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Our File No.: 05497-0156

July 3, 2008

Commission Secretary
BC Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, BC V6Z 2N3

Attention: Ms. Erica M. Hamilton

Dear Ms. Hamilton:

Re: *FortisBC Inc. An Application for a CPCN for the Okanagan Transmission Reinforcement (OTR) Project No. 3698488*

Please find enclosed twenty copies of the Final Argument of FortisBC in regard to the above captioned Application.

Yours truly,

FARRIS, VAUGHAN, WILLS & MURPHY LLP

Per:



George K. Macintosh, Q.C.

c.c.: Registered Intervenors

**FINAL ARGUMENT OF FORTISBC INC. IN SUPPORT OF THE OKANAGAN
TRANSMISSION REINFORCEMENT PROJECT**

A. OVERVIEW OF THE OTR PROJECT

1. On December 14, 2007, FortisBC Inc. (“FortisBC” or the “Company”) applied, pursuant to sections 45 and 46 of the *Utilities Commission Act*, for a Certificate of Public Convenience and Necessity (“CPCN”) for the Okanagan Transmission Reinforcement Project, normally referred to as the OTR Project.
2. The opening statement by Doyle Sam, the Vice President of Engineering and Operations at FortisBC, found at Transcript Volume 2, pages 100-107, is a clear expression of the Company’s overview for this Application.
3. The *need* for the Project does not appear to be in dispute. The Okanagan is rapidly growing and cannot be reliably served unless the OTR Project proceeds. In recent years, urban centers including Kelowna and Penticton have experienced total blackouts. At present, the FortisBC Okanagan transmission system does not meet even a N – 0, let alone N – 1, standard of reliability for service and therefore it does not meet the standards of the North American Electric Reliability Corporation (“NERC”). In the result, the present system does not satisfy the BC Energy Plan’s requirement for consistency with North American transmission reliability standards (BC Energy Plan Appendix A, Summary of Policy Actions, paragraph 14).
4. The focus of the OTR hearing was the route for the largest component of the Project, which is the upgrade of the 28 kilometre 76 Line and the addition of 75 Line, parallel to 76 Line, between Vaseux Lake and the RG Anderson Terminal station at Penticton. The 76 Line will increase from 161 to 230 kV and 75 Line will be installed at 230 kV.
5. FortisBC asks that the existing (“brownfield”) right-of-way be utilized instead of creating a new upland route on undeveloped land. The filed evidence of FortisBC, supported by testimony at the hearing, provides what FortisBC submits to be compelling evidence for maintaining the use of the existing corridor for environmental, economic, timing and other significant reasons, all of which will be examined in detail below in this Argument.
6. The OTR Project Satellite Map Overview is seen at Figure 4-0 in the Application, Exhibit B-1-1, at Tab 4 page 3. Section 4 in the Application

(at Tab 4) contains the Project Description. The elements of the Project, and the related costs, are set out in Section 4 at pages 4-9.

7. Transmission line alternative cross sections are seen in the foldout drawing in Exhibit B-3, BCUC IR1, Attachment 42.1b at page 178. Cross section C depicts the recommended Alternative 1A on the existing right-of-way for the two 230 kV lines.

B. THE NEED FOR THE OTR PROJECT AND THE TIMING FOR THE PROJECT

8. Because there appears to be common ground that the Project is required, FortisBC will present only a brief submission in this portion of the Final Argument. Project Justification is addressed in Section 3 of the Application at Tab 3 of Exhibit B-1-1. Counsel for SOFAR in cross-examining the FortisBC Panel sought to imply that if the timing of this Application had been earlier, the upland route would have been more viable. This suggestion was responded to by Paul Chernikhowsky, the Chief Planning Engineer for FortisBC, at Transcript Volume 2, page 275 line 26 – page 279 line 24. Mr. Chernikhowsky gave a detailed explanation, clearly demonstrating the appropriateness of the timing for this Application coupled with his conclusion, at page 279 lines 18-24, that reusing the existing, brownfield, route remains the superior option to the upland route no matter what the timing of this Application.

