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February 21, 2014

Via Email
Original via Mail

British Columbia Utilities Commission
Sixth Floor
900 Howe Street
Vancouver, B.C.
V6Z 2N3

Attention:	Ms. Erica M. Hamilton, Commission Secretary

Dear Ms. Hamilton:

**Re:	FortisBC Energy Inc. (FEI or the Company)**

Application for a Certificate of Public Convenience and Necessity (CPCN) for the Huntingdon Station Bypass (the Application)

FEI Final Argument

In accordance with the Order G-11-14 setting out the Regulatory Timetable for this proceeding, please find enclosed the FEI Final Argument.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (e-mail only):	Registered Parties

BRITISH COLUMBIA UTILITIES COMMISSION

IN THE MATTER OF the *Utilities Commission Act,*
R.S.B.C. 1996, Chapter 473 (the *Act*)

and

An Application by FortisBC Energy Inc.

for a Certificate of Public Convenience and Necessity

to Construct and Operate the Huntingdon Station Bypass

FINAL SUBMISSIONS OF

FORTISBC ENERGY INC.

February 21, 2014

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A. INTRODUCTION

1. This is an application by FortisBC Energy Inc. (FEI or the Company) to the British Columbia Utilities Commission (the Commission) for a Certificate of Public Convenience and Necessity (CPCN) pursuant to sections 45 and 46 of the *Utilities Commission Act* (the Act or the UCA) to construct and operate a new bypass pipeline immediately around FEI's Huntingdon Flow and Pressure Control Station (the Huntingdon Station or the Station). In particular, FEI seeks a CPCN to construct, by conventional construction method, a new 182m long Nominal Pipe Size (NPS) 36 transmission pressure pipeline (the Project). The total cost of the Project is estimated at approximately $8.6 million (including AFUDC) as further explained in paragraph 38 of these submissions.

2. FEI is also seeking Commission approval under sections 59-61 of the Act for deferral treatment of costs for preparing this Application and of prefeasibility costs and to amortize both types of costs over a three-year period. FEI submits the deferral treatment of these costs is just and reasonable and should be approved as explained in the following submissions in furtherance of the evidence in the Application and in the responses to IRs.

3. The Project is primarily driven by the severe consequences that the Company and its customers will face in the event that the Huntingdon Station fails. As the evidence suggests, the potential socio-economic costs alone, as a result of a Station failure, could be in the magnitude of $1 billion. This is due to the fact that the Huntingdon Station is the sole source of natural gas supply for FEI's Coastal Transmission System (CTS) and FortisBC Energy (Vancouver Island) Inc.'s (FEVI) system, serving approximately 600,000 natural gas customers downstream.[1] More details of the potential consequences of a Station failure are outlined in section 3.4.2 of the Application, particularly in Appendix C-1 to the Application, and are further explained in discussions below.

4. The risk exposure from the Huntingdon Station is heightened by the fact that the Station is a single-point-of-failure facility. With the exception of two independent control valves, the remaining critical sections and components of the Huntingdon Station are non-redundant. In the words of risk-assessment experts engaged by FEI, "in the event of a significant failure of one of the non-redundant sections of pipeline, there is no way to isolate that section and still maintain delivery."[2]

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[1] Exhibit B-1, page 2.
[2] Exhibit B-1, Appendix C-1, at page 7.

5. FEI has proposed to construct a pipeline bypass external to the Station to mitigate the risk, after considering various alternatives. The technical and financial evidence of this proceeding demonstrates that the Project not only provides the necessary redundancy to the Station, thereby significantly reducing the risk from the Station being a single point of failure, but also is cost effective in particular comparison with the option of performing some upgrades internal to the Station. Additionally, the Project has received no express opposition from First Nations or other key stakeholders. FEI continues to work with affected private landowners and First Nations when required.

6. FEI submits that the Project is in the public interest and a CPCN should be approved, as evidenced in the Application, further explained in various responses to the Information Requests (IR), and summarized in the following submissions. The submissions below generally follow the framework of the Application, first addressing the Project's justification followed by a discussion of the alternatives evaluated. The submission will then address issues relating to project design, construction and costs. Finally, FEI will discuss its efforts to engage the identified First Nations and other key stakeholders in the Project.

B. PROJECT JUSTIFICATION

7. Section 3 of the Application, the supporting appendices, and responses to IRs together demonstrate that the Project will address three main concerns/risks identified by the Company:

a. It will significantly reduce the consequences that the Company and its customers will face in the event of a Huntingdon Station failure;

b. It will provide redundancy to the Huntingdon Station, thereby reducing the risk from the Station being a single-point-of-failure facility; and

c. It will help enhance the reliability of the Station by allowing the Company to complete equipment inspections, servicing and replacements that would not be otherwise readily possible.

Each of the concerns/risks is further discussed below.

