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Our File No.: 05497-0144

July 31, 2007

BC Utilities Commission  
6th Floor, 900 Howe Street, Box 250  
Vancouver, BC V6Z 2N3

**Attention: R. J. Pellatt**  
**Commission Secretary**

Dear Sirs/Mesdames:

**Re: Fortis BC Inc. ("FortisBC") Naramata Substation Project**

Please find enclosed 20 copies of FortisBC's Final Written Argument in regard to the above captioned matter.

Yours truly,

FARRIS, VAUGHAN, WILLS & MURPHY LLP

Per: 

Robert J. McDonell

RJM/jss

Enclosures

c.c.: Registered Intervenors  
Paul Miller  
William Andrews

**NARAMATA SUBSTATION INQUIRY**  
**FINAL ARGUMENT OF FORTISBC INC.**

**A. INTRODUCTION**

1. On April 12, 2007, the British Columbia Utilities Commission (“the Commission”) issued Order No. G-42-07 wherein the Commission ordered that, pursuant to section 82 of the *Utilities Commission Act* (“the Act”), an Oral Public Hearing (“the Hearing”) be conducted to inquire into siting options for a new substation to be built in Naramata.
2. The Naramata Substation Project (“the Project”) was included in the FortisBC Inc. (“FortisBC” or “the Company” as the context requires) 2005 Capital Expenditure Plan that formed part of the 2005 Revenue Requirements, System Development Plan (2005-2024) and Resource Plan Application. The 2005 Capital Expenditure Plan was reviewed at a public hearing and approved by Order No. G-52-05.
3. In Order No. G-42-07, the Commission directed FortisBC to file a Report comparing the Arawana Road and Fire Hall siting alternatives for the Project. FortisBC filed the Report comparing the two siting options on April 30, 2007 (Exhibit B-1).
4. On May 9, 2007, the Commission issued Order No. G-51-07, which included, as Appendix A, a Regulatory Timetable for the Inquiry fixing a date for the Hearing of Tuesday, July 24, 2007. Order No. G-51-07 also provided for Commission and Intervenor Information Requests and the filing of evidence in advance of the Hearing. Subsequently, in a letter dated June 22, 2007 to FortisBC (Exhibit A-8), the Commission established the Hearing Issues List, which is Appendix A to Exhibit A-8.
5. The Hearing commenced and concluded in Penticton on Tuesday, July 24, 2007 and included an opportunity for the public to make submissions in addition to the formal evidentiary portion of the Inquiry.

**B. SUBMISSIONS ON ISSUES FOR INQUIRY**

6. In the paragraphs below, FortisBC provides its Final Written Argument in regard to the eight issues determined by the Commission for consideration at the Hearing.

**1. Arawana Road Site and Fire Hall Site Comparisons**

7. This Inquiry is directed toward a comparison of the Arawana Road site and the Fire Hall site as sites for the new Naramata Substation. The evidence filed in this proceeding and at the Hearing has clearly established that, although both sites are not materially different in terms of proximity to the centre of load, the two sites are very different and a comparison of them involves a consideration of their unique characteristics (Transcript, page 37, lines 5-16).

8. The evidence at the Hearing established that the Arawana Road site is a good site for a substation for a number of reasons. The evidence at the Hearing contrary to this proposition is generally limited to concerns that people may be impacted by driving or walking by the location of the substation at Arawana Road rather than any evidence of material or direct impact arising from the substation itself (Transcript, page 203, line 17 – page 204, line 3). The major consideration arising in regard to the Arawana Road site is the transmission tie to a substation at the Arawana Road site, which is discussed below.

9. By comparison, the Fire Hall site is a poor site for a substation for a number of reasons including:

- (i) It is too small for reasonable flexibility to accommodate growth and increased load in the future;
- (ii) It does not present good opportunities for visual screening; and
- (iii) Its constrained size and configuration gives rise to increased construction costs and operational limitations.