C. ROUTE SELECTION FOR 75 LINE AND 76 LINE

9. The largest component of the OTR Project is the upgrade of 76 Line and construction of the new 75 Line between Vaseux Lake and Penticton (approximately \$55.5 million, Application, Exhibit B-1-1, Tab 4 page 9). FortisBC submits that the evidence *overwhelmingly* supports maintaining the use of the brownfield corridor over the relocation and construction of the lines on an upland (“greenfield”) route:
 - Where there would be resulting harm to natural habitat, with the resulting dislocation and disturbance of wildlife;
 - When the anticipated EMF levels from the new lines will be *lower* than they are from 76 Line at present, and when they will be *far below* safe EMF levels;
 - When the visual impact of the new lines, using the single pole configuration will, FortisBC submits, be either similar to or

better than what is there now (cross section A in Exhibit B-3, BCUC IR1 page 178), as clearly demonstrated by the *photographic evidence* seen in (a) Exhibits B-22 and B-23, (b) the Application (Exhibit B-1-1) at page 13, Figure 4-2-1-B, compared with page 14, Figure 4-2-1-C, and (c) the Application, page 17, Figure 4-2-1-F, compared with Figure 4-2-1-G;

- When the upland route would have a capital cost of approximately \$20 million more, based on a common in-service date and construction methodology;
- When the delays and uncertainties associated with the upland route would prevent FortisBC from having these lines in service when they are needed to serve FortisBC customers in the Okanagan;
- When a fair assessment of competing interests as between the two routes speaks strongly in favour of maintaining the existing route; and
- When the Commission has in the past expressed the general preference for utilizing existing corridors, and not creating new ones, where that can reasonably be achieved.

D. ROUTE SELECTION – EMF

10. EMF levels from the present 76 Line are exceedingly low as compared with safe levels as established by the most informed and sophisticated international bodies, including the independent scientists who evaluated EMF research for the International Commission on Nonionizing Radiation Protection (“ICNIRP”) and the World Health Organization (“WHO”). Furthermore, EMF levels on the new lines will be even lower than they are at present.
11. It would appear from comments in the hearing and also at the Community Input Session on Monday evening, June 23, that some people living in the vicinity of the existing right-of-way were apprehensive that the OTR Project would result in higher EMF levels. For example, during the appearances at the beginning of the hearing, at Transcript Volume 2, page 76, Ms. Daniella Fehr wanted to speak “about ... how the neighbours feel about high voltage power lines going through our neighbourhoods ..., so [I want to talk about] the health aspects and certain other environmental aspects.” Similarly, at Transcript Volume 2, page 77, Mr. Paul Kreeft

appeared on his own behalf, as a resident of the Heritage Hills, to speak about “the health issue” among other topics. The evidence in the oral hearing fully corroborated the filed evidence of FortisBC regarding the safety of the new lines.

12. Dr. William Bailey provided informed and balanced testimony on behalf of FortisBC regarding EMF. His expertise is beyond question having regard to his resume and his filed report, prepared for the British Columbia Transmission Corporation and dated October 30, 2007, filed in this Application as Exhibit B-12.
13. When considering the decrease in EMF levels from using cross section C (i.e. Alternative 1A, the single pole) over cross section A (the *status quo*) one sees that the single pole supporting two 230 kV circuits configured in relatively close proximity with reversed phasing serves to diminish the EMF levels as compared with those from the existing line. The increased voltage, which requires less current to achieve the same power, also results in a diminishment of the magnetic field.
14. Exhibit B-11, BCUC IR3, Q103.3 shows that, with the existing line, the magnetic field, average case, is only 5 and 20 milliGauss on the east and west edges of the right-of-way, respectively, and these low numbers are expected to drop to a single milliGauss on the edges of the right-of-way if the 1A option, single pole structure is employed. When these numbers are compared to the World Health Organization’s reference level of 833 milliGauss as the level below which there are no projected adverse health effects, it is apparent that in fact, EMF is not an issue in this case.
15. Mr. Hans Karow cross examined Dr. Bailey in the second day of the hearing, on June 24. Mr. Karow asked Dr. Bailey whether the ICNIRP reference levels (i.e. 833 milliGauss) have been or are expected to be revised. Dr. Bailey observed that they have not been and that he has no expectation of such revision (Transcript Volume 3, page 412, line 22 – page 413 line 10). Commissioner Nicholls explored the same issue (i.e. updating the WHO 2007 Report) with Dr. Bailey at Transcript Volume 3, page 432 line 12 – page 435 line 13 and he confirmed his view that there is no basis for any expectation of lowering the 833 milliGauss level based on any information which has arisen since the work of the WHO 2007 Report was undertaken.
16. Even Dr. Blank, who was called to testify by Mr. Harlinton, was candid in responding to the Commission with respect to EMF. When Commissioner Nicholls asked him what should be done in this specific case (Transcript

Volume 3, page 475 lines 10-11) he answered in part as follows at Transcript Volume 3, page 476 line 20 – page 477 line 6:

Regarding this particular case, I don't know – not having seen all the information, I would not venture an opinion, and even if I ventured an opinion, it would be just one opinion and not that of an expert on line construction. ... But as a biologist, I would just say that if you can get that low value [i.e. in the range of 1 milliGauss at the edge of the right-of-way] then that's an improvement.

