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FortisBC Energy Inc.

Application for a Certificate of Public Convenience and Necessity  
for the Interior Transmission System Transmission Integrity  
Management Capabilities Project

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Decision  
and Order C-1-24

January 15, 2024

Before:

C. M. Brewer, Panel Chair  
A. C. Dennier, Commissioner  
E. B. Lockhart, Commissioner

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## **COMMISSION ORDER C-1-24**

### **APPENDICES**

<b>Appendix A</b>	<b>Project Reporting</b>
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## Executive summary

On September 20, 2022, FortisBC Energy Inc. (FEI) filed an application with the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN) pursuant to sections 45 and 46 of the *Utilities Commission Act* for FEI's Interior Transmission System (ITS) Transmission Integrity Management Capabilities (TIMC) Project (ITS TIMC Project or the Project) (Application). FEI is a wholly-owned subsidiary of FortisBC Holdings Inc., which in turn is a wholly-owned subsidiary of Fortis Inc. FEI provides sales and transportation services to more than one million natural gas customers throughout British Columbia.

The ITS is a network of FEI pipelines that supplies natural gas to FEI customers in the Okanagan, Kootenays, and portions of the Thompson regions. The ITS TIMC Project is a pipeline integrity project that FEI states is necessary for the continued safe and reliable operation of eight ITS pipelines. FEI states that these eight pipelines are susceptible to cracking threats that can lead to pipeline ruptures. FEI considers that its current cracking threat mitigation measures are not sufficient, nor are they aligned with industry best practices.

FEI has determined that the only technically and financially feasible alternative to address the identified risk posed by cracking is to prepare the ITS pipelines for in-line inspection (ILI) using an electro-magnetic acoustic transducer (EMAT) tool. The use of the EMAT ILI tool is increasingly being adopted by industry as a best practice for managing cracks and crack-like imperfections on transmission pipelines, mitigating the potential for rupture. In order to run the EMAT ILI tool, FEI must first complete alterations to two ITS pipelines and to 13 transmission pressure facilities.

The estimated overall cost of the Project in as-spent dollars is \$84.588 million, which includes an Allowance for Funds Used During Construction. The Project is scheduled to be constructed over a two-year period.

Following review of the evidence and submissions in this proceeding, the Panel finds that the public convenience and necessity require the construction of the ITS TIMC Project. Accordingly, for the reasons outlined in the accompanying Decision, and pursuant to sections 45 and 46 of the *Utilities Commission Act*, the Panel grants a CPCN to FEI for the ITS TIMC Project and directs various reporting requirements relating to the Project.

## 1.0 Introduction

On September 20, 2022, FortisBC Energy Inc. (FEI) filed an application with the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN) pursuant to sections 45 and 46 of the *Utilities Commission Act* (UCA) for FEI's Interior Transmission System (ITS) Transmission Integrity Management Capabilities (TIMC) Project (ITS TIMC Project or the Project) (Application).

The ITS is a network of pipelines that supply natural gas to the Okanagan, Kootenays, and portions of the Thompson regions. FEI states that the ITS TIMC Project is a pipeline integrity project that is necessary for the continued safe and reliable operation of eight identified ITS pipelines with credible pipe wall cracking threats.<sup>1</sup> FEI manages threats to its pipeline systems, such as the threat of cracking, through its pipeline Integrity Management Program (IMP-P). Integrity management improvement decisions are made through the implementation of FEI's IMP-P, which involves the analysis of regulations, standards, industry practice, asset knowledge and availability of technologies.<sup>2</sup> FEI states that its IMP-P meets the requirements of the *Pipeline Regulation* under the *Energy Resource Activities Act*<sup>3</sup>, formerly the *Oil and Gas Activities Act*.<sup>4</sup>

FEI has determined that ITS pipelines are susceptible to cracking that can lead to a rupture.<sup>5</sup> The Project consists of alterations to ITS pipeline assets to allow the use of electro-magnetic acoustic transducer (EMAT) in-line inspection (ILI) tools to manage this cracking threat. FEI states that the Project is confined to existing rights of way and facilities, and consists of alterations to two ITS pipelines and to 13 transmission pressure facilities.<sup>6</sup>

In 2021, FEI filed an application seeking a CPCN for its Coastal Transmission System (CTS) TIMC project. The CTS TIMC project similarly addressed FEI's identified need to respond to the threat of cracking on its CTS pipeline system. The CTS supplies gas to the Lower Mainland and to FEI's Vancouver Island Transmission System (VITS). A CPCN was granted to FEI for the CTS TIMC project by Decision and Order C-3-22 (CTS TIMC Decision).<sup>7</sup> The CTS TIMC CPCN proceeding is discussed in Section 1.6 below.

### 1.1 Approvals Sought

FEI seeks a CPCN for the ITS TIMC Project pursuant to sections 45 and 46 of the UCA.

The development costs related to the ITS TIMC Application are recorded in the non-rate base TIMC Development Cost deferral account, which was established by BCUC Order G-237-18.<sup>8</sup> FEI has recorded the development costs associated with both the CTS and ITS TIMC projects in this deferral account. These

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<sup>1</sup> Exhibit B-1, p. 1.

<sup>2</sup> Ibid., p. 22.

<sup>3</sup> *Energy Resource Activities Act*, [SBC 2008] c 36

<sup>4</sup> Ibid., p. 21.

<sup>5</sup> Ibid., p. 5.

<sup>6</sup> Ibid., p.1.

<sup>7</sup> FortisBC Energy Inc. Application for a Certificate of Public Convenience and Necessity for the Coast Transmission System Transmission Integrity Management Capabilities Project Decision and Order C-3-22 dated May 18, 2022.

<sup>8</sup> FortisBC Energy Inc. Annual Review for 2019 Delivery Rates Order G-237-18 with Reasons for Decision dated December 13, 2018.

development costs include CPCN application costs, preliminary stage development costs and pre-construction costs.<sup>9</sup>

By Order C-3-22, the BCUC granted a CPCN to FEI for the CTS TIMC project and approved the establishment of a rate base TIMC Development Cost deferral account into which FEI was permitted to transfer the balance of the development costs associated with the CTS TIMC Project. The rate base TIMC Development Cost deferral account was approved with a five-year amortization period.