(a) Consequences of a Station Failure

8. The Huntingdon Station is part of FEI's Coastal Transmission System, which interconnects with the transmission system of FortisBC (Vancouver Island) (FEVI). It receives gas supply from two neighbouring upstream facilities owned by Spectra Energy Transmission and Williams Northwest Pipeline LLC respectively.[3] A more detailed description of the Huntingdon Station and its surroundings is provided in section 3.1 of the Application and Appendix C-1 to the Application.[4] The Huntingdon Station serves approximately 600,000 customers living downstream of the Station in the communities in the Lower Mainland, Whistler, Squamish, and the Sunshine Coast and Vancouver Island.[5] Among these customers, there are about 125 hospital and emergency facilities, 375 care homes, and 2,000 schools and public assembly facilities.[6]

9. The evidence shows that the failure of the Huntingdon Station will expose both the customers and the Company to severe, multi-fold consequences, including:

a. Rapid loss of natural gas supply to customers, potentially for four months depending the nature, location and the time of the failure;[7]

b. Affecting the greatest number of customers;[8]

c. Socio-economic losses associated with service disruption to the Lower Mainland for a prolong period of time, in the magnitude of $1 billion;[9]

d. Costs of $34 million to the Company to restore natural gas service;[10] and

e. Potential permanent loss of natural gas customers to other energy sources.[11]

10. To further assess the consequences of a Station failure, FEI engaged Dynamic Risk Assessment Systems Inc. (DRAS), a risk assessment expert, to study the likelihood of failure and potential failure

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3 Exhibit B-1, at pages 8-10; see also Exhibit B-3, BCUC Conf. IR 1.1.4, 1.1.5.
4 Exhibit B-1, at pages 7-10; Exhibit B-1, Appendix C-1, at page 26.
5 Exhibit B-1, at page 10.
6 Exhibit B-1, at page 15.
7 Exhibit B-1, at page 14; Exhibit B-2, BCUC IR 1.4.6.1.
8 Exhibit B-5, CEC IR 1.7.3.
9 Exhibit B-1, at page 16; Exhibit B-2, BCUC IR 1.4.4.
10 Exhibit B-1, at page 16.
11 Exhibit B-6, BCUC Conf. IR 2.3.2.

impact. When conducting its study, DRAS takes due account of the influence of detection, isolation and mitigation factors in determining the overall outcome of the failure.[12] In particular, in assessing the failure impact, DRAS studied four potential scenarios, grouped the consequences into nine categories, and, based on histories, knowledge of system operating configuration, operating experience, and subject matter expert judgment, provided an impact value of a Station shutdown due to the failure of non-redundant piping (hole ≥ 1 inch diameter in the Station in each of the nine listed areas. For instance, DRAS has concluded that the impact value to the customers in the Lower Mainland due to service disruption for an extended period of time could be $1,000,000,000, in addition to costs for other types of events or activities following a failure, such as relight, commodity loss, loss of revenue, emission, regulatory response, public opinion, end use customer loyalty, and government relations.[13]

11. DRAS has also opined the value for operational risk would be an estimated $3.275 million per year, based on a quantitative risk assessment, which includes processes for quantifying the consequences of a breach in the pressure boundary, the likelihood of its occurrence, and the risk that is derived by assimilating consequences with failure likelihood.[14] This figure will rise by 275 per cent in five years to $9.1162 million per year due to aging of all equipment at the Station.[15]

(b) <u>A Single-Point-of-Failure Facility</u>

12. FEI has identified the Huntingdon Station as a high risk facility because it is a sole supply control station (versus a distribution gate station), is a single-point-of-failure facility on the CTS and affects the highest number of customers in the event of a failure.[16] The evidence shows that with the exception of the two independent control valve stations and the portions of mainline downstream of the in-line inspection tool launchers, all portions of the Huntingdon Station are non-redundant. As a result, there are many potential points of failure within the Station.[17] In the event of a significant failure within any of these non-redundant portions, there is no way to isolate and reconfigure for an alternative feed and to conduct in-service repair. A complete Station shutdown will ensue, resulting in interruption of gas flow to customers downstream of the Station.[18]

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12 Exhibit B-5, CEC IR 1.1.1; see also Exhibit B-3, BCUC Conf. IR 1.3.1.
13 Exhibit B-1, Appendix C-1, at page 14.
14 Exhibit B-4, BCPSO IR 1.2.1.
15 Exhibit B-4, BCPSO IR 1.2.2.
16 Exhibit B-5, CEC IR 1.10.3; see also Exhibit B-3, BCUC Conf. IR 1.7.2.
17 Exhibit B-1, at page 11.
18 ExhibitB-1, Appendix C-1, at page 11; Exhibit B-5, CEC IR 1.7.1.

13. As explained in the Application, a failure of a critical portion within the Station can be caused by several events, such as (1) inability to perform effective and complete maintenance and repairs, (2) threats to asset integrity from corrosion, material imperfections, and weld flaws, and (3) natural hazards, such as floods or seismic events.[19] The Huntingdon Station was commissioned in 1956. As the Station ages and time goes by, certain causes, for example corrosion, may become more threatening.[20]

14. FEI may take certain steps to delay a failure, or to mitigate impact if there is a failure, of a single-point-of-failure component at the Huntingdon Station; however, these steps have limitations.[21] For example, under FEI's Integrity Management Program, FEI manages the external corrosion for below-grade facility piping through external coating application, cathodic protection, and condition monitor digs where warranted, and mitigates threats from material flaws through the Company's Quality Control/Assurance Program. However, if in-service repairs of the non-redundant portions are required, interruption of gas service remains a reality.[22] Additionally, as explained in section 4.3.2.1 of the Application and in responses to CEC IR 1.15.1 and 1.15.2, industrial customer curtailment, supply from Tilbury Liquefied Natural Gas facility and reverse flow from the FEVI system would not adequately sustain the CTS. Further, the response to BCUC Confidential IR 1.11.1 provides another example of the limitation of potential measures to maintain gas flow to customers if a Station failure occurs.