17. Nor did Dr. Blank, whose opinions are credited to his evaluation of his own *in vitro* studies and *in vitro* studies of other scientists [Summary of Chapter 7 in Exhibit C3-10, Section II.D], suggest that the proposed project would not comport with the exposure levels recommended in the Internet-published “Bioinitiative Report”, to which Dr. Blank himself contributed. It should be noted also that the evaluation and conclusions contained in the Bioinitiative Report are not consistent with the recommendations of other well-respected scientific and health agencies and the Report is, to say the least, controversial, as to its provenance and the weight that it should be accorded.
18. Interestingly, as Dr. Bailey testified from a personal perspective, he had no concerns when he and his wife purchased their house “a baseball’s throw away” from a high voltage transmission corridor with two 345 kV transmission lines on it (Transcript Volume 3, page 421 lines 1-11).

E. ROUTE SELECTION – ASSESSMENT OF COMPETING INTERESTS

19. FortisBC submits that a fair and balanced assessment of competing positions speaks strongly in favour of utilizing the existing right-of-way.
20. SOFAR is endeavouring to utilize the hearing process to eliminate a route on a right-of-way which was in place and being utilized long before most, if not all, SOFAR members purchased their properties. Even if, therefore, the presence of a transmission line may tend to lower property value, every SOFAR member who purchased his or her property after the right-of-way was established, paid less because of the pre-existing transmission line already being in operation. When the fact that the existing right-of-way was in operation before most, if not all, SOFAR members decided to purchase their homes, is added to the fact that EMF levels will be reduced from very low to even lower levels, the strength of the SOFAR position

becomes questionable. When interests different from SOFAR's are also taken into account, FortisBC respectfully submits that the SOFAR position cannot be sustained. Appendix A to the Application, in Exhibit B-1-2, contains the position statements of numerous other parties.

21. The provincial Integrated Land Management Bureau ("ILMB") wrote, at page 6 of Appendix A, stating its preference that the existing right-of-way be used for the power line upgrade since that would have the least impact on the land base. The ILMB encouraged FortisBC to pursue all options to use the existing right-of-way prior to applying for the upland route.
22. The Penticton Indian Band advised FortisBC (page 18 of Appendix A) that it wants FortisBC to use the existing right-of-way, and informed FortisBC of its outstanding timber claim in the upland area. It is perhaps noteworthy that in the opening statement by Ed Grifone of CTQ, on behalf of Wiltse Holdings Ltd. (Exhibit C1-14), land supply was defined as "FINITE" due in part to the position of First Nations. In accordance with recent case law in the Supreme Court of Canada, the provincial government would be required to accommodate First Nations' claims and it is obvious that First Nations would point to the existence of a viable, existing right-of-way to be preferred over a greenfield right-of-way which is the subject of a First Nations' timber claim.
23. Similarly, the Okanagan Nation Alliance has advised FortisBC (Appendix A page 26) that it supports the OTR Project, *subject to the upgrades being performed within the existing right-of-way*. If an alternative route is proposed, the Okanagan Nation Alliance has advised that it will be involved in all aspects of the review including the decision making process for acceptance, rejection or modification of the alternate route proposal.
24. These First Nations' positions, in opposition to the upland route, lend credence to the concern that the upland route would bring delays of *at least* two years, and lend support for the larger concern that approval of an upland route might result in indefinite postponement of the Project. If it were not for the existence of a viable existing right-of-way, these positions against using the upland route might in the end carry less weight. However, as things stand, it is obvious that in any bargaining over whether the upland route was to be used, interests opposing an upland route would continually emphasise the existence of the viable right-of-way which is in use today.
25. In the Application, Exhibit B-1-1, at page 31, the photograph in Figure 4-3-1A shows the existing brownfield route and the upland greenfield route. Heritage Hills, where many SOFAR members reside, and Shuttleworth

Creek are shown. Not shown is the Golden Hills area, above Heritage Hills, which opposes the upland route and supports the existing right-of-way.