In this Application, FEI seeks approval, pursuant to sections 59 to 61 of the UCA, to transfer the balance of the non-rate base TIMC Development Cost deferral account related to the ITS TIMC Application, estimated to be a credit of \$0.574 million at December 31, 2023, to the existing rate base TIMC Development Cost deferral account.<sup>10</sup> FEI also seeks approval to capitalize the pre-construction development costs related to the Project, estimated to be \$4.108 million at the end of 2023, by transferring those costs to construction work in progress (CWIP).<sup>11</sup> Further information regarding the development costs associated with the ITS TIMC Project is provided in Section 5 below.

FEI requests that the following appendices filed in support of the Application be held confidential by the BCUC (Confidential Information), and that this information remain confidential after the regulatory process for this Application is completed:<sup>12</sup>

- Appendix B – JANA’s (Quantitative Risk Assessment expert) Reports
  - FEI states these Quantitative Risk Assessment (QRA) expert reports identify vulnerable points on FEI’s gas transmission system and areas of risk to FEI’s assets.
- Appendix G – Stantec Front-End Engineering and Design (FEED) Report Documents
- Appendix H – Risk Analysis
  - FEI states that Appendices G and H are engineering and risk analysis documents, which if disclosed, could impede FEI’s ability to work safely and reliably operate its gas system assets and could risk the safety of both its workers and the public. These documents also include cost estimates and identify areas of risk to the Project.
- Appendix J – Financial Schedules
  - FEI states that Appendix J includes cost estimates, and that if this information is disclosed, FEI reasonably expects that its negotiating position may be prejudiced.

## **1.2 Regulatory Process**

By Order G-320-22 dated November 7, 2022, the BCUC established a written public hearing process and a regulatory timetable for the review of the Application, which included public notice, intervenor registration and

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<sup>9</sup> Exhibit B-1, pp. 119-120.

<sup>10</sup> Ibid., p. 1.

<sup>11</sup> FEI Final Argument, para. 126.

<sup>12</sup> Exhibit B-1, p. 2.

one round of information requests (IRs). The regulatory timetable was amended to include further process, including:<sup>13</sup>

- A second round of IRs;
- Panel IRs;
- Intervener and rebuttal evidence;
- IRs on intervener and rebuttal evidence; and
- Final and reply written arguments.

Three parties registered as interveners in the proceeding:

- British Columbia Old Age Pensioners' Organization et al. (BCOAPO);
- Residential Consumer Intervener Association (RCIA); and
- Commercial Energy Consumers Association of British Columbia (the CEC).

No letters of comment were received.

### **1.3 Legal and Regulatory Framework**

Section 45(1) of the UCA states that except as otherwise provided, after September 11, 1980, a person must not begin the construction or operation of a public utility plant or system, or an extension of either, without first obtaining from the BCUC a certificate that public convenience and necessity require, or will require, the construction or operation of the plant or system.<sup>14</sup>

Section 46 (3.1) of the UCA requires the BCUC to consider the following in determining whether to issue a CPCN:

- a) the applicable of British Columbia's energy objectives,<sup>15</sup>
- b) the most recent long-term resource plan filed by the public utility under section 44.1, if any, and
- c) the extent to which the application for the certificate is consistent with the applicable requirements under sections 6 and 19 of the *Clean Energy Act* (CEA).

The BCUC's CPCN Guidelines provide general guidance regarding the information that should be included in a CPCN application and the flexibility for an application to reflect the specific circumstances of the applicant, the size and nature of the project and the issues raised by the application.<sup>16</sup>

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<sup>13</sup> BCUC Orders G-18-23, G-48-23, G-94-23, and G-115-23.

<sup>14</sup> *Utilities Commission Act*, RSBC 1996, c. 473, Section 45(1).

<sup>15</sup> BC's energy objectives are defined in section 2 of the *Clean Energy Act*.

<sup>16</sup> *Order G-20-15, 2015 Certificate of Public Convenience and Necessity Application Guidelines*.

## 1.4 Energy Resource Activities Act

The BC Energy Regulator (BCER, formerly the BC Oil and Gas Commission or BC OGC) is mandated under the *Energy Resource Activities Act*<sup>17</sup> (ERAA) to regulate energy resource activities, which include the construction or operation of a pipeline. Recent legislation<sup>18</sup> amended and renamed the *Oil and Gas Activities Act* to the ERAA.

FEI is obligated to comply with Canadian Standards Association (CSA) Z662-23 Oil and Gas Pipeline Systems standard, which is prescribed by the *Pipeline Regulation*<sup>19</sup> under the ERAA.<sup>20</sup> FEI states that the integrity-related regulatory provisions applicable to FEI's gas system assets, as expressed by standards such as CSA Z662-23, are typically goal-oriented rather than prescriptive in nature.<sup>21</sup> As such, the requirements are expressed as outcomes to be achieved, rather than as descriptions of how to achieve those outcomes. The specific actions that FEI must take to eliminate or mitigate cracking threats are therefore not specifically defined in the applicable laws, regulations, or standards.<sup>22</sup>

The BCER filed a letter of comment in support of the TIMC Project stating that FEI, as a permit holder, has "certain obligations to maintain its pipeline infrastructure to accord with legislative, regulatory and code requirements," including those found in the ERAA and CSA Z662.<sup>23</sup>

## 1.5 Decision Framework

The structure of this Decision largely follows the structure of the Application, as well as the BCUC's CPCN Guidelines.<sup>24</sup>

- Section 2 addresses the need and justification for the Project;
- Section 3 addresses the alternatives considered for the Project;
- Section 4 addresses the Project scope and schedule;
- Section 5 addresses the cost of the Project and rate impact;
- Section 6 addresses Project-related environmental and archaeological assessments;
- Section 7 addresses public engagement and Indigenous consultation for the Project;
- Section 8 addresses the Project's alignment with British Columbia's energy objectives and FEI's Long Term Gas Resource Plan;
- Section 9 addresses other issues arising; and
- Section 10 provides the Panel's overall determination.