**(a) Arawana Road Site**

10. The land acquired by FortisBC for a new substation at the Arawana Road site is of adequate size for a substation to serve the demand for load in the area within

the present planning horizon and would allow for expansion beyond that planning horizon to serve future increased demand for service in the Naramata area. The land upon which the substation would be constructed at Arawana Road would need to be levelled as part of the site preparation, however, FortisBC is not aware of any difficulties to be encountered in the construction of a substation at this site not described in the evidence (Transcript, page 167, lines 17-23). It is anticipated a new substation at this site could be constructed in a cost-effective manner and put into service in advance of a substation at the Fire Hall site.

11. There are no technical or operational challenges arising from the Arawana Road site.
12. The Arawana Road site also presents a substantial opportunity for vegetative or other screening measures to reduce visual impacts of the substation (Transcript, page 130, line 6 – page 132, line 13). Additionally, given the topography, not all of the substation will be visible. There is space available at the site to mitigate visual impacts. (Transcript, page 140, lines 11-17). The effect of levelling the site reduces the visibility of the substation works from Arawana Road or adjacent property below the substation site (Transcript, page 128, lines 13-17).
13. The primary evidence at the Hearing as to any aesthetic impacts said to arise from the Arawana Road site relates to people driving by or walking by the substation. A great number of the people who signed a petition against the Arawana Road site will not see the substation from their homes (Transcript, page 203, lines 1-8). The written evidence filed (Exhibit C2-6) by a number of members of NAFS, who did not give oral evidence at the Hearing, was largely to the effect that they simply do not want a substation in their neighbourhood and is not evidence of direct or material impact.
14. The Arawana Road site is a good site for a substation.

**(b) Fire Hall Site**

15. The Fire Hall site is a highly exposed, small pie-shaped parcel of land located at a fork in the road where Lower Debeck Road meets Naramata Road. Naramata Road is the main transportation route from Penticton.

16. The evidence at the Hearing was that the Fire Hall site may provide the space for facilities adequate to serve the load in the Naramata area within a 20 year planning horizon; however, the evidence is that the limited size of the Fire Hall site would not permit the addition of other works necessary to meet any increased demands in load. The evidence of Mr. Paul Chernikhowsky was that if the demand for load in the Naramata area exceeds 10 MVA, the Fire Hall site does not have the space available for additional facilities necessary to meet the increased demand. It is submitted that this evidence establishes that, from a planning perspective, given a prudent practice of building new substations at sites that can accommodate a 40-50 year planning horizon, selecting the Fire Hall site for the new substation would create a substantial risk of having to repeat the process of this Inquiry in order to select a site for another substation to either replace or back up a substation at the Fire Hall site (Transcript, pages 145–148 and page 169, lines 5–25).
17. The Fire Hall site would be a more difficult site for the construction of a substation. The evidence of Mr. Finke was that it would be necessary to excavate a substantial portion of the Fire Hall site and construct a retaining wall supporting the land on which the Naramata Fire Hall is built. There are additional challenges to construction arising from the ditching necessary along the roads for drainage as well as construction scheduling and management of construction at a small site which could only accommodate a limited scale of work or traffic at one time (Transcript, page 58, line 1 – page 59, line 13).
18. Site acquisition and rezoning of the Fire Hall site would likely conclude in mid-2008, and it would therefore be necessary for the existing electrical infrastructure to service the Naramata load through the 2008/09 winter peak season, increasing the risk of transformer failure (Exhibit B-1, page 6, paragraph 24). The evidence of Mr. Finke is that FortisBC would not begin construction at the Fire Hall site until after the 2008/09 winter season in order to ensure the availability of the site for installation of a mobile substation in the event of emergency (Transcript, page 135, lines 5 - 15).

