

BRITISH COLUMBIA UTILITIES COMMISSION

**Re British Columbia Transmission Corporation
Project No. 3798395/Order No. G-70-05
Certificate of Public Convenience and Necessity Application
Vancouver Island Transmission Reinforcement Project**

South Delta Secondary School

Parent Advisory Council

REPLY to INTERVENOR'S SUBMISSIONS

April 26, 2006

SDSS PAC Reply to Intervenors' Submissions

1. In the following document, South Delta Secondary School Parent Advisory Council (SDSS PAC) will reply to some of the arguments put forward by the following intervenors:

- 1) BC Hydro
- 2) B.C. Old Age Pensioners' Organization
- 3) Joint Industry Electricity Steering Committee
- 4) Commercial Energy Consumer's of BC

BC Hydro and Power Authority

2. In the opening statement of BC Hydro and Power Authority's Final Arguments, the following statement is made:

“The public convenience and necessity must not to be trifled with [sic]. Therefore, in circumstances where there is only one application before it, the Commission should not be persuaded to indulge in wishful thinking with respect to what might be – it must have hard evidence before it of what will happen if the application is allowed and what will happen if it is not.” (B.C. Hydro and Power Authority Final Argument, p. 4, para. 7)

SDSS absolutely agrees with the first sentence of this statement and in fact strongly believes that the scope and meaning of public convenience and necessity is fundamental to this whole application.

3. Further, SDSS PAC strongly agrees with the statement that the Commission “*must have hard evidence before it of what will happen if the application is allowed*”. **We believe this evidence exists** and would submit that the Commission cannot ignore the potential serious effects that routing the transmission lines as suggested in Option 1 and Option 2 would have on our children’s health and safety. The record shows that everyone agrees, even BCTC’s health expert Dr. Erdreich .” (*Tr. 28, p. 5239*), that there is an association between EMFs at levels our students are exposed to and childhood leukemia. Further the record shows that the proposed placement of the overhead towers as recommended in Option 1, present a real and serious threat to the safety of our children should they be required to vacate the school in the event of a serious earthquake.

4. In light of this evidence put forward it is alarmingly that BCTC did not explore other options with any serious mind to actually pursuing the viability of any one of them. We parents have been impressed with the plethora of viable, cost effective and well researched alternatives that have surfaced during these proceedings. These alternatives include not only routing options away from heavy residential areas (Options 4, and 5), but entire alternative projects (JDF and VIC- like), as well as less invasive and “cleaner” alternative technologies (HVDC). These alternatives have been brought forward by large corporations (Sea Breeze), Municipalities (Delta), community groups (IRAHVOL and TRAHVOL) as well as articulate and informed individuals (Mr. Karsten Holmsen).

Unfortunately, BCTC has bulldozed ahead with the VITR project they initially proposed, with what appears to be absolutely no consideration of all of these well thought out and in some instances, visionary alternatives.

5. We recognize that the Commission is faced with a dilemma. Evidence clearly shows that BCTC's proposed Option 2 seems to be universally accepted as a bad idea, and there is compelling evidence that Option 1 puts at risk the health and safety of thousands of present and future children in Tsawwassen. Both of these options are clearly NOT in the public necessity and convenience. Unfortunately, because of BCTC's lack of due diligence, there is also a lack of hard evidence to support many of the other options. **SDSS PAC strongly encourages this Commission to send BCTC back to do their homework,** and come up with a route which DOES NOT endanger the lives of innocent people.

JOINT INDUSTRY ELECTRICITY STEERING COMMITTEE

6. The JIESC's recommendation in choosing a route option through Tsawwassen is justified as follows:

*For reasons given previously, the JIESC submits that this Commission should accept that **Option 1 does not increase EMF levels at the edge of the ROW** and has **no** negative effect on property values or **safety issues** in its consideration of the various route options presented by BCTC. (JIESC's Final Submission, p, 10, para. 20)*

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SDSS PAC would like to argue with two of the assumptions made in their position.

