values, has minimal safety issues, and involves greater visual impact, ongoing ROM management and access issues than Options 2 & 3.*”¹⁰

16. CEC has made a number of statements in this paragraph which need to be responded to:

- (a) Option 1 is not necessarily the least cost option, it is the *apparent* least cost option that BCTC has presented to the Commission.
- (b) BC Hydro has ROWs for Pole 1 and Pole 2 through private and TFN lands in South Delta, in addition to the 1L17 and 1L18 through Tsawwassen. These are all ROW easements established in perpetuity allowing BC Hydro similar use and access rights.
- (c) Option 1 impacts the largest number of people; Option 5 the least; Option 4, impacts the second to the least number of people.
- (d) Option 1 has the greatest socio-economic impact on the municipality of all the options.
- (e) Option 1 has no less environmental impact than a Highway 17 option.
- (f) CEC is correct in stating that Option 1 has less First Nation Issues.
- (g) Option 1 may not necessarily have minimal archaeological issues. CEC should refer to BCTC’s Archaeological Assessment¹¹
- (h) While seismic issues within Option 1 can be mitigated at reasonable costs, this would also apply to an overhead option along Highway 17.
- (i) This is an incorrect statement. Since one 138 kV circuit will remain with combined load of the previous two circuits, EMF from this

¹⁰ CEC Final Argument, pg. 39, para 208

¹¹ Exhibit B1-57, pg. 48, Segment 2 – Tsawwassen, and pg. 51, Fig. 10

circuit will increase. EMF will also be greater from the new 230 kV circuit.¹² (also refer to response to JIESC, below).

- (j) This is also an incorrect statement. According to BCTC's own expert, Mr. Dybvig, Option 1 would have a negative effect on property values. *"If the lines become more visible the change would be negative."*¹³
- (k) Safety issues would be of much greater concern with Option 1, than 3 and 4. The operation of helicopters in close proximity to residential housing during construction and installation and removal of poles, as suggested by BCTC, will constitute a serious safety hazard.¹⁴
- (l) CEC is correct in its statement that Option 1 will have greater visual and ongoing ROW management and access issues than Options 2 & 3 (and 4 & 5).

17. JIESC states: *"The JIESC submits that Option 1 and the associated EMF levels will be well below the levels established in all regulatory standards and guidelines for EMF and EMF levels would be the same at the edge of the existing ROW and reduced as much as possible using a narrow profile assembly and alternating the phases on one side of the structure versus the other."*¹⁵

18. It appears JIESC has been misled in this regard by BCTC's statements.¹⁶ It should be understood that alternating the phases as suggested, will have little or no effect on mitigating or reducing the effect on EMF when the circuit on one side carries 600 MW at 230 kV, and the opposite side carries a maximum of 50 MW at 138 kV. Furthermore, the confidence is low in BCTC's calculated EMF levels, since actual field readings are much higher than the calculated ones.¹⁷

19. JIESC and BCOAPO take a dinosaur approach in supporting that since these EMF levels have been there for 50 years, consequently they are

¹² Karsten Holmsen Final Submission, pg..31-34

¹³ Exhibit B1-37, Grover, Elliott & Co.Ltd., pg42, line 1097

¹⁴ TR 15, pg. 2479, line 19 to pg. 2480, line 3

¹⁵ JIESC Final Argument, pg. 8, para 15

¹⁶ BCTC Final Submission, pg.46-47, para 105

¹⁷ TR 28, pg. 53, lines 20-23; Exhibit C1-13, Sect. 2, pg. 2.2, lines 2-6

acceptable and can be continued at that level, or even can be allowed to be increased. Information on potential health risk from exposure to high EMF levels, which was not available even 20-30 years ago, is now available and recommends precautionary avoidance. It should also be observed that BC Hydro/BCTC has imposed and trespassed upon unaware residents by exposing them to excessive EMF levels *outside* the dedicated ROW for the past 50 years, and will continue to do so with either Option 1 or Option 2 approved.