19. It is submitted Mr. Andrew's estimate (Exhibit C3-7) in evidence as to the cost of site preparation is, with respect, not reliable given his own admitted lack of qualifications and experience in preparing cost estimates for site preparation for the construction of a substation (Transcript, page 193, lines 15-26). Mr. Finke's evidence as to site preparation costs should be preferred (Exhibit B-8, FortisBC's response to NAFS IR2, Q2.5.1 and Q2.42.1), including his analysis of the shortcomings of Mr. Andrew's estimate (Transcript, pages 72-78).
20. The total cost of constructing the substation at the Fire Hall site is \$1.2 million higher than the cost of constructing the substation at the Arawana Road site (Exhibit B-5, FortisBC's response to BCUC IR1 Q2.3, Table 7, page 3).
21. Due to the location of the substation at a fork in the road and the nature of the existing topography, there would be limited opportunity to visually screen the substation. The nature of the site is unlikely to give rise to any opportunity to have vegetative screening (Transcript, page 132, lines 14 - 17). Any form of walls or privacy fencing would provide some aesthetic mitigation the substation, however, the ability to mitigate effectively is limited. There is also the risk of vandalism or graffiti compromising aesthetic mitigation of a concrete wall. Ms. Darlene Henley, a resident of Naramata, confirmed this concern. (Transcript, page 136, lines 6 - 23 and page 227, lines 7 - 15).

## **2. Transmission and Distribution Line Routing**

22. For the Fire Hall site, no additional transmission lines would be necessary as the Fire Hall site is adjacent to the existing transmission line. It would be necessary to tap into the transmission line to feed a substation at the Fire Hall site, however, this could be accomplished without difficulty. There are no issues arising in regard to distribution line routing if the substation was constructed at the Fire Hall site.
23. The challenge to the selection of the Arawana Road site for a new substation is not the construction or the operation of the substation at the proposed site but the construction of a new transmission tie from the existing radial transmission line to a new substation at Arawana Road. Most of the material evidence in this Inquiry is directed to the transmission tie and the best option for the transmission tie, with

related distribution feeders, having the smallest impact on directly affected property owners along the routes available.

24. There are a number of options possible for transmission and distribution line routing to the Arawana Road site as follows:

i. Aboveground, direct cross-country transmission with distribution underbuild.

There was evidence at the Hearing that a cross-country overhead transmission line with distribution underbuild would have a direct impact upon three parcels of property – the Wright property, the Andrew property and the Thompson property. The owners of these properties oppose the cross-country route. The Wright property is an operating orchard upon which there are two residences. It is submitted that neither the construction of the transmission line nor the operation of the line with distribution underbuild would substantially interfere with the agricultural operation of the Wright property as an orchard. Similarly, an overhead transmission line with distribution underbuild would not have any substantial impact on the present use of either the Andrew property or the Thompson property. There would be some disruption to these three properties during the course of construction, however, construction methods, in consultation with the property owners, can be adopted to minimize impacts to the use of these lands during construction.

ii. Underground transmission and distribution lines on a cross-country route.

Construction of underground transmission and distribution lines along the direct route from the existing transmission line to the Arawana Road site across the Wright, Andrew and Thompson properties would have a temporary impact to those properties during construction due to the trenching that would be necessary. It is submitted that Mr. Andrew, during cross-examination, minimized the disruption to his lands that would be caused by excavating a trench through the agricultural lands to place the lines underground.

iii. Overhead transmission with distribution underbuild along Arawana Road to the substation site.

It would be possible to construct the transmission line with two distribution lines underbuilt along Arawana Road to the substation site. There are turns in the road and limited existing road right of way space making this construction a challenge; however, it is feasible. Due to the angles in the road, there would be some anchoring and guying necessary to secure the poles safely. Some easements would be required from property owners for anchoring. There is vegetation, coniferous and deciduous, along Arawana Road, which would be impacted by the construction of a transmission line with distribution underbuild up Arawana Road. Presently, there is a distribution line up Arawana Road, however, the addition of the transmission lines in the configuration necessary for safe and proper construction would involve additional overhead wires with some additional visual impact and vegetation management.

iv. Overhead transmission line up Arawana Road with one or more underground distribution lines.