7. First, JIESC fails to acknowledge here that the EMF levels **within** the ROW will be significantly increased (although they admit this earlier in their argument: "*While EMF levels immediately under the new overhead line would be greater than existing levels*" – JIESC's Final Submission, p. 9, para. 19d) and that the areas affected are directly outside the back door of residents and as well as directly on the playing area of Dennison Park, where several hundred South Delta students have their gym class and several hundred community children play organized baseball, football and soccer. (Tr. 9, p.1241)

8. Further, in Ms. Kudzin's cross exam of BCTC's first panel the following information was established:

MS. KUDZIN: Q: I understand. Are you aware that the Delta Rams football team also practices there and plays as their home field?

MR. BARRETT: A: Yes I am.

MS. KUDZIN: Q: Are you aware that the east goalpost, the five-yard line, the east end zone are all directly under those existing lines, under the proposed lines and directly on top of the proposed underground route?

I also would then like to tell you that there's a baseball diamond where the pitcher's mound is directly under the mid-point between the existing lines, it's under the proposed line, and directly over the proposed underground route. So, are you also aware that hundreds of our children play baseball on that diamond through the year? (Tr. 9, p.1241)

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9. At Dennison Park alone, there are potentially over 1000 children utilizing the hot zone which would be directly under the proposed overhead route (Option 1) and directly on top of the proposed underground route (Option2).

10. Second, JIEESC, in the above quoted position statement, states that the Commission should accept that "*Option 1 has no safety issues in their consideration of the various route options*". SDSS vehemently disagrees with this statement as the evidence in these proceedings has been clear and has not been refuted, **in establishing that the position and proximity of the proposed overhead towers and cables DO constitute a very real threat to the students of our school should there be a significant seismic event in the next 60 years.** (C41-7, Tr. 20, pp. 3578-3580, Tr. 20, p. 3581)

11. Further, SDSS PAC does not agree with JIESC's position as outlined below:

In all other respects, the JIESC agrees with BCTC in that the evidence in this proceeding reconfirms the Commission's earlier rulings and directions on EMF and there is no new evidence supporting suggestions that these decisions should be revisited. (JIESC's Final Submission p.8, para. 17)

This statement, in our opinion, is glib, given that the evidence brought forward in this proceeding clearly showed that there is a recognized link between childhood leukemia and EMF, and that the target group affected are those very students and children who are spending their time underneath or on top of the proposed lines. The evidence also shows that even BCTC's expert, Dr. Erdreich admits

that there is “***an association between exposure – that is statistically significant -- between exposure to EMF at low frequencies and childhood leukemia.***” (Tr. 28, p. 5239) SDSS PAC is also extremely concerned that with all of BCTC’s evidence it still cannot unequivocally assure parents that they have no reason to be concerned about the possible effects of EMF on their children now and in the future.

12. Not only has BCTC or their experts failed to give any comfort to the parents of students at SDSS, we have now just, today become aware, through a parent, that in the UK, **regulators are acknowledging and responding to the childhood leukemia/EMF link as established in the Draper Report (C41-3).** Of most interest are the following excerpts from an article titled “Experts Rule out Houses by Pylons” on the front page of the UK Daily Telegraph, dated April 26, 2006:

"The link between childhood leukaemia and power lines is accepted pretty much worldwide. There is almost certainly going to be some precautionary guidance coming out of the report in June. There is a lot of agreement that we need to offer more precautionary advice on the siting of new house - 90 per cent of the advisory group agree with this line.

Representatives of the National Grid and Ofgen, the industry regulator, are understood to favour a recommendation that new homes should not be built within a specific distance - likely to be 230ft - of power lines” (Appendix A) This certainly is new evidence and we believe it is incumbent upon BCTC to be following these developments closely.

13. It is clear to us parents that change is imminent. What is equally disturbing is that BCTC continues to propose building a high voltage power transmission line in extremely close proximity to a school, a pre-school, a day care and over (or under,) the school's playing field, **places with high concentration of children, the very focus group that is affected by this dreaded disease.**

14. SDSS PAC reads with interest that:

The Joint Industry Electricity Steering Committee ("JIESC") is a group of approximately 30 industrial companies operating at 42 locations in British Columbia, including some locations on Vancouver Island. Generally, these operations involve the intensive use of electricity and it is important to the economics of the members' operations that they continue to receive a reliable supply of low-cost electricity at cost-based rates. . (JIESC's Final Submission p4, para 1)

15. Clearly, the JIESC holds the reliability and cost of electricity as it's prime goal in this proceeding. This is at odds with our parent group who would believe that although reliability and cost are important issues, they cannot take precedence over the health and safety of children.