(c) Lack of Ability to Conduct Full Inspection

15. The significance of the Huntingdon Station is evident from the fact that it is the sole supply of natural gas to approximately 600,000 customers living in different communities in British Columbia; thus, the reliability of the Station is of great concern to the Company. As explained in section 3.3 of the Application and in responses to various IRs, although the Company has carried out planned, preventative maintenance activities on Station components and piping, it has been unable to perform a complete, fulsome inspection and maintenance, or to undertake unplanned corrective actions or a major repair or replacement, of non-redundant portions of the Station, without shutting down the Station or installing some temporary measures such as a temporary bypass to maintain normal gas

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[19] Exhibit B-1, at page 13-14.
[20] Exhibit B-1, Appendix C-1, at page 4.
[21] Exhibit B-1, at page 15.
[22] Exhibit B-2, BCUC IR 1.2.1.

flow.[23] Indeed, some portions of the Huntingdon Station have never been taken out of service for repair since they were commissioned because they cannot be isolated from service.[24]

16. Integrity and reliability of the Station have become more pressing. Factors such as the increased demand on the system, the age of the Station, as well as the advent of more recent pipeline design standards and requirements such as Annex M & N to CSA Z662, have brought heightened focus to integrity management. Additionally, FEI's current design standard, the practice of other major gas utilities and good utility practice, require a station bypass for single-point-of-failure stations that cannot be easily taken out of service.[25]

(d) Conclusion – Need for the Project

17. In sum, the potential consequences of a Station failure, lack of redundancy to the Station, and the Company's inability to perform a complete Station inspection and maintenance have made it imprudent and unsafe for the Company to prolong the status quo.[26] An incident in 2008, which was discussed in the response to BCUC Confidential IR 1.4.1, further illustrates the need for a solution to remedy the status quo. As FEI has concluded, "[i]n retrospect, FEI believes that if a bypass were in existence then, it would have reduced the significant safety hazards and operational risks during the response to the incident. A bypass could have been used to isolate the Station, provide the redundancy, and allow for the initial work and emergency repairs to be completed in a safe manner while maintaining gas flow and pressure."[27]

C. PROJECT ALTERNATIVES

18. As described in section 4 of the Application, FEI considered four potential alternatives: maintaining status quo/deferring the capital improvements, making operations and maintenance changes to reduce risk at the Station, performing some internal station upgrades and installing a bypass pipeline near the Huntingdon Station,[28] and installing a bypass pipeline near the Station emerged as the preferred option. Table 4-3 in the Application summarized the key non-financial factors considered by

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[23] Exhibit B-2, BCUC IR 1.1.1 series, 1.8.1; Exhibit B-4, BCPSO IR 1.1.1; Exhibit B-5, CEC IR 1.8.1; Exhibit B-10, CEC IR 2.6.1. The cost estimates for some of these activities are outlined in Exhibit B-2, BCUC IR 1.8.1, Attachment 8.1.
[24] Exhibit B-5, CEC IR 1.10.1.
[25] Exhibit B-1, at 7; Exhibit B-4, BCPSO IR 1.1.1.5; Exhibit B-5, CEC IR 1.9.1, 1.9.2.
[26] Exhibit B-1, at page 21; Exhibit B-4, BCPSO IR 1.1.5.
[27] Exhibit B-5, CEC IR 1.6.2.
[28] Exhibit B-1, at pages 19-26.

FEI to select the preferred option. The evidence supporting the selection of the option to install a bypass around the Huntingdon Station is further summarized below.

(a) Consideration Criteria

19. When planning and pursuing a project, FEI endeavours to address the main concerns or risks identified – in this Project, many single-of-points-failure components and piping sections within the Station and the resulting consequences from a Station shutdown due to failure of one of these non-redundant portions – and also to consider other factors pertinent to construction and operation of a new project, such as current operations, design and engineering codes and requirements, compatibility with existing infrastructure, constructability, and safety.[29]

20. Although financial factors, such as rate impact on customers, are considered when selecting between the option of capital upgrades internal to the Station and the option of a bypass installation external but close to the Station, they play a less significant role in this Project because:

a. the impact in terms of levelized rate impact over 25 years and 60 years horizon is negligible;[30]

b. the Gross O&M for the internal station upgrade option is not significantly lower than the option to install a bypass external and close to the Station;[31] and

c. the overall project estimates are similar once all the complex temporary bypassing and procedures are completed to safely execute the capital upgrades within the Huntington Station and once additional construction costs and contingency were added due to the need to work in close proximity of operating gasified piping, even though the materials and land acquisition for external bypass installation option are significantly higher.[32]

(b) Selection of a Bypass Installation

21. Maintaining status quo and further deferring the capital improvement are not options that FEI would pursue as neither addresses the identified concerns.[33] Similarly, the option of implementing

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[29] Exhibit B-1, at pages 19-20.
[30] Exhibit B-1, at page 27.
[31] Exhibit B-1, at page 27; Exhibit B-2, BCUC IR 1.9.2.
[32] Exhibit B-4, BCPSO IR 1.4.1.
[33] Exhibit B-1, at page 21.