This option is also feasible. The same challenges would arise in terms of the limited, narrow road right of way and the necessity of anchors and guys to adequately secure the poles to construct a transmission line up Arawana Road. The undergrounding is feasible and would reduce the visual impact from overhead wires due to the reduced number of wires if the distribution lines were constructed underground.

v. Underground transmission and distribution lines up Arawana Road.

This option is also feasible. It would involve a much higher cost to construct the transmission line, which may be partially offset by land acquisition costs compared to the cross-country route. It has the advantage of eliminating visual impact to a great extent with the exception



of the facilities necessary for the underground distribution lines to provide service aboveground to the residences along Arawana and Debeck Roads.

25. The costs of construction relating to these options are found in FortisBC's response to Undertaking 6 in Exhibit B-12.
26. Of these options, FortisBC, as an overhead wire company obligated to serve its customers in the most cost effective manner, having regard to the challenges of the Arawana Road route, prefers the direct cross-country overhead route.
27. If the Commission determines that the impact of the cross-country overhead route to the Wright, Andrew and Thompson properties outweighs the factors of construction along Arawana Road, then FortisBC's next preferred option is an overhead transmission line with two distribution feeders underground along Arawana Road. The cost of this option, shown as Option F in Exhibit B-12, Undertaking 6, is similar to the cost of the overhead cross-country route. Compared to a transmission line with distribution underbuild and one distribution line underground, Option F addresses engineering and long-term operational concerns that would result from an underbuilt circuit along the narrow and winding road.

### **3. Aesthetics, Including Possible Mitigation Measures and Impact on Property Values**

#### **(i) Visual Impacts**

28. The evidence of aesthetic impacts arising from the Project is limited to suggestions of visual impacts. There is no evidence of any other aesthetic impact arising from any of the facilities contemplated by a new substation for Naramata. The visual aesthetic impact from a substation at the Arawana Road site, only part of which would be visible from Arawana Road, or the Fire Hall site, including the possible mitigation measures, were reviewed above. It is submitted that a substation at the Arawana Road site would have much less impact to visual aesthetics than a substation at the Fire Hall site.

**(ii) Property Values**

29. FortisBC submits that, in order to establish any impact to the value of any real property, expert evidence from a qualified witness tendered for cross-examination at the Hearing would be required. Each parcel of property is unique and in considering whether or not the facilities contemplated by the Project give rise to any impact on property values, it would be necessary to have qualified opinion evidence in regard to those properties, particularly when one is considering agricultural land which is either in production or used as pasture.
30. There is no evidence in this proceeding upon which the Commission could rely in establishing that any of the facilities proposed by the Project would have any material impact on the value of any specified parcel of property. There is no general principle of universal application that the works proposed for the Project would impact the value of any property in the Naramata area. FortisBC submits that there is no reliable evidence in the proceeding of any such impact arising. Any impact to the value of the three agricultural parcels upon which works may be constructed, if the cross country road is chosen, would be compensated for in the price paid to secure the rights giving access to the property in question, as would also be the case for easements obtained along Arawana Road.

**4. Project Compliance with the WHO and ICNIRP EMF Standards**

31. The written evidence of FortisBC (Exhibit B-5, BCUC IR1, page 23, A4.4.7) and the oral testimony of Mr. Sam established that the Project is in compliance with the EMF standards published by WHO and ICNIRP (Transcript, page 162, line 20 - page 164, line 5)

**5. Impact of Construction on Agricultural Operations and Mitigation Measures**

32. The impact of construction of the transmission and distribution lines on agricultural properties is discussed above. Mitigation measures would include placing the transmission poles, if the line is to be built on a cross-country route to the Arawana Road site, by helicopters and doing the preparation for the placing of

the poles by hand labour (Transcript, page 181, line 21 – page 182, line 17). This would eliminate the need for any light or heavy machinery at the location where the poles are to be placed thus minimizing any impact of construction to agricultural operations on either the Wright, Andrew or Thompson properties. As the FortisBC panel testified, prior to any construction on lands, FortisBC would engage in discussions with property owners to eliminate or mitigate any impacts arising from construction, including the removal of any trees (Transcript, page 97, line 14 - page 98, line 7 and page 180, line 9 – page 182, line 17).