16. By supporting and advocating Option 1, JIESC is clearly dismissing the very real concerns we have for our children. As parents, we want to know which of the 30 industrial companies that comprise the JIESC are in fact aware that JIESC has taken this position which clearly places little value on the health and

safety of children. In fact, the PAC finds it difficult to believe that this position would be supported by senior management, board of directors and employees of the companies JIESC represents.

BC Old Age Pensioners Organization

17. BCOAP places itself squarely in the corner with *“BC Hydro’s major customer classes – the Joint Industry Electricity Steering Committee (JIESC) with respect to industrial customers, the Commercial Energy Consumers of BC”*, as their equivalent with respect to residential customers (*BCOAPO Final Argument, p.2*) These intervenors have *“all expressed an interest in ensuring a safe, reliable service to Vancouver Island in a timely manner and a most cost efficient manner.”* (*BCOAPO Final Argument, p.2*) To this end, BCOAPO claims to support the Option 1 routing through Tsawwassen that would see a reversion back to overhead lines.

18. BCOAPO identifies SDSS PAC with TRAHVOL and other *“opponents of BCTC’s VITR”* project identifying their position as:

“The fundamental approach of these intervenors was that any alternative to serve Vancouver Island that did not involve the use of the existing right of way through Tsawwassen was preferable, regardless of costs to ratepayers – a classic case of NIMBY.”

And further

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“that, with the exception of the City of Delta, the positions advanced by each of the opponents, if accepted by the Commission, could result in direct financial benefit to them. : (BCOAPO Final Argument, p.3)

19. SDSS PAC disagrees with this basic supposition that our motives for not wanting the use of the existing right of way are based on the “**Not In My Back Yard**” mindset, therefore lacking in substantive value. The BCOAPO seems to have dismissed the very concerns of the parents and students of SDSS, **who will not benefit financially in any way.**

20. SDSS has always maintained that it's position is that we vehemently object to BCTC's recommended route Options 1 and 2 on the grounds that they endanger the safety and health of the present 1300 and future thousands of students attending our only public Junior and Senior Secondary High School. SDSS PAC submits that BCOAPO's efforts to trivialize these very real concerns are insulting.

21. While we appreciate that many seniors live on fixed incomes and are concerned about cost increases, the actual impact of choosing some of the alternative routes suggested will have a real cost impact of very, very little as evidenced by this exchange between Mr. Underhill and Mr. Gabel, early in the proceedings:

***MR. GABEL:** A: In terms of the impact on any individual customer, it would be small.*

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MR. UNDERHILL: Q: Right. And so if I understand it correctly, then, and I appreciate this is rough, it would be for the average ratepayer in British Columbia, who's paying 80 bucks a month, let's say, we're talking about an initial -- an additional dollar a year, essentially. Under a buck, between Option 1 and Option 2. Is that fair?

MR. GABEL: A: If it was an 80 dollar bill, yes, it would be 80 cents. Right. (Tr. 11, pp. 18-19)

22. The actual impact of the cost differential between Options 2, 3, 4, and even 5 when compared to Option 1 are in fact quite small. BCOAPO's vigorous arguments for an Option which at best will only save the consumer less than a loonie a year, seems questionable at best given the very significant health and safety risks that accompany their option choice.

23. Mrs. Shari Boyce, another intervenor in this hearing states in her opening statement:

"But I do have one concern, and it happened this morning. The gentleman who represents the B.C. Old Age Pensioners' Organization, I don't know how many he represents but I am an old age pensioner and I certainly don't share his views, nor do any other old age pensioners that I happen to know, whether they live on the Hydro right of way or off of the right of way. A lot of them that I know certainly don't represent these views, too, so I just wonder how many pensioners he actually does represent". (Tr.6, p. 952)

As parents, we too question how many senior citizens, BCOAPO has actually polled about this position. Moreover, we find it hard to believe that the very Senior citizens that BCOAPO is supposed to represent **would not want to**

ensure the safety and health of their grandchildren for less than a loonie a year.