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<sup>17</sup> *Energy Resource Activities Act*, [SBC 2008] c 36.

<sup>18</sup> *Energy Statutes Amendment Act* (2022).

<sup>19</sup> *Pipeline Regulation*, BC Reg 281/2010

<sup>20</sup> Exhibit B-1, p. 47.

<sup>21</sup> Exhibit B-1, p. 47.

<sup>22</sup> Ibid.

<sup>23</sup> Ibid., Appendix C.

<sup>24</sup> BCUC CPCN Guidelines.



## 1.6 Previous BCUC Decisions

As noted above, FEI applied to the BCUC for a CPCN for the CTS TIMC Project in 2021 to address cracking threats to the CTS. A CPCN was issued to FEI in May 2022 for this project.<sup>25</sup> This section describes FEI's pre-development work for both the CTS and ITS TIMC projects and why FEI prioritized execution of the CTS TIMC project, followed by the ITS TIMC Project.

FEI states that "the industry is learning that pipelines are more susceptible to cracking threats than previously believed, and industry practice is moving towards active monitoring and mitigating cracking threats on larger diameter pipelines using EMAT ILI tools."<sup>26</sup> In response to the evolution of the pipeline industry's knowledge of cracking threats, FEI contracted JANA Corporation (JANA) to assess the susceptibility of FEI's transmission systems to cracking threats, and to undertake a baseline system-level quantitative risk assessment (QRA) of the safety risks to FEI's transmission systems.<sup>27</sup> As part of the development work for both the CTS and ITS TIMC projects, JANA completed these two assessments and concluded that:

1. The CTS and ITS are susceptible to cracking threats which can lead to failure by rupture;<sup>28</sup> and
2. The CTS has the highest risk followed by the ITS and then the Vancouver Island Transmission System.<sup>29</sup>

The results of the QRA indicated that cracking is the top driver of risk for the CTS pipelines.<sup>30</sup> For the nine ITS pipelines found to be susceptible to cracking, JANA estimates that cracking threats are the second highest threat for seven pipelines and the third highest threat for the two other susceptible pipelines.<sup>31</sup> Threats that were more highly ranked than cracking for the ITS pipelines include third-party damage and natural hazards.<sup>32</sup> Of the nine ITS pipelines, the Trail – Castlegar 8" pipeline has been omitted from the scope of the ITS TIMC Project, as EMAT ILI tools are not available for pipelines 8" or smaller.<sup>33</sup> FEI states that it will continue to inspect its pipelines with diameter 8" or smaller for cracking during opportunity digs and, if significant cracking is discovered, it will develop line specific mitigation plans.<sup>34</sup>

FEI states that the relative risk due to cracking is lower for the ITS, as compared to the CTS, primarily due to the lower population density in the vicinity of the ITS pipelines.<sup>35</sup> Therefore, FEI identified two separate TIMC projects, the CTS TIMC project followed by the similar ITS TIMC Project. FEI notes that dividing the applications at the system level has enabled FEI to advance its risk mitigation efforts in a timely and pragmatic way.<sup>36</sup>

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<sup>25</sup> FEI CTS TIMC Decision.

<sup>26</sup> Exhibit B-1, p. 5.

<sup>27</sup> Exhibit B-1, p. 5.

<sup>28</sup> 11 of 13 CTS pipelines were found to be susceptible and 9 of 12 ITS pipelines were found to be susceptible, Exhibit B-1, p. 36.

<sup>29</sup> Ibid., p. 43.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

<sup>32</sup> Third-party damage results from external interference such as third-party contact with the pipeline or vandalism. Damage from natural hazards results from environmental factors such as landslides, floods and/or earthquakes, which can expose and/or cause pipeline damage, Exhibit B-1, p. 43.

<sup>33</sup> Exhibit B-1, p. 46.

<sup>34</sup> Ibid.

<sup>35</sup> Exhibit B-1, p. 43

<sup>36</sup> Ibid.

## 2.0 Project Need and Justification

The objective of this Project is to mitigate cracking threats on eight of FEI's ITS pipelines.<sup>37</sup> These eight ITS pipelines are susceptible to cracking threats<sup>38</sup> and have a potential to fail by rupture.<sup>39</sup> Cracking threats cannot be detected by FEI's current ILI tools.<sup>40</sup> FEI states that ruptures can have significant and unacceptable consequences.<sup>41</sup> FEI states that its current activities to identify cracking on the ITS are insufficient and are not aligned with industry practice.<sup>42</sup>

### 2.1 Risk of Cracking Threats to ITS Pipelines

Cracking threats are “planar imperfections” that affect the strength of a pipeline by effectively reducing the wall thickness of the pipeline. The two main types of cracking threats are stress corrosion cracking (SCC) and crack-like imperfections in the seam weld of a pipeline. SCC and crack-like imperfections can interact with other time-dependent integrity threats, such as external corrosion, to compound integrity issues on a pipeline.<sup>43</sup>

The consequences of pipeline failure depend in large part on whether it will fail by rupture or by leaking. The eight ITS pipelines can all fail by rupture.<sup>44</sup> FEI states that ruptures can have significant and unacceptable safety, reliability, environment, and regulatory consequences.<sup>45</sup>

Analysis performed on SCC crack growth rates based on FEI operating conditions estimates a range of potential time until failure from 5 to 85 years. FEI states that, while the lower timeframe of five years is considered highly unlikely (reflecting a combination of the longest, deepest crack with the lowest toughness pipeline), the analysis does indicate that SCC is a credible integrity threat that needs to be managed in a timely manner.<sup>46</sup> FEI clarifies that the purpose of this crack growth rate analysis was to inform the credibility of cracking threats on its transmission pipeline, not to explicitly determine time to failure (since the data is not a complete characterization of cracking in FEI's system).<sup>47</sup> FEI states that the TIMC projects are necessary at this time based on the following:<sup>48</sup>

- The availability of a proven and commercialized technology suitable for use in FEI's transmission pipeline system;
- FEI's identification of emerging changes in industry practices including increasing adoption of EMAT ILI technology for managing cracking threats to transmission pipelines; and

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<sup>37</sup> Ibid., p.13.