26. The evidence is uncontradicted that the Okanagan is expected to experience steady population growth over the long term. That is certainly the evidence of Mr. Grifone of CTQ (see Transcript Volume 3, page 330 lines 14 – 26) who testified on behalf of Wiltse Holdings. Mr. Grifone was asked this question (Transcript Volume 3, page 331 line 23 – page 332 line 1):

Q: And isn't it the problem that wherever a line is built, with a 50 year life, people are going to be living there and no one ever wants it in their back yard, right?

A: Correct.

27. The reality is that, wherever a transmission line is built, it will prejudice some people. Wherever a line is built, people will eventually come to be living near it, as demonstrated by the Heritage Hills development itself, all of which was built around the pre-existing line. Given these competing interests, which will always be present when a transmission corridor for long term usage is in issue, the prudent approach is to use the already-existing corridor, particularly when EMF levels on that corridor will be extremely safe. The self-interest of SOFAR is understandable, but, on balance, should not be accepted. That is particularly so given that most, if not all, SOFAR members saw the line in use on the existing corridor before they considered moving to the area and building there.
28. One other party who wrote with respect to line location is the National Research Council of Canada, which prefers that the route be as low as possible (Transcript Volume 2, page 262 line 5 – page 263 line 26).

F. ROUTE SELECTION – ENVIRONMENTAL CONSIDERATIONS

29. The environmental and social impact assessment of the project is addressed in Appendix I of the Application in Exhibit B-1-3. This report was presented by Steve Morck, a biologist who consulted for BC Hydro on this project. There were very few questions asked of Mr. Morck in the course of the hearing which serves to show that the environmental evidence is not in dispute. During the course of the environmental assessment, the upland route was investigated by a team of professionals and subsequently modified to address environmental concerns expressed by the study team as

well as members of the public during the open houses in 2007. This modified route, however, still has excellent examples of natural high quality habitat which remain relatively undisturbed by human activity and were recognized by the multi-stakeholder group preparing the Okanagan Shuswap Land Resource Management Plan as important enough to qualify as the proposed Derenzy Wildlife Management Area. This type of habitat has become scarce in the South Okanagan due to development encroachment and other pressure from people in the valley.

30. In the Application, Exhibit B-1-1 at Tab 4 page 44 is found Table 4-3-3 D: Non Financial Comparison of Route Alternatives. The highest ranking alternative from an environmental perspective was alternative 1A (single pole) on the existing corridor. The second highest ranking was alternative 1B (H frame, double circuit) on the existing corridor. The lowest environmental rankings were for the alternatives on the upland route. It is almost axiomatic that a brownfield corridor will cause less environmental harm than a greenfield corridor. Although the SOFAR opening statement of Mr. Advocaat (Exhibit C1-14) asserted, toward the bottom of page 4, that tree harvesting and wildfires have affected over 50% of the upland route (Transcript Volume 3, page 490 lines 13-17), a simple review of the photographic evidence shows no timber blocks on the upland route and no wildfire damage. The last wildfire in that area was in the mid 1990s, and the photographic evidence indicates that the area has grown over since then: refer to Mr. Morck's report, Exhibit B-1-3, Appendix I, and numerous aerial photographs therein.
31. It is not surprising that the Commission has expressed preference for utilizing a brownfield corridor where possible instead of destroying natural habitat to create a greenfield corridor. Refer to the Commission's decision dated October 12, 2007 in the matter of FortisBC Inc., Customer Complaints regarding the Naramata Substation Project, at pages 42-43, Section 5.1. Counsel for SOFAR in this hearing in cross examining the FortisBC panel pointed out that at Big White, FortisBC employed a new corridor for a new transmission line although there was already an existing corridor in place. As Mr. Sam of FortisBC explained at Transcript Volume 2, page 269 line 8 – page 271 line 13, the existing (brownfield) corridor could not be used for the new line at Big White.

G. ROUTE SELECTION – VISUAL IMPACT

32. Above in this Final Argument, at paragraph 9, 3rd bullet, FortisBC references a number of photographs which are in evidence which demonstrate as objectively as possible the appearance of the single poles

(Alternative 1A) as compared with the existing poles along the corridor. No doubt some people will prefer the new poles and others will prefer the existing poles. The height of the lines themselves on one type of pole will be better for some people and worse for others. FortisBC submits however that it is obvious that the proposed poles are as attractive overall, if not more so, than what is there today. The two SOFAR panellists who testified, Mr. Advocaat and Mr. Danninger, both testified in answering Commissioner Nicholls, that of all the cross sections for the existing route, their preference is the single pole which FortisBC is proposing (Transcript Volume 3, page 556 line 17 – page 558 line 24).