operation and maintenance changes is not viable as it does not create the necessary redundancy to address the single-point-of-failure concern.[34]

22. The option of performing certain updates internal to the Station consists of completing upgrades and additions to the valving and piping configuration within the Huntingdon Station (Option 3).[35] The evidence shows, however, that Option 3 has considerable constructability, operational and safety concerns. Specifically, upgrades would add new piping and valves to make an already congested and complex site more challenging in which to construct and maneuver. Additionally, increased congestion would also impact the ability to safely access and effectively keep the Huntingdon Station operational during an incident.[36] Further, Option 3 will leave in place existing piping and components that do not meet current seismic standards for new construction and may not be able to maintain operating pressures immediately following the occurrence of a natural hazard.[37] Most importantly, under Option 3, the Station is still subject to the single-point-of-failure risk because a section of piping and two isolation valves at the inlet of the Station remain non-redundant.[38]

23. Installing a bypass external to and immediately around the Huntingdon Station is the option FEI prefers and proposes to construct (Option 4). As explained in section 4.2.4.1 of the Application, it is the option that provides the redundancy to the Station, reduces the risks from a single point of failure, and meets the objectives and requirements FEI set forth for its new construction. Significantly, Option 4 will:

a. Enable the Company to perform complete inspection and maintenance of non-redundant portions without shutting down the Station and interrupting gas supply, and enhance the reliability and increase the lifespan of the Huntingdon Station, which will remain the main source of supply to the CTS and FEVI system into the foreseeable future;[39]

b. Allow the Company an opportunity to confirm the accuracy of the as-built drawings for future designs, construction and emergency responses;[40]

c. Significantly reduce the consequences of large-scale service interruption;[41]

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[34] Exhibit B-1, at page 21-22.
[35] Exhibit B-1, at page 23.
[36] Exhibit B-5, CEC IR 1.18.1.
[37] Exhibit B-5, CEC IR 1.19.1.
[38] Exhibit B-1, at pages 23-24.
[39] Exhibit B-1, at page 25; Exhibit B-2, BCUC IR 1.8.3; Exhibit B-5, CEC IR 1.10.3.
[40] Exhibit B-6, BCUC Confidential IR 1.7.3.

d. Improve the reliability of the Huntingdon Station during major natural hazard events and enable continuous gas supply to the CTS and the FEVI system, even though the seismic risk is not completely eliminated;[42]

e. Provide for remote operation that simplifies emergency response procedures by allowing the supply source being shut down without endangering lives,[43] and that potentially assists in responding to a fire event at either the Spectra or Williams facilities;[44] and

f. Bring about significant savings in operational risk. As DRAS explained in its report,

> "The overall risk of all equipment items combined that is associated with current operation (without the bypass in place) is $3,275,000 per year of operation. The corresponding risk value for the scenario with the bypass in place is $2,100 per year of operation. The risk differential between the two scenarios is $3,272,900 per year of operation.[45]

24. Although there are other route options for a bypass external to the Station (in addition to the proposed bypass that is close to the Huntingdon Station) which could mitigate the risk of any single point of failure for the worst case failure event, such as full-bore rupture with ignition, these bypasses would be longer and larger. Based on a balance of its obligation to maintain its system and to ensure the safe, reliable delivery of natural gas to customers and the larger cost implications against minimal risk reduction associated with locating the bypass at a distance to avoid worse case scenarios, FEI has prudently proposed a project that is of smaller scale that provides redundancy.[46]

D. PROJECT DESIGN, CONSTRUCTION AND RISK MANAGEMENT

25. In section 5 of the Application, FEI sets out the technical components of the Project, the Project construction method, conditions and permits anticipated for the Project, and resources required for managing the construction of the Project. In responses to IRs, the Company has provided further

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41 Exhibit B-2, BCUC IR 1.4.1, 1.4.6.1.1.
42 Exhibit B-2, BCUC IR 1.3.1, 1.4.1.
43 Exhibit B-10, CEC IR 2.7.1.
44 Exhibit B-7, CECIR 2.4.1.
45 Exhibit B-1, Appendix C1, Section 1, Page 4.
46 Exhibit B-1, at page 26; Exhibit B-5, CEC IR 1.19.3; see also Exhibit B-3, BCUC Conf. 1.6.1; Exhibit B-6, BCUC IR Conf. 2.4.1.

details and clarification on Project components,[47] technical procedures and other requirements during construction and prior to commissioning,[48] resources requirement and management for different stages of the Project,[49] and potential adversity that FEI may encounter during construction.[50]

26. The following discussion further summarizes and elucidates the issues relating to Project scope, and Project risk identification and management. FEI submits that the evidence shows that FEI has the ability and resources to successfully manage and complete the Project by the anticipated Project in-service date of October 2015.