<sup>38</sup> Ibid., p. 36.

<sup>39</sup> Ibid., p. 49.

<sup>40</sup> Ibid., p. 26.

<sup>41</sup> Ibid., p. 50.

<sup>42</sup> Ibid., p. 43.

<sup>43</sup> Exhibit B-1, p. 26.

<sup>44</sup> Ibid., p. 49.

<sup>45</sup> Ibid., p. 50.

<sup>46</sup> Ibid., pp. 40-41.

<sup>47</sup> Exhibit B-9, BCUC IR 19.1.

<sup>48</sup> Exhibit B-4, BCUC IR 5.3.

- Completion of a baseline system-level QRA, which has informed the priority and urgency of the TIMC projects.

## 2.2 FEI's Integrity Management Practices

As noted above, the three greatest identified threats to FEI's ITS pipelines are cracks, third-party damage and natural hazards. With respect to the third-party damage and natural hazards, FEI states that its integrity management practices include established activities to mitigate these threats in accordance with standards, regulations and industry practice. In contrast, FEI states that its activities to mitigate cracking on the ITS are not sufficient or aligned with industry practice.<sup>49</sup>

FEI's integrity management practices for managing cracking threats on the ITS involve inspecting transmission pipelines for cracking during "opportunity digs," when a portion of the pipeline (in the order of 10 metres) is exposed because of other pipe condition assessments. These digs are referred to as "opportunity digs," as the primary reason for the integrity dig is not related to cracking. FEI estimates that the total amount of pipeline exposed and assessed for cracking by this method is approximately one percent of the total length of pipeline in FEI's transmission systems. As such, these opportunity digs are not expected to have identified all cases of cracking. As cracking is a highly localized and often unpredictable phenomenon, it is also not possible to use the analysis from integrity digs to determine where cracking may be occurring on other segments of FEI's pipelines.<sup>50</sup>

FEI explains that the need to complete the Project at this time is driven by FEI's obligation to take reasonable steps to deliver safe and reliable service.<sup>51</sup> FEI has found cracking on eight ITS pipelines during integrity digs conducted as part of its current IMP-P activities.<sup>52</sup> Although satisfied with the proposed Project timeline, FEI states that cracking is a threat that increases over time and the extent of any actual cracking cannot be known until FEI is able to inspect the entire length of the ITS pipelines.<sup>53</sup> FEI is therefore of the view that it should proceed with the Project at this time and cannot justify any delay.<sup>54</sup>

## 2.3 FEI's Obligations as a Prudent Operator

As a prudent operator, FEI states that it must respond to the risk of cracking threats and keep pace with evolving industry practice for managing this risk.<sup>55</sup> As a BCER permit holder, FEI notes that it is obligated to comply with CSA Z662 to monitor for conditions that can lead to failures, to eliminate or mitigate such conditions, and to manage integrity data. As noted in Section 1 of this Decision, the BCER supports FEI's TIMC projects, recognizing that these projects are in alignment with FEI's regulatory and legal responsibilities as a BCER permit holder.<sup>56</sup>

The use of EMAT ILI is increasingly being adopted by industry as a best practice for managing cracks and crack-like imperfections on transmission pipelines, mitigating their potential for rupture. FEI states that gas

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<sup>49</sup> Exhibit B-1, p. 43.

<sup>50</sup> Exhibit B-1, pp. 29-30.

<sup>51</sup> Exhibit B-15, Panel IR 1.3.

<sup>52</sup> Exhibit B-1, Table 3-4, p. 39.

<sup>53</sup> Exhibit B-15, Panel IR 1.3.

<sup>54</sup> Ibid.

<sup>55</sup> Exhibit B-1, p. 14.

<sup>56</sup> Ibid., pp. 47-48.

transmission operators are having success using this inspection tool to manage cracking threats, and, as such, the use of EMAT ILI is rapidly becoming the industry standard approach.<sup>57</sup>

### *Positions of Parties*

The CEC agrees with FEI that the need for the Project is compelling and that the Project should be undertaken.<sup>58</sup> However, in the CEC's view, FEI has not made a particularly strong case for undertaking the Project immediately. The CEC expects that a delay of one or two years could be marginally beneficial in terms of deferring expenditures, however, these benefits could also be offset by potential increases in future costs. The CEC submits that indefinite delay would not be suitable and would jeopardize FEI's ITS safety management.<sup>59</sup>

BCOAPO accepts that the key reasons articulated by FEI to justify the ITS TIMC Project are sufficient for the BCUC to find that the Project is needed and justified. However, BCOAPO's support for the Project is not unqualified based on its concerns regarding the lack of a rigorous process for assessing costs against the value of benefits (reductions in risk) and the relative coverage of the total pipeline length of the ITS Project compared to the CTS project.<sup>60</sup>

Overall, RCIA believes that FEI is justified in proceeding with the ITS TIMC Project.<sup>61</sup> RCIA agrees that there is a gap in FEI's integrity management practices to address the threat of SCC, and where there is a feasible alternative to more fully inspect the ITS pipelines, it is prudent to adopt methods to inspect these pipelines.<sup>62</sup>

In reply to the CEC's submission regarding the timing of the Project, FEI submits that its ITS pipelines currently face a risk of rupture. FEI submits that these pipelines have been found to be susceptible to cracking, that physical inspections of these pipelines have confirmed cracking occurrences, and that FEI has a regulatory obligation to monitor and mitigate cracking threats.<sup>63</sup> FEI submits that based on these risks, it should carry out the ITS Project as planned and without delay.<sup>64</sup>

### *Panel Discussion*

The Panel finds that FEI has established that there is a need to address the risk of undetected cracking threats, including SCC, on FEI's ITS pipelines. The Panel agrees with FEI's assessment that its tools and techniques cannot effectively detect cracks that can lead to rupture. As with the CTS TIMC Decision, in which the BCUC accepted FEI's evidence of an unacceptable level of risk, FEI has presented sufficient evidence of an undetected cracking risk on the ITS pipelines.