20. BCOAPO expresses concern for a potential of “windfall profits for a limited number of Tsawwassen property owners” if VITR is not constructed, and the present lines are removed, even if the existing ROW remains in place.¹⁸

21. There are several misconceptions and fallacies with these statements:

- (a) If the existing ROW easement remains in place as an encumbrance on the property owners’ titles, increases in property values is not expected to be as significant as if the ROW easements were extinguished.
- (b) The properties in many cases were purchased as much as 20-30 years ago, at which time there was little, if any, price difference between a powerline property and one outside the ROW. The purchasers’ attraction to these properties was the larger lot sizes, not a price differential.
- (c) The purchasers at that time recognized the presence of the transmission lines, but were unaware of the EMF and the potential negative health effects associated with these lines.
- (d) Over the past 5-10 years, as people have become more knowledgeable about EMF from high voltage powerlines, the relative price differentiation between homes on the ROW and homes of similar size and quality away from the ROW has increased. For that reason, more recent purchasers may possibly have received a relatively higher discount on purchases of ROW properties than the long time owners.
- (e) Most of the long term residents are old age pensioners, like the people represented by BCOAPO, or close to becoming such. These

¹⁸ BCOAPO Final Argument, pg. 13, para 4

are people who love their homes and like living in Tsawwassen, and in most cases have no intention of selling out and moving.

- (f) The owners have over the years paid full property taxes on the BC Hydro ROW encumbered portions of their properties. Only in the last couple of years has the reduced market value of ROW properties been recognized by BC Assessment.¹⁹
- (g) It is recognized by the ROW property owners that the removal of the lines and easements would significantly increase the values of their homes. Most do not expect to get something for nothing, and would be prepared to negotiate a buy-back of the ROW from BC Hydro.²⁰

22. BCOAPO expresses its concern about the costs to ratepayers of decommissioning the existing 138 kV lines through Tsawwassen and abandoning the ROW.²¹ As stated by BCTC, cost of decommissioning existing 138 kV facilities does not affect the estimated BCTC VITR project costs, since these costs are drawn from a BC Hydro Asset Retirement Obligation account.²² The removal of the 1L17 and 1L18 circuits through Tsawwassen would enable BC Hydro to release land no longer required at English Bluff. Recoverable value to BC Hydro of these lands for residential subdivision, estimated at \$ 8 million, would far exceed the cost of removing the existing facilities, thereby not burdening the ratepayers with any additional costs.²³

23. JIESC states: “*Option 1 would involve the least disruption to homeowners in Tsawwassen.*”²⁴

24. JIESC does not seem to have recognized that there are other viable alternatives proposed in South Delta which would cause less disruption to, and much less impact on the homeowners in Tsawwassen. In referencing BCTC’s statement²⁵, JIESC should understand that BCTC is only comparing Option 1 with Option 2.

¹⁹ Exhibit C1-13, Sect. 1, pg.1.1

²⁰ TR 24, pg. 4491, line 19 to pg. 4498, line 19; Exhibit C1-13, Sect. 3, pg. 3.7 & 3.8

²¹ BCOAPO Final Argument, pg. 13, para 4

²² Exhibit B1-11, Karsten Holmsen 1.1.1

²³ Exhibit C1-13, Sect. 3, pg. 3.5, line 20

²⁴ JIESC Final Argument, pg. 9, para 19(a)

²⁵ BCTC Final Submission, pg. 40, para 105

25. JIESC states: *Option 2 is unconventional and sets an expensive and unwanted precedent.*²⁶

26. JIESC appears to have missed the fact that 140 km of underground high voltage transmission lines have already been installed through residential areas in BC.²⁷ Examples in the Lower Mainland are the Newell to Terminal Hill 2L39/2L40, and the 2L33, Horne Payne to Cathedral Square, the most recent underground installation through Burnaby and Vancouver.

27. It is submitted that the intervenors referred to in this response are primarily focused on the lowest cost alternative route, Option 1, for the VITR project, with little or no regard to the socio-economic and potential health impacts on the communities affected. Since there are other viable options and route alternatives for supplying Vancouver Island with electrical energy that can be constructed with less impact on the public and the ratepayers, the British Columbia Utilities Commission is respectfully urged to reject British Columbia Transmission Corporation's CPNC application to construct Option 1 or Option 2 through Tsawwassen, and direct BCTC to seriously pursue such other options.

Delta, B.C., April 26, 2006.

Respectfully submitted by:

Original signed by:

Karsten Holmsen, R.P.F.(ret.)
Intervenor C1

²⁶ JIESC Final Argument, pg. 10, para 22(a)

²⁷ TR 9, pg. 1304, lines 18-26