**6. Land Acquisitions and Zoning for Substation and Transmission Lines**

33. The Arawana Road site has been acquired by FortisBC. If the Arawana Road site is approved for the substation, it would be necessary to acquire rights to the land necessary for the transmission lines, both for the cross-country or Arawana Road routes. FortisBC would engage in negotiations to attempt to secure an agreement for statutory rights of way or easements. FortisBC's experience is that after projects are approved by the Commission, FortisBC is able to negotiate with parties towards the conclusion of an agreement. Any use of FortisBC's statutory power of expropriation would be on a last resort basis only (Transcript, page 89, line 8 - page 91, line 12).
34. For the Fire Hall site, it would be necessary to acquire two additional parcels of land from the Province of British Columbia, in particular, the Ministry of Transportation and the Integrated Land Management Bureau. It is anticipated that the acquisition of the land by way of Crown grant from the Integrated Land Management Bureau may take several months. At present, the parcels are not titled and, accordingly, it would be necessary for the Province to raise title to the land prior to any Crown grant to FortisBC.
35. It would also be necessary to obtain the required permission of the Agricultural Land Commission ("the ALC") for the construction of the transmission line on the cross-country route to the Arawana Road site over the land in the Agricultural Land Reserve. However, given that neither the poles nor the wires would interfere with agricultural uses, FortisBC is very confident, based on prior experience, that the

ALC would authorize the construction of the cross-country transmission line if that option is approved by the Commission (Transcript, page 108, lines 1–16).

36. The Arawana Road site would need to be rezoned for use as a substation as would the Fire Hall site. FortisBC is confident that these rezoning applications would be successful.

#### **7. Project Schedule**

37. The Project Schedule is as found in the evidence at Exhibit B-1, page 5. While it may be possible to reduce the time for land acquisition for the additional parcels at the Fire Hall site, that remains an uncertainty at this time.

#### **8. Impact of Delays to Project and Bridging Measures for Mitigation**

38. Mr. Sam testified as to the impact of delays to the Project and bridging measures for mitigation including the monitoring of the existing transformer and the use of a mobile transformer if necessary. However, it is clear that the existing substation is at the end of its life, both in terms of its capacity and suitability for additional development, and a new substation should be constructed as soon as possible (Transcript, page 168, line 4 - page 169, line 1).

### **C. CONCLUSION**

39. As stated by FortisBC in its Opening Statement (Exhibit B-9), FortisBC will construct the new substation at the location approved by the Commission. The Hearing in this Inquiry provided the stakeholders with an opportunity to present evidence and express their views as to where the new substation should be built. Given the fact that the Fire Hall site would not accommodate future growth, has limited ability to engage in any visual screening for aesthetic purposes, and gives rise to challenges and additional costs of construction, FortisBC submits that the Arawana Road site is the preferable site for a substation.

40. The evidence at the Hearing clearly showed there is divided opinion within the Naramata community as to which site is preferable. There are petitions in evidence against both sites (Exhibits C2-6, pages 65 and 100, and Exhibit C13-3). FortisBC recognizes the concerns of property owners arising from the transmission and distribution line routing to the Arawana Road site, however, it is

submitted that, all things considered and balanced, the Arawana Road site remains the better site.

41. Accordingly, FortisBC seeks an Order of the Commission selecting the site for the new Naramata substation and permitting the construction and operation of the new substation and related facilities including the contemplated transmission and distribution lines.

July 31, 2007

ALL OF WHICH IS RESPECTFULLY SUBMITTED

A handwritten signature in black ink, appearing to read "RJ McDonell", written over a horizontal line.

Robert J. McDonell