The Panel is persuaded by FEI's evidence that cracking threats, including SCC, represent a threat to FEI's ITS pipelines and that the consequences of a pipeline rupture are unacceptable. Considering that industry practices are evolving, the Panel accepts that FEI's current integrity management practices for managing cracking threats

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<sup>57</sup> Ibid., p. 31.

<sup>58</sup> CEC Final Argument, pp. 10-11.

<sup>59</sup> Ibid., pp. 6-7.

<sup>60</sup> BCOAPO Final Argument, pp. 6-7.

<sup>61</sup> RCIA Final Argument, p. 5.

<sup>62</sup> Ibid., p. 6.

<sup>63</sup> FEI Reply Argument, para. 51.

<sup>64</sup> Ibid.

on the ITS are insufficient. As a prudent operator, FEI is obligated to monitor for risks to its pipelines, eliminate or mitigate identified risks, and to keep pace with industry practice for managing those risks.

The Panel is persuaded by FEI's evidence that cracks could grow to failure in FEI's system and accepts that FEI, as a prudent operator, needs to manage the risk of cracking threats in a timely manner. The Panel finds that there is no reason to delay addressing this need.

The Panel also acknowledges the BCER letter of support for the Project.<sup>65</sup>

### **3.0 Description and Evaluation of Alternatives**

FEI identified the following six alternatives to achieve the objectives of the Project:

- Alternative 1: Stress Corrosion Cracking Direct Assessment (SCCDA);
- Alternative 2: Pressure Regulating Station (PRS);
- Alternative 3: Hydrostatic Test Program (HSTP);
- Alternative 4: EMAT In-line Inspection (EMAT ILI);
- Alternative 5: Pipeline Replacement (PLR); and
- Alternative 6: Pipeline Exposure and Recoat (PLE).

A brief description of each alternative and the evaluation methodology used by FEI to select its preferred alternative is provided below, followed by a summary of the parties' positions and the Panel's discussion.

#### **3.1 Description of Alternatives**

##### Alternative 1: Stress Corrosion Cracking Direct Assessment (SCCDA)

This approach includes pre-assessment and indirect inspection steps, which lead to the selection of excavation sites to directly examine the pipeline. Data from the direct examination, as well as the preceding pre-assessment and indirect inspection steps, is analysed to confirm pipeline integrity objectives have been met, to refine predictive models for where SCC is suspected to be present, to establish any further investigation and to establish re-inspection intervals.<sup>66</sup>

##### Alternative 2: Pressure Regulating Station (PRS)

FEI considered as an alternative the installation of a PRS to permanently lower the maximum pipeline operating pressure to below 30 percent of the pipeline's specified minimum yield stress (SMYS). FEI states that a pipeline operating below 30 percent of SMYS only has a potential to leak, rather than rupture.<sup>67</sup>

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<sup>65</sup> Exhibit B-1, Appendix C.

<sup>66</sup> Exhibit B-1, p. 59.

<sup>67</sup> Ibid., pp. 59-60.

### Alternative 3: Hydrostatic Test Program (HSTP)

FEI states that hydrostatic testing is complex and involves multiple steps, including the isolation of the selected pipeline segment, the evacuation of residents within a pre-determined radius of the test segment, filling the pipeline with water and increasing the pressure of the water to the required level for a specified period of time.<sup>68</sup>

HSTP has been used on pipelines where SCC failures have occurred or where near-critical cracking has been detected.<sup>69</sup> However, FEI states that an HSTP does not identify the presence or absence of sub-critical cracks and that any SCC or crack-like flaws that did not fail during the hydrostatic test can be expected to grow over time.<sup>70</sup>

### Alternative 4: EMAT ILI Program

This alternative involves the periodic running of ILI tools equipped with specialized sensors through the pipelines to detect anomalies or defects. The pipeline condition data resulting from the ILI tool runs is analysed and integrity digs are then performed to expose the pipeline to allow for EMAT ILI data validation and for the removal of pipeline defects.<sup>71</sup> FEI states that although EMAT ILI tools operate similarly to conventional ILI tools, the unique signal and sensor technology of the EMAT ILI allows the tool to identify cracking in the pipeline wall.<sup>72</sup> FEI states that the EMAT ILI tools can be used in pipelines down to a nominal pipe size of 10 inches.<sup>73</sup> FEI assessed only the gas propelled EMAT ILI technology, as opposed to a self-propelled robotic EMAT ILI tool, since FEI considers the robotic tool to not be proven and fully commercialized.<sup>74</sup>

To implement the EMAT ILI Program, FEI states that the following pipeline and facility alterations would be required:<sup>75</sup>

- Pipeline alterations: The EMAT ILI tool is propelled by the flow of gas in the pipeline. At points where the inside diameter of the pipeline segments varies (for example, due to changes in pipeline wall thickness), the velocity of the tool downstream of the restriction would exceed the optimum velocity range set by the ILI vendor. FEI states that the pipeline sections that cause such speed excursions would need to be cut out and replaced.
- Facility alterations:
  - Launchers & Receivers: FEI states that to use the EMAT ILI tools, it would need to modify the launching and receiving assemblies for the tool, which are located at the upstream and downstream ends of a pipeline.

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<sup>68</sup> Ibid., pp. 60-61.

<sup>69</sup> Ibid., p. 61.

<sup>70</sup> Ibid.

<sup>71</sup> Exhibit B-1, p. 61.

<sup>72</sup> Ibid.

<sup>73</sup> Ibid.

<sup>74</sup> Ibid.

<sup>75</sup> Ibid., pp. 63-67.

- Flow control stations: FEI states that the use of flow control stations is required to ensure the ILI tool travels within its specified range.
- Pressure regulating stations: FEI states pressure regulating stations are required to allow for immediate pressure reduction if significant cracking is found after inspection of the pipeline by the EMAT ILI tool.