(a) <u>Scope of the Project</u>

27. The Project involves the construction of a NPS 36 Transmission Pressure pipeline, inline pressure control and monitor valves, four isolation values and an odorant injection tap. In addition, there will be instrumentation, control, and telemetry installed as part of this Project. Although some of the construction will make use of existing infrastructure within the Huntingdon Station, no upgrades to existing equipment will be made within the Huntingdon Station.[51]

28. Through prudent design, FEI has chosen the NPS 36 sized pipe to manage the confirmed and relatively certain future demand for the foreseeable future. At the expected demand, the capacity of the NPS 36 pipeline falls within FEI's station design standards for below grade station piping.[52]

29. If required and necessary in the future, the bypass is expandable, for instance by increasing the size of control valves or by modifying design conditions.[53] However, as FEI has explained, "simply increasing capacity of the bypass may not fully address the situation where the future demand is increased and additional capacity is required."[54] Changes that may be needed to expand the capacity of the Huntingdon Station itself are outside the scope of this Project.[55]

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47 E.g. Exhibit B-3, BCUC Conf. IR 1.8.4., 1.8.5, 1.9.1, 1.9.2, 1.9.3.
48 E.g. Exhibit B-2, BCUC IR 1.2.2, 1.2.2.1 (quality control/assurance and testing procedures); BCUC IR 1.6.1 (tie-in procedure); BCUC IR 1.21.1 (Right of Way acquisition).
49 E.g., Exhibit B-6, BCUC Confidential IR 2.9.1, 2.11.1.
50 E.g. Exhibit B-2, BCUC IR 1.
51 Exhibit B-5, CEC IR 1.23.1; Exhibit B-6, BCUC Conf. IR 2.7.3.
52 Exhibit B-1, at page 31; see also BCUC Conf. BCUC IR 1.1.8.
53 Exhibit B-2, BCUC IR 1.20.2; Exhibit B-9, BCPSO IR 2.2.1.
54 Exhibit B-9, BCPSO IR 2.2.1.
55 Exhibit B-2, BCUC IR 1.20.6.

30. The Project (i.e. the proposed bypass) and the Huntingdon Station will have no functional differences.[56] The Project, once constructed, will be permanent, will serve as an emergency back-up for the Huntingdon Station, and will enable continuous service to customers if the Huntingdon Station itself needs upgrades or replacement.[57] The Project, however, does not replace the Station; nor does it eliminate the possibility of a standalone project in the future to replace the entire Huntingdon Station.[58]

(b) <u>Risk Assessment and Risk Management</u>

31. FEI assembled a team of professionals from various departments of the Company, who possesses knowledge of critical aspects that the Project would affect. The team, using their expert judgement and working by consensus, identified, analyzed, and categorized risks, and assigned relative weight to probability of the risk occurrence and consequences.[59] A more detailed description of the team composition and the methodology used for risk identification and evaluation is contained in the response to BCUC IR 1.23.1.

32. This risk analysis approach adopted for this Project follows the section of American Association of Cost Engineers "Total Cost Management Framework" on risk management, as well as Recommended Practice No. 40R-08 "Contingency Estimating – General Principles" and Recommended Practice No. 44R-08 "Risk Analysis and Contingency Determination Using Expected Value."[60] FEI submits that this approach is adequate as the Project is contained within a relatively small footprint immediately outside of the Huntingdon Station where FEI has a long operating history, only three adjacent landowners are affected, and standard construction practices will be employed.[61]

33. Table 5-2 of the Application lists some of the key risks identified, which include market conditions, contaminated ground water and late delivery of certain materials and large amount of groundwater, and outlines the probability of risk occurrence and severity of consequences if the risk does occur. In responses to several IRs, FEI has further explained the reasons for listing certain items as

[56] Exhibit B-5, CEC IR 1.21.2.
[57] Exhibit B-2, BCUC IR 1.8.3.
[58] Exhibit B-10, CEC IR 2.4.1.1.
[59] E.g., Exhibit B-2, BCUC IR 1.13.1 (risk for archeology chance find).
[60] Exhibit B-2, BCUC IR 1.23.1, 1.23.16.
[61] Exhibit B-2, BCUC IR 1.23.1.

a risk.[62] Overall, the team of professionals concluded by consensus that the risks of the Project are relatively low.[63]

34. FEI also has the following additional measures to manage and mitigate potential risks from Project design, permit and construction phases. For instance,

- FEI's project manager will ensure that sufficient oversight and cost control measures are in place throughout the lifecycle of the Project. For example, the external engineering services are subject to a request for quotation process managed by the procurement department. Consultation, inspection, and permit costs will be managed to meet regulatory needs in the most efficient manner. The engineering consultant was chosen based in part on their expertise in order to maximize the constructability of their design and to minimize tie in and commissioning costs. [64]

- FEI will utilize established Company practices to ensure that only necessary and appropriate design and construction specification changes are approved by the project manager in consultation with the engineer of record on technical matters, and FEI's standard contract terms require that changes be approved in writing prior to the start of work.[65]

- Engineering inspection will be on site during construction to ensure drawings and specifications are adhered to and to approve changes if necessary.[66]

- Detailed archaeological specifications will be prepared as part of the Project tendering process to ensure that the contractor(s) are aware of the Project's archaeological requirements. A Project specific Environmental Management Plan, including protection of archaeological and cultural resources, will be developed by the successful contractor(s) prior to commencement of the Project.[67]

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[62] E.g. Exhibit B-2, BCUC IR 1.23.8 (work in proximity to a gas line), 1.23.10 (late delivery of materials), 1.23.17 (First Nations risk); Exhibit B-5, CEC IR 1.25.1-1.25.3 (ground water contamination).
[63] Exhibit B-1, at page 37; Exhibit B-2, BCUC IR 1.23.1.
[64] Exhibit B-6, BCUC Conf. IR 2.5.3.
[65] Exhibit B-5, CEC IR 1.24.1.
[66] Exhibit B-5, CEC IR 1.24.1.
[67] Exhibit B-1, at page 43.