Commercial Energy Consumer's of BC

24. In the Commercial Energy Consumer's of BC's final argument the following statement is made:

The CEC believes that every life is precious and that all reasonable measures should be taken to reduce risks and avoid loss of life. (CEC's Final Submission, p.34 para. 181)

25. While SDSS PAC applauds the sentiment demonstrated in this statement, the ensuing arguments are definitely **NOT** in the same spirit. CEC proceeds to not only place a dollar figure on the life of a child, but further extrapolates how, given that the risk of childhood leukemia is not common and to their estimations, the number of children at risk is small, the relatively small dollar value needed to mitigate this risk does not warrant spending more on this project.

26. First we would like to address the issue of how much weight to put on risks that seem to be very small. In the Executive Summary of the California EMF Risk Evaluation we can find the following information:

However, if EMF's do contribute to the cause of these conditions, even the low fractions of attributable cases and the size of accumulated lifetime risk of highly-exposed individuals could be of concern to regulators. Indeed, when deemed a real cause, estimated lifetime risks smaller than these (1/100,000) have triggered

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regulatory evaluation and, sometimes actual regulation of chemical agents such as airborne benzene. (C41-2).

Of relevance to this hearing is that airborne benzene, like EMF exposure over 4mG, is also linked to leukemia. Clearly, the size of the risk should not be the dictating factor as to whether or not regulation should be triggered.

27. CEC then proceeds to attempt to place a dollar value on the risks associated with childhood leukemia. The following evidence presented in the National Radiological Protection Board report on Advice on Limiting Exposure to Electromagnetic Fields is presented:

There is some epidemiological evidence that time-weighted average exposure to power frequency magnetic fields above 0.4 μ T is associated with a small increase in the absolute risk of leukaemia in children, from about 1 in 20 000 to 1 in 10 000 per year. On a relative scale, this corresponds to a doubling of the risk. Such exposures are seldom encountered by the general public in the UK. and the raised risk - if it were real - would correspond roughly to an additional two cases of childhood leukaemia per year in the UK. compared with an annual total of around 500 cases. (Exhibit B1-92, Page 14, Paragraph 50)

28. CEC then uses these number to calculate what they believe is the "cost" of the risk of leukemia in this project:

In this case the risk, if it were true and causative, appears to go from about .005% [sic] to .01%,[sic] a difference of .005% [sic] increase. This would mean that if there Were 100 children living along the transmission line in question, the proposed VITR Project, exposed above threshold then outcome is .005 [sic] of a child incurring risk. At \$5,000,000 per person this would work out to require

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\$25,000 to avoid risk of exposure to all 100 children (CEC's Final Submission, p. 35, para 183)

29. **As abhorrent as SDSS PAC finds the concept of putting a value on the life of a child**, we believe that if this is the benchmark used to evaluate the cost of risk, then it should at least be done in a manner that is comprehensive enough to portray the risk accurately. Notwithstanding, the mathematical errors in the above quote, CEC's calculation is in serious error as it reflects only a hypothetical number of children living under the right-of-way in a static time period – 1 year. If the logic of valuating life is to be used, a more thorough calculation based on the actual number of children impacted over the life of the project (60 years) needs to be made.

30. SDSS PAC submits that the following calculation is a corrected and more accurate calculation of the actual risk:

- a) Even though we find the entire concept of placing a dollar value on a child's life obscene, to pursue this exercise we will accept CEC's number of \$5,000,000. although there is no indication of where this number actually comes from!
- b) We will accept CEC's number of children living under the ROW as 100 even though we believe this number to be low. However, this number of children includes only the number presently living there. We can assume that as children grow older, other new families with young children will arrive to replace them.
- c) CEC fails to take into account the 1300 students of SDSS who are necessarily exposed to levels greater than 4mG daily for 5 years of their

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- d) lives. (Although close to 15,600 children will actually cycle through the school during the 60 year life of the project, for this arguments sake and because we will be factoring in the time element below, we will assume the generic number 1300 who attend at any one given time.)
- e) CEC also fails to take into account the ~40 children who attend Beary Good Friends Pre-school and Jill Bickley's Day Care, which are also located under the ROW and who are necessarily exposed to levels of EMF over 4mG daily for a two to three year period of their young lives.