#### Alternative 5: Pipeline Replacement (PLR)

Project objectives could be achieved by replacing the existing pipeline in its entirety with a new pipeline coated with a high integrity coating that is not conducive to the formation of SCC.<sup>76</sup>

#### Alternative 6: Pipeline Exposure and Recoat (PLE)

FEI states the PLE alternative involves exposing the entire length of a pipeline, removing the coating, inspecting 100 percent of the surface using non-destructive examinations, repairing any cracking or other anomalies discovered, and recoating the entire pipeline with a high integrity coating.<sup>77</sup>

### **3.2 Evaluation of Alternatives**

FEI assessed the six alternatives against non-financial and financial criteria. FEI determined that alternatives 1, 2 and 3 are not technically feasible; SCCDA is not feasible due to its inability to identify critical cracking threats, and PRS and HSTP are not feasible due to significant system and operational constraints.<sup>78</sup>

FEI further determined that alternatives 5 and 6 are not financially feasible, as FEI's assessment indicated that the cost of these two alternatives would each be approximately six times the cost of the EMAT ILI alternative.<sup>79</sup>

The following table provides a summary of FEI's alternative analysis:

**Table 1: FEI's Alternative Analysis<sup>80</sup>**

	Non-Financial			Financial
	Method Effectiveness	Implementation Complexity	Community and Environmental Impacts	Relative Cost
Alternative 1: SCCDA	✗	✓	-	n/a
Alternative 2: PRS	✓	✗	✓	n/a
Alternative 3: HSTP	-	✗	~	n/a
Alternative 4: EMAT ILI	✓	✓	✓	✓
Alternative 5: PLR	✓	~	~	✗
Alternative 6: PLE	✓	~	~	✗

<sup>76</sup> Ibid., p. 67.

<sup>77</sup> Ibid.

<sup>78</sup> Ibid., p. 73.

<sup>79</sup> Ibid., p. 82.

<sup>80</sup> Ibid., p. 70, Table 4-3.

### 3.3 Justification for Preferred Alternative

Based on FEI's analysis of the identified alternatives that meet the Project's objectives, EMAT ILI (alternative 4) was determined to be the only technically and financially feasible option. FEI notes that the EMAT ILI technology is highly effective for managing cracking threats as it is capable of identifying, locating, and sizing cracking defects.<sup>81</sup>

#### *Positions of Parties*

BCOAPO submits that it has no significant concerns that the EMAT ILI technology is the most appropriate alternative from a technology perspective. However, BCOAPO is concerned that given there were no meaningful alternatives to the EMAT ILI that were both technically and financially feasible, FEI did not evaluate any sub-alternatives to the EMAT ILI. BCOAPO states that in response to IRs, FEI indicated that it had difficulty adopting the concept of "meaningful alternative" and that the BCUC's CPCN Guidelines do not use such a term, but instead refer to "feasible alternatives." BCOAPO also notes that FEI refers to the EMAT ILI alternative as "cost effective," however, BCOAPO considers it to be rather "least-cost" as compared to PLR or PLE – two alternatives that were obviously not meaningfully considered.<sup>82</sup> BCOAPO expressed appreciation for RCIA's analysis of 'sub-alternatives' included as part of RCIA's evidence.<sup>83</sup>

RCIA agrees with FEI's assessment of alternatives, and agrees that the proposed use of EMAT ILI tools to inspect the ITS pipelines is the best alternative.<sup>84</sup>

The CEC agrees that EMAT ILI is the best and only feasible option to address Project objectives. The CEC recommends that the BCUC accept FEI's alternatives analysis as being reasonable.<sup>85</sup>

In reply, FEI submits that its analysis of alternatives was robust and complete, and that it complied with the BCUC's CPCN Guidelines. Further, FEI submits that BCOAPO has not substantiated the existence of any sub-alternatives that FEI should have examined or identified any flaw in FEI's alternatives analysis.<sup>86</sup>

#### *Panel Discussion*

The Panel finds that FEI's identification and analysis of the alternatives are reasonable and that the evidence supports FEI's selection of the EMAT ILI technology as the preferred alternative. FEI has demonstrated that only three of the six available alternatives for meeting the objectives of the Project are currently technically feasible, and only the EMAT ILI alternative is financially feasible. The PLR and PLE alternatives are prohibitively expensive. The Panel notes that delaying the Project in hopes of finding a less costly alternative is not justified given the level of risk and the regulatory requirement to address the cracking threat.

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<sup>81</sup> Ibid., p. 83.

<sup>82</sup> BCOAPO Final Argument, p. 9.

<sup>83</sup> Ibid., p. 20.

<sup>84</sup> RCIA Final Argument, p. 7.

<sup>85</sup> CEC Final Argument, paras. 97-99.

<sup>86</sup> FEI Reply Argument, para. 40-42.



The Panel notes BCOAPO's submission, which distinguishes between describing the EMAT ILI alternative as "least-cost" as opposed to "cost effective". The issue of the value of incremental risk reduction measures is further discussed in Section 9 below.

The Panel considers that evaluation of specific sub-alternatives often occurs as the scope of the preferred alternative is further developed. The evidence submitted by RCIA in this proceeding proposes modifications to FEI's identified scope of work. This evidence is discussed in Section 4 below.

#### **4.0 Project Description**

The Project consists of alterations to ITS pipelines and facilities to allow the use of EMAT ILI tools to manage the threat of SCC. The ITS TIMC Project consists of the following components:<sup>87</sup>

- Pipeline Alterations
  - Replacement of three heavy-wall pipeline segments;
- Facility Alterations
  - Modification to 13 facilities (ILI launching and receiving barrels);
  - Modifications to four facilities to accommodate the use of a Flow Control Station (FCS); and
  - Installation of two pressure regulating stations to support EMAT ILI activities.

Figures 1 and 2 below show the locations of the proposed pipeline and facility alterations.