- The Project is subject to approval by the BC Oil and Gas Commission (OGC). To mitigate the risk that the process for OGC approval may be longer than estimated, FEI will try to submit the OGC application at the earliest possible date.[68]

E. PROJECT COSTS AND DEFERRAL TREATMENT OF APPLICATION COSTS AND PREFEASIBILTY COSTS

(a) Capital Cost, Control Budget and Total Project Costs

35. The capital cost for the Project is estimated to be $7.6 million (excluding AFUDC) in as-spent dollars.[69] Items in the estimate include project management, costs for right-of-way acquisition, and piping and coating materials, and pipeline construction.[70] In responses to various IRs, FEI has provided further breakdown, bases and more detailed explanation of various components of the Project capital cost.[71]

36. The capital cost estimate utilizes equipment and material quotations for standard and non-standard materials, labour activity breakdown at the task level and a risk evaluation, and is based on completion of 40 percent of the engineering design and an expected in-service date of October 2015.[72] The expected accuracy of the estimate is +30% to -20%, and this accuracy range will be narrowed as the Project definition matures.[73] This is in accordance with a Class 3 degree of accuracy as defined by AACE International Recommended Practice.[74]

37. In addition to the capital costs, there is a deferred prefeasibility cost of $0.6 million (before-tax and excluding AFUDC), which, together with the capital cost of $7.6 million, forms a total Project control budget of $8.2 million.[75]

38. The total cost for the Project (including capital and deferred prefeasibility costs, AFUDC and contingency) is approximately $8.6 million.[76] In section 6.1 of the Application and in responses to BCUC

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68 Exhibit B-10, CEC IR 2.11.2.
69 Exhibit B-1, at page 39; Exhibit B-2, BCUC IR 1.24.1, 1.26.1 and Exhibit B-9, BCPSO IR 2.3.1 (explaining the meaning of "as-spent" dollars).
70 A full list is contained in Exhibit B-1, Appendix F3 to the Application.
71 E.g. Exhibit B-4, BCPSO IR 1.6.1; Exhibit B-3, BCUC Conf. IR 1.10.1-1.10.6; Exhibit B-6, BCUC Conf. IR 2.6.1, 2.6.2.
72 Exhibit B-2, BCUC IR 1.25.1; Exhibit B-6, BCUC Conf. IR 2.5.1.
73 Exhibit B-2, BCUC IR 1.24.2; 1.24.2.1; Exhibit B-10, CEC IR 2.9.5.
74 Exhibit B-1, at page 38; Exhibit B-6, BCUC Conf. IR 2.5.1; Exhibit B-10, CEC IR 2.9.2.1.
75 Exhibit B-2, BCUC IR 1.27.2.
76 Exhibit B-2, BCUC IR 1.24.1.

IR 1.27.1 and also to BCUC Confidential IR 1.11.1, FEI summarizes the assumptions, allowances, and exclusions in developing the cost estimate and provides further clarification. In responses to BCUC Confidential IR 2.12.1, 2.12.4.2, FEI further clarifies that the actual AFUDC will be calculated on a monthly basis and will be based on the actual costs and their timing..

(b) Contingency Amount

39. The Project cost estimate includes a total contingency budget of $722,000 (in 2013) or approximately $802,000 in as-spent dollar.[77] Inclusion of the contingency in the cost estimate is consistent with FEI's practice in all CPCN projects.[78] For recent projects, such as FEI's Kootenay River Crossing (Shoreacres) Upgrade, which the Commission approved in Order C-9-10 dated November 15, 2010, FEI has identified the contingency as a single separate line item in the project cost estimate. Moreover, Appendix E to the Application provides specific contingency amounts to account for risks that are considered likely to have an impact on the Project budget. This approach is consistent with the AACE recommended practice.[79]

40. The contingency amounts were determined, following the team judgment/consensus approach for risk identification and analysis discussed above.[80] More specifically, the team, combining its collective expert judgment with an "Expected Value" methodology under the AACE recommended practice, determined the contingency budget. Expected value was chosen as the contingency estimating methodology because of its simplicity, which is appropriate for a project of relative low complexity such as the proposed bypass here, and because it has allowed for the use of the project team's expertise. Furthermore, this methodology explicitly links a risk driver with its impact if such risk materializes (consequence), and allows the Company to estimate the total costs of addressing an identified risk if such risk materializes. [81]

(c) O&M Costs and Rate Impact

41. Based on historical requirements for pipeline and station operation and maintenance, manufacturers' recommended practices for each component and equipment as well as FEI's asset management program for pipelines, right-of-way, station and equipment operation and maintenance,

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[77] Exhibit B-1, Appendix F3; Exhibit B-2-1, BCUC Confidential IR 1.11.1.
[78] Exhibit B-10, CEC IR 2.8.1.
[79] Exhibit B-2, BCUC IR 1.23.5.
[80] Exhibit B-2, BCUC IR 1.23.13.
[81] Exhibit B-2, BCUC IR 1.23.2.1, 1.23.11; Exhibit B-4, BCPSO IR 1.7.2.