31. This brings the total number of exposed children to **1440 not 100**. Using CEC's calculations, the risk, based on these 1440 children, appears to go from about .072% to .144%, a difference of an .072% increase. Based on CEC's \$5,000,000 per child's life, we are now looking at \$360,000 (rather than \$25,000 as CEC calculates) to cover the risk of all of these children **PER YEAR**.

32. CEC's fatal error is their failure to take into account that this risk is calculated per year. The expected life of this project is 60 years. Now the calculated cost to cover the accumulated risk of all of these children for the life of the project is 60 x \$360,000. or **~\$21,600,000.** *

33. SDSS PAC respectfully but forcefully submits that this amount – the real amount necessary to cover for the risk of leukemia, an outcome of our children's EMF exposure in both the proposed overhead (Option 1) and underground route (Option 2), **is significantly greater than the additional cost of either Options 3 or Option 4.**

*(This is not quite accurate as in survival analysis, you need to subtract .072 of a person from each year to account for those affected. As this number is so small and accounts for 4.32 people over the life of the project thus only affecting the final number by ~\$30,000, for simplicity we have not factored it in.)

34. In addition, SDSS PAC disagrees with CEC's position on the safety of our children:

The CEC believes that BCTC has adequately addressed the safety issues related to the VITR Project and that there is nothing that the BCUC need do in regard to directing BCTC in this regard. (CEC's Final Submission, p. 37, para 199)

SDSS again protests vigorously the notion that BCUC need do nothing with regard to directing BCTC to address safety issues. As stated in response to a similar statement of BCOAPO, the evidence is clear in that **the proposed overhead towers and cables of Option 1 DO constitute a very real threat to the 1300 students of our school should there be a significant seismic event in the next 60 years.**

35. As CEC and other like minded opponents seem to be concerned with the dollar figures of such risks, and have established a "head count" to justify these costs, we would like to apply CEC's logic in this area and establish **the REAL costs of the seismic risks to our children** inherent in the proposed route Option 1. We submit that, should there be a significant seismic event in the next 60 years, there would be the potential for 240 – 300 students being harmed, perhaps mortally, by having to exit through an "admitted" unsafe exit route. (*Tr. 20, pp. 3578-3580, Tr. 20, p. 3581*). Should even 3 of these student die, (a hugely optimistic outcome given the number of students escaping through dangerous exits with potential live wires outside the doors), by CEC's valuation,

the resulting cost of **\$15,000,000.** (\$5000,000/life) would make option 3 or 4 look favourable. A few more deaths and options 5, 6 and 7 would even look good.

36. The cumulative additional costs of \$21,600,000. to cover the risk of children getting leukemia over the life of the project, added to the potential conservative \$15,000,000+ price tag to cover resulting injury from a potential seismic event, **totaling over \$37 Million dollars now puts all VITR options, except for Option 6, at a lower cost than option 1.**

37. With the addition of the \$21,600,000 amount covering the EMF/childhood leukemia risk, **Option 2 is now also more expensive than all other options except for Option 6.**

38. This type of valuation of human life is disturbing to our core. What kind of society attempts to put this price tag on the lives of innocent children and the ensuing grief, stress and irreparable damage to them and their loved ones following the devastating diagnosis of a fatal disease? .What kind of society is prepared to expose children to these risks when cost effective alternatives exist?