**Figure 1: Location of ITS Pipeline Alterations<sup>88</sup>**

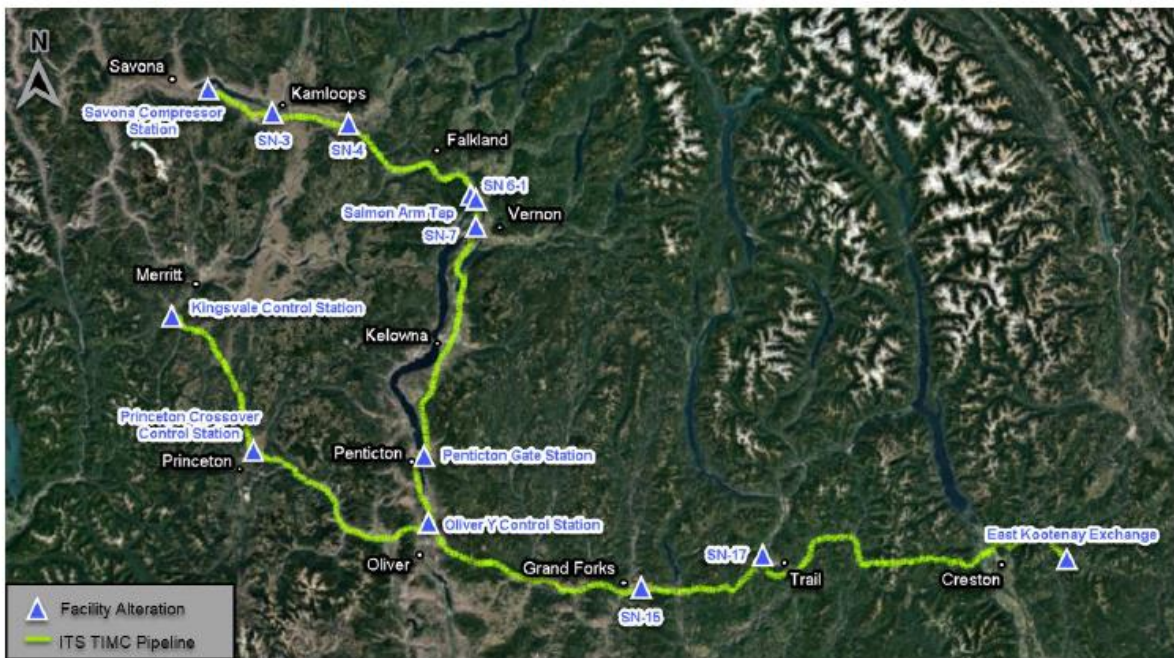
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<sup>87</sup> Exhibit B-1, pp. 85-86.

<sup>88</sup> Ibid., p. 89, Figure 5-1.



Figure 2: Location of ITS Facility Alterations<sup>89</sup>



#### 4.1 Pipeline Alterations

FEI states that speed excursions by the EMAT ILI tool can affect its data collection capabilities. FEI describes the speed excursion phenomenon as a localized increase in tool velocity where the tool travels beyond the

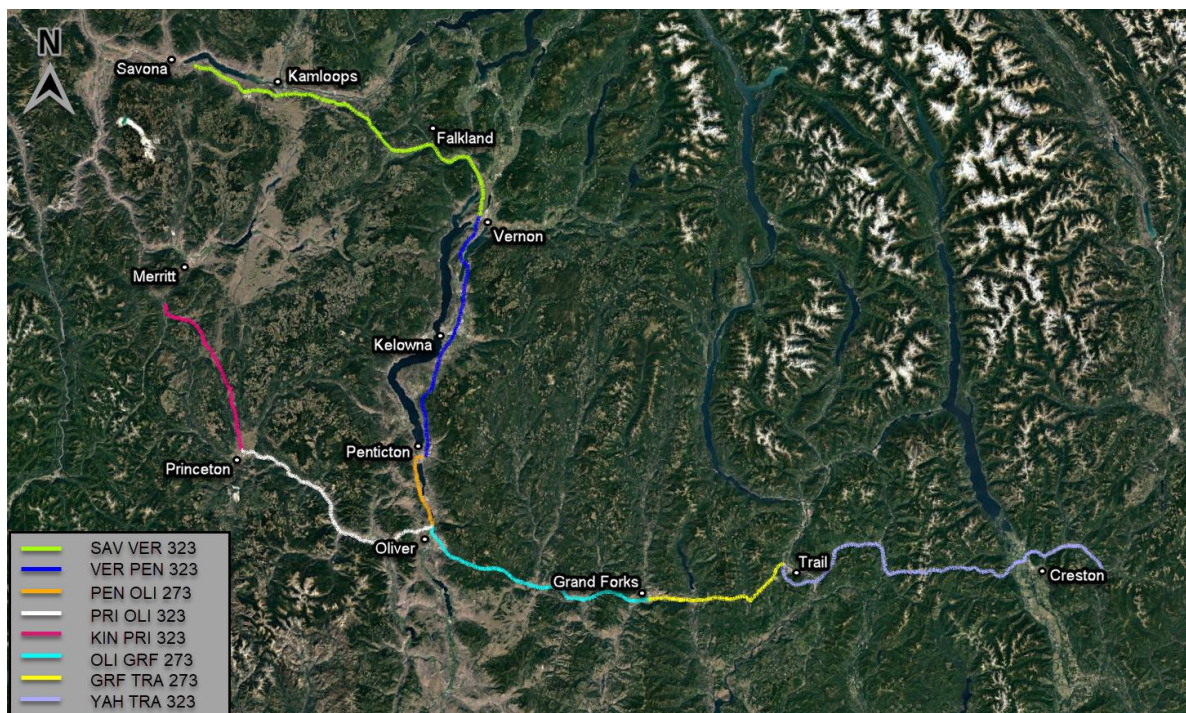
<sup>89</sup> Exhibit B-1, p. 93, Figure 5-2.



maximum allowable velocity at which it can collect quality data. FEI notes that the effect of speed excursion ranges from degradation of data quality to a complete inability for the tool to collect data, resulting in “blind spots” in data collection. FEI states that speed excursions frequently occur downstream of heavy-wall portions of pipe.<sup>90</sup> FEI notes there are a variety of reasons for the historical use of heavy-wall pipe segments, such as a road crossing or a tight-radius forged elbow or tee fitting.<sup>91</sup>

FEI has identified the need to replace three segments of heavy-wall pipe located on two ITS pipelines to avoid EMAT ILI tool speed excursions. These include pipeline alteration event 1 on the 12” pipeline between Savona and Vernon (SAV VER 323) and pipeline alteration events 29 and 31 on the 12” pipeline between Kingsvale and Princeton (KIN PRI 323). These pipeline alterations are shown in Figure 1 above. FEI states that the replacement of these pipeline segments will enable the EMAT ILI tool to travel within its optimal velocity range, which is critical for the collection of full resolution ILI data.<sup>92</sup> Figure 3 below is a map of the ITS pipelines within the Project scope. The SAV VER 323 pipeline is located east of Savona, and shown in Figure 3 in light green. The KIN PRI 323 pipeline is located northwest of Princeton, and is shown in Figure 3 in pink.