FEI estimates that the average annual cost for operating and maintaining the Project after it is built is $14,100. The O&M activities will include control valve maintenance, block valve maintenance, valve actuator maintenance, odorant injection maintenance, leak survey, cathodic survey, Right of Way survey, and instrumentation and vegetation management.[82]

42. To provide an estimation of the impact on customer's rates and the incremental cost of service impact, FEI escalates the O&M cost by a 2% escalation factor, which, in FEI's view, is appropriate to forecast the nominal costs used to determine the incremental cost of service for future years and is aligned with BC CPI forecasts for 2014-2018.[83]

43. FEI submits that the evidence shows that the rate impact of this Project is minimal.[84] The impact to customer rates in 2016 when depreciation commences and the Project capital is included in rate base is approximately $0.006 per GJ.[85] The levelized rate impact will be about $0.005 per GJ over 25 years and $0.006 per GJ over 60 years.[86] As stated in the Application, for a FEI residential customer consuming an average of 95 GJ per year in 2016, the impact will be approximately 67 cents per annum.

(d) <u>Deferral Treatment of Application Costs</u>

44. FEI has estimated costs of $100,000 for the preparation and regulatory review of this CPCN Application, including costs for public notice, costs for legal review, consultant expenses, Commission costs, and intervener PACA costs (Application Costs).[87] FEI submits that Commission approval under sections 59-61 of the Act for deferral treatment of the Application Costs[88] and for an amortization period of three years, beginning in 2015, should be granted for the following reasons:

- The deferral treatment is consistent with FEI's past practice over the past several decades and this treatment has been previously approved by the Commission.[89]
- A three-year amortization period is consistent with the amortization period approved for similar deferral accounts in the past and is appropriate in consideration of the benefits of

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82 Exhibit B-2, BCUC IR 1.25.4; Exhibit B-5, CEC IR 1.31.3; see also Exhibit B-3, BCUC Conf. IR 1.2.2.
83 Exhibit B-10, CEC IR 2.2.1.
84 Exhibit B-2, BCUC IR 1.28.1. This is true under the accounting treatment of depreciate and negative salvation as proposed in FEI's 2014-2018 PBR Application or under FEI's current account policies.
85 Exhibit B-1, BCUC IR 1.28.2.
86 Exhibit B-1, at page 39; Exhibit B-2, BCUC IR 1.28.2.
87 Exhibit B-2, BCUC IR 1.29.1.
88 Exhibit B-1, at page 39.
89 Exhibit B-2, BCUC IR 1.29.3; Exhibit B-5, CEC IR 1.2.1.

rate smoothing, the matching of the amortization period to the benefits of the Project, and avoiding an inordinately long amortization period.

- A three-year amortization period aligns with the recovery period requested for the Prefeasibility Costs deferral account.[90]

- Although the Application Costs could be considered capital costs under the US GAAP guidance, and because there is no difference in the rate of return afforded to capital assets as compared to deferral accounts, inclusion of application costs in the capital assets would result in the cost being recovered over an inappropriately long recovery period, and ultimately result in higher costs for customers.[91]

45. The deferred application costs have historically been included in rate base and accordingly have attracted the approved return on rate base. Thus, for this Project, once included in rate base in 2015, the Application Costs will attract the Commission approved return on rate base.[92]

46. Some of the Information Requests seem to question whether a return should be earned on the deferral accounts. FEI submits that a rate base return is required to compensate the utility for amounts invested in net utility plant and other items, such as regulatory assets (deferral accounts) and working capital. The treatment of deferral accounts and working capital should also be consistent because both compensate the utility for the time lag between when expenditures occur and when they are recovered from customers.[93] In fact, the evidence shows that application costs have generally been included in a rate base deferral account, in a non-rate base deferral account attracting AFUDC, or as part of the capital costs of the project earning a rate base return. There have been no instances of application costs not earning a rate base/AFUDC return of which FEI is aware.[94]

(e) <u>Deferral Treatment of Prefeasibility Costs</u>

47. Similar to the treatment of the Application Costs, FEI submits that the proposed Prefeasibility Cost deferral treatment/account, with a three-year amortization period starting in 2016, should also be approved as just and reasonable under sections 59-61 of the UCA. For administrative ease, FEI is

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[90] Exhibit B-2, BCUC IR 1.29.5.
[91] Exhibit B-2, BCUC IR 1.29.3.
[92] Exhibit B-3, BCUC IR 1.29.7.
[93] Exhibit B-2, BCUC IR 1.29.7.
[94] Exhibit B-2, BCUC IR 1.29.8.1.

agreeable to having only one deferral account that captures both the Application Costs and the Prefeasibility Costs.