39. The evidence is clear that exposing our children to the high levels of EMF from either overhead or underground lines constitutes a risk. Further, the safety risks inherent in the position of the proposed overhead towers and lines are also REAL and significant. Over 60 years, well over 15,000 students will be exposed

to these risks. **It is shocking to say the least, that any responsible corporation, municipality or educational institution in British Columbia, Canada is suggesting the Commission succumb to this offensive way of thinking in the year 2006.**

40. The PAC has difficulty believing that CEC members support the stance that has been presented in their closing argument. Given that the Corporation of Delta is a member of CEC and an active intervenor in these proceedings who clearly opposes Option 1 and Option 2, we question whether CEC's members including the University of Victoria, who has a vesting interest in protecting students, are even aware of their position on this issue and believe that on these grounds, the Commission should not attach any weight to it.

41. CEC concludes with the statement:

“The CEC believes that the BCUC must prefer Option 1 unless it can find appropriate value gains for ratepayers to be paying which will exceed the additional cost of the other options”. (CEC's Final Submission, p. 40, Para.211

SDSS PAC respectfully submits that “the appropriate value gains” are the ensured safety and health of our future, our children.

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Respectfully submitted on April 26, 2006 by

Janice Ristow
Chair, SDSS PAC

Bernadette Violini Kudzin
Treasurer, SDSS PAC

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Appendix A

-----Original Message-----

From: Deborah Stevens
Sent: Tuesday, April 25, 2006 11:19 PM
To: Bernadette Kudzin
Subject: more pylons

I am not sure if you will STILL be interested in this, it is on the front page of the Daily Telegraph today in the UK.

Experts rule out houses near pylons
By Nic Fleming, Medical Correspondent
(Filed: 26/04/2006)

Homes should not be built near overhead power lines because of possible links with childhood leukaemia, Government-appointed experts are expected to conclude.

They are likely to recommend a change in planning guidelines so that new homes cannot be built either within 230ft of power lines or in a location that exposes inhabitants to electromagnetic fields (EMFs) of a certain strength.

A report by Dr Gerald Draper, of the Oxford childhood cancer research group, published two years ago, suggested that children under 15 living near high-voltage power cables may have double the risk of getting leukaemia. The seven-year study was commissioned by the Department of Health.

However, while the research found a statistical association, it did not establish a causal link and other scientists were sceptical of the findings.

Two reports containing recommendations on the proximity of power lines to both new and existing houses, as well as advice on electrical wiring in the home, will now be presented in June.

They are being drawn up by the Stakeholder Advisory Group on Extremely Low Frequency Electromagnetic Fields (Sage), an advisory group set up by ministers in October 2004, following the publication of Dr Draper's research.

The group includes representatives of the Department of Health, the National Grid, the Health Protection Agency, the Office of the Deputy Prime Minister and the Council of Mortgage Lenders.

Academics from Bristol University and Nottingham Trent are also members, as well as a number of campaigners from groups committed to highlighting what they believe are the potential dangers of EMFs.

Alasdair Philips, of the consumer group Powerwatch and a member of Sage, said that a large majority of those drawing up the reports was in favour of recommending precautionary advice.

"The link between childhood leukaemia and power lines is accepted pretty much worldwide.

"There is almost certainly going to be some precautionary guidance coming out of the report in June.

"There is a lot of agreement that we need to offer more precautionary advice on the siting of new house - 90 per cent of the advisory group agree with this line.

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"I think it is highly likely we will see a recommendation that we change the way we wire our houses. There is no real opposition to that."

Representatives of the National Grid and Ofgen, the industry regulator, are understood to favour a recommendation that new homes should not be built within a specific distance - likely to be 230ft - of power lines. Others in the group, including Mr Philips, are pushing for the ban to be based on homes being exposed to a certain level of strength of EMFs. While initial advice will be to do with restrictions on the building of new homes, Sage members will include in their supporting material an analysis of the costs of knocking down and replacing homes thought to be exposed to potential harmful field strengths.

Starting this summer two more sub groups of Sage, looking at electricity distribution and electric transport, will begin drawing up reports.

A spokesman for the Department of Health said: "There is no new evidence to suggest a link between power lines and childhood cancers. "However, we realise there is more research to be done. We have been closely following developments in this area for many years. "Ministers will consider the group's recommendations."

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Debbie Stevens

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