H. ROUTE SELECTION – COST

33. A realistic capital cost comparison of using the existing right-of-way as opposed to the upland route needs to be adjusted to a common timeframe and common cross sections. As seen in Exhibit B-3, BCUC IR1, page 195, Table 4-3-2A, the difference between building on the existing right-of-way and on the upland route, adjusting to a common date (2012) and comparable Alternatives (1A – 2A and 1B – 2B) is approximately \$20 million.

I. ROUTE SELECTION – TIMING

34. Mr. Chernikhowsky testified as to the need for the Project and its timing, with an intended in-service date at the end of 2010. There is no dispute of the need for these lines by that time. Indeed, they would be useful today to allow FortisBC to meet N-1 reliability. However, it is undisputed that the upland route would take at least two years longer. For reasons given above, that is an optimistic estimate of the time required for assembling an upland route, if indeed it could be assembled in any reasonable time, given the position of First Nations and the ILMB. Timing, therefore, is yet another factor supporting the selection of the existing corridor.

J. ROUTE SELECTION – CONCLUSION

35. The existing route has been in place and in use since before most, if not all, SOFAR members acquired their properties in the vicinity of the right-of-way. Accordingly, the land values when they acquired their interests already took into account the existence of a right-of-way and of course, when those SOFAR members decided to live in the area, they did so taking into account the presence of the right-of-way. The new lines will reduce EMF levels even below those produced by the existing line. The continued

use of the brownfield corridor will protect against the creation of an unnecessary greenfield corridor. It will also permit the project to be built in a timely way. In short, FortisBC respectfully submits that there is not a reasonable argument for destroying upland habitat so that those who chose to buy and build near the existing right-of-way can now have it relocated elsewhere, at the expense of others and to the detriment of others.

K. WILTSE PROPERTY

36. Mr. Wiltse and Mr. Grifone testified on behalf of Wiltse Holdings beginning at Transcript Volume 2, page 287. Mr. Wiltse acknowledged that any change from the existing corridor will be relocated entirely on Wiltse property and that the costs of relocation will be borne by Wiltse Holdings. That is only fair, given that Wiltse Holdings, as the developer of the area, is the party who stands to gain financially by the relocation.
37. Wiltse Holdings has agreed to work with FortisBC expeditiously to decide upon possible right-of-way relocation, with the understanding that FortisBC will be fully “transparent” in providing costing information to Wiltse Holdings. FortisBC is fully prepared to work with Wiltse Holdings on this basis in the hope that it can accommodate Wiltse Holdings. The limiting factor from the viewpoint of FortisBC will be time. If a Wiltse Holdings alternative route solution causes inordinate delay, FortisBC must weigh the interests of Wiltse Holdings as against all of its customers in the Okanagan who already require improved reliability in their service.
38. Mr. Sam and Mr. Dufour of FortisBC addressed timing regarding line relocation on the Wiltse property at Transcript Volume 2 beginning at page 160, line 19. In their testimony they addressed Exhibit C1-15 which incorporates FortisBC’s response to BCUC IR1, Q102.6. The FortisBC estimate (i.e. Invoice 1 in Exhibit C1-15) is \$47,000, and FortisBC will proceed with respect to the Wiltse property in accordance with the remainder of the schedule in Exhibit C1-15, so that 30 days following CPCN approval, Wiltse Holdings Ltd. is to provide FortisBC a written approval to proceed, along with payment #1.

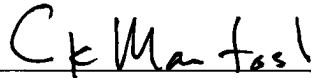
L. CONCLUSION

39. For all these reasons, FortisBC respectfully submits that the OTR CPCN Application should be approved with Option 1A on the existing right-of-way as proposed in the Application. The Company requests further approval to modify the proposed routing on the Wiltse Holdings Ltd.

property if an agreement on a routing modification can be reached between the parties, and Wiltse Holdings Ltd. pays for the costs of the modification and meets the timelines as set out in Exhibit C1-15, incorporating BCUC IR1, Q102.6.

July 3, 2008

ALL OF WHICH IS RESPECTFULLY SUBMITTED,

A handwritten signature in black ink, appearing to read "G K Macintosh", written over a horizontal line.

George K. Macintosh, Q.C.
Counsel for FortisBC Inc.