48. The reasons supporting the deferral treatment for the Application Costs and a three-year amortization period for that deferral account are similarly applicable to the Prefeasibility costs, including consideration of the benefits of rate smoothing, the matching of the amortization period to the benefits of the project, avoiding an inordinately long amortization period, and consistency with the amortization period approved for similar deferral accounts in the past.[95]

49. FEI submits that Weighted Average Cost of Capital (WACC) should be earned on the Prefeasibility Costs deferral account, as fully explained in the response to BCUC IR 1.30.6. In short, a rate base or AFUDC return should be earned on deferral accounts and capital costs, regardless of whether they are in rate base or out of rate base.[96]

F. ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENTS

50. The environmental and socio-economic impact of the Project is limited and can be effectively managed. As explained in section 7 of the Application and summarized below, the Project:

- Will have low environment risk based on a preliminary environment assessment of the Project, conducted by Hemmera Envirochem;[97]
- Will confine the land disturbance to an existing gravel access road and the neighbouring land within the Agricultural Land Reserve;[98]
- Will have a detailed Archaeological Impact Assessment prior to ground disturbing activities in consideration of the potential for archaeological or other cultural heritage resources to be found within 500m of the Project;[99] and
- Will have some minor impact on the operations of two farms and business owners in the area.[100]

[95] Exhibit B-2, BCUC IR 1.30.3.
[96] Exhibit B-2, BCUC IR 1.30.7.1.
[97] Exhibit B-1, at Page 41.
[98] Exhibit B-1, at page 41.
[99] Exhibit B-1, at page 43.
[100] Exhibit B-1, at page 44.

51. The Project will bring some financial benefits to British Columbian businesses in the Project area.[101]

52. FEI submits that any expected potential environmental, archaeological, or socio-economic impact associated with the Project can be managed and mitigated through the implementation of standard best management practices and management practices.[102]

G. PUBLIC CONSULTATION

53. FEI submits that, given the limited geographical scope of the Project, the public consultation activities carried out to date and its consultation plan have been appropriate for the Project and have met the expectations of landowners and interested key stakeholders.

54. There are two pieces of farming land that will be directly affected by the Project. FEI have had communications with both farmers , both of whom understand the necessity of the infrastructure.[103] FEI continues to work with the affected private landowners regarding issues arising from land access, accommodation, and Right of Way.[104]

55. Spectra and Williams, who own or operate neighboring facilities, acknowledge FEI's security of supply concerns with respect to the Huntingdon Station and have been cooperative.[105]

56. FEI intends to maintain good relationships with the two farm land owners and other stakeholders through all phases of the Project.

H. FIRST NATIONS CONSULTATION

57. The Project, as proposed, will be completely on private land; thus, the potential impact of the Project on the interests and titles of First Nations is limited.[106]

58. The BC Oil and Gas Commission (OGC) is the Crown agency responsible for First Nations consultation in this Project. Guided by OGC's documentation, FEI has commenced engagement activities with the First Nations it has identified as having an interest in the general area of the Project,

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[101] Exhibit B-5, CEC IR 1.29.1.
[102] Exhibit B-1, at page 44.
[103] Exhibit B-2, BCUC IR 1.10.2.
[104] Exhibit B-1, at pages 46-47.
[105] Exhibit B-1, at 46; Exhibit B-3, BCUC Conf. IR 1.1.1.
[106] Exhibit B-1, at page 48.

including Sto:lo Nation Tribal Council, Sto:lo Tribal Council, and Kwikwetlem First Nation. As detailed in section 9.4 of the Application and supplemented by responses to the IRs, the evidence demonstrates that FEI has been diligently engaging the identified First Nations in the Project. FEI's engagement efforts for the Project are to ensure that First Nations whose Aboriginal interests may be potentially affected by the Project are identified and are provided updated information on the nature and progress of the Project.[107] If the OGC in its consultation process identifies any other First nation that will need to be engaged, FEI will have further discussions with these identified First Nations.[108]

59. To date, FEI has not received any opposition to the Project from the First Nations identified and contacted.[109] FEI's attentiveness to First Nations' interests and potential concerns will continue in the construction phase of the Project. For example, the Sto:lo Research and Resource Management Centre (SRRMC) will be engaged to conduct the detailed Archaeological Impact Assessment prior to ground disturbing activities and to provide input to the archeological protection measures.[110] Additionally, if a First Nation expresses a concern about the Project during the construction, FEI will set up a meeting to discuss the Project and the potential means to address the concern (if necessary), including the opportunity to become an intervener in the current Commission regulatory review proceedings.[111]

60. Given the limited scope of the Project, the Project's potential low impact on any aboriginal rights and interests, and FEI's responsiveness to interests and concerns raised by the identified First Nations, FEI believes the level of consultation that has already occurred is appropriate. FEI will continue its engagement activities with the First Nations as the Project progresses, including during the regulatory process when appropriate.[112]

I. CONCLUSION

61. The evidence indicates that the Project is needed to mitigate the potential large scale consequences from a Huntingdon Station failure, to provide redundancy to the Huntingdon Station, which has multiple single points of failure that can cause Station shut-down in the event of a failure, and to enable the Company to perform complete inspection and maintenance of the Station to enhance its

[107] Exhibit B-1, at page 48.
[108] Exhibit B-2, BCUC IR 1.14.4.
[109] Exhibit B-1, at pages 51-52.
[110] Exhibit B-1, at page 42.
[111] Exhibit B-2, BCUC IR 1.14.4.
[112] Exhibit B-2, BCUC IR 1.15.2.

reliability. The evidence further indicates the proposed bypass to be constructed with an alignment close to the Huntingdon Station is the most cost effective response to the demonstrated needed, and has limited environmental and socio-economic impacts.

62. FEI respectfully submits that the Project is in the public interest and should be granted as sought.

ALL OF WHICH IS RESPECTFULLY SUBMITTED.

Dated: February 21, 2014

[original signed by Song Hill]

Song Hill
Counsel for FortisBC Energy Utilities