**Figure 3: ITS Pipelines<sup>93</sup>**



The heavy-wall segment to be replaced on the SAV VER 323 pipeline is approximately 80 metres in length. On the KIN PRI 323 pipeline, there are two adjacent 2.5 metres long heavy-wall segments to be replaced, as well as heavy-wall pipeline on either side of a valve assembly.<sup>94</sup> FEI states that at all three proposed pipeline alteration locations, it expects the proactive replacement of the heavy-wall pipe segments will be less costly and disruptive

<sup>90</sup> Ibid., p. 90.

<sup>91</sup> Ibid.

<sup>92</sup> Ibid., p. 85.

<sup>93</sup> Exhibit B-1, Figure 3-1, p. 14.

<sup>94</sup> Ibid., pp. 87, 91.

than reactive mitigations such as PLE or PLR.<sup>95</sup> For all three proposed heavy-wall segment alterations, FEI states that if it were required to mitigate cracking on the downstream impacted pipe (after obtaining unusable data collected by the EMAT ILI run due to speed excursion), FEI would need to expose significantly more pipe than the length of heavy-wall pipe being replaced, resulting in higher costs.<sup>96</sup>

In order to determine where EMAT ILI speed excursions may occur, and therefore where proactive pipeline alterations may be required, FEI reviewed the locations on the ITS where speed excursions have occurred in the past when running other in-line inspection tools such as magnetic flux leakage circumferential (MFL-C) tools. FEI identified 65 locations on the ITS where MFL-C ILI tools have experienced speed excursions.<sup>97</sup>

Beginning in 2019, FEI conducted two pilot test runs of the EMAT ILI tool on two pipelines in the CTS. FEI states that based on its observations of EMAT ILI tool behaviour during these pilot test runs, FEI was able to refine the scope of necessary pipeline alterations for the ITS TIMC Project. FEI notes that the results of the pilot test runs indicated that in the majority of cases, the same pipeline features, such as heavy-wall segments, caused speed excursions for both the MFL-C and EMAT ILI tools. To select which pipeline alterations should be included within the Project scope, FEI determined that heavy-wall pipeline segments that caused speed excursions of greater than 7 metres per second during past MFL-C ILI tool runs would be included within the Project scope.<sup>98</sup> The three proactive pipeline alterations included within the Project scope are at locations where FEI has experienced MFL-C ILI tools travelling at greater than 7 metres per second.<sup>99</sup> Accordingly, FEI included the replacement of the three heavy-wall segments noted above in the ITS TIMC Project scope, and deferred the replacement of the other 62 heavy-wall segments until after reviewing data collected during the first EMAT ILI runs.<sup>100</sup>

FEI states that it anticipates that the EMAT ILI tools could still experience speed excursions for certain lengths of pipeline, even with the heavy-wall pipe segment replacements currently proposed. FEI further states that the pipeline integrity data collected on pipeline segments where a speed excursion occurred may still be usable, despite the potential that the data is degraded.<sup>101</sup> However, FEI requires full pipeline integrity data coverage of the ITS pipelines, and not all EMAT ILI tool vendors offer a specification for degraded data that would allow for pipeline integrity decision making – such as may occur at the location of a speed excursion.<sup>102</sup> Therefore, FEI states that where there are lengths of pipeline where the EMAT ILI data cannot be relied upon, FEI will perform site-specific assessments to determine a cost-effective mitigation.<sup>103</sup> FEI maintains that proactive replacement of heavy-wall pipe segments to reduce the lengths of unusable data is the most cost-effective method to mitigate cracking threats.<sup>104</sup>

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<sup>95</sup> Exhibit B-9, BCUC IR 20.8.

<sup>96</sup> Ibid.

<sup>97</sup> Exhibit B-1, Appendix D, p. 7.

<sup>98</sup> Exhibit B-1, p. 91.

<sup>99</sup> Exhibit B-18, pp. 15-18.

<sup>100</sup> Exhibit B-1, Appendix D, p. 7.

<sup>101</sup> Exhibit B-9, BCUC IR 20.1.

<sup>102</sup> Exhibit B-1, p. 90.

<sup>103</sup> Ibid.

<sup>104</sup> Exhibit B9, BCUC IR 20.1.

#### 4.1.1 Additional Evidence regarding Removal of Heavy-wall Pipeline Segments

RCIA filed evidence that offers an alternative view regarding the need to include the removal of heavy-wall pipeline segments within the Project scope. RCIA's evidence was prepared by Mr. Brady Ryall of Ryall Engineering Ltd. (REL).<sup>105</sup>

REL recommends that FEI defer the replacement of heavy-wall segments of the ITS pipelines until the initial EMAT ILI runs confirm the presence of blind spots in pipeline condition data caused by speed excursions resulting from the heavy-wall segments.<sup>106</sup> REL states that FEI expects to use EMAT ILI tools with built-in speed controls when it inspects the SAV VER 323 pipeline in 2026 and the KIN PRI 323 pipeline in 2032.<sup>107</sup> EMAT ILI tools can be equipped with speed control valves, which allow some of the gas flow projecting the tool in the pipe to bypass the tool, thereby reducing the velocity of the tool.<sup>108</sup> REL states that the use of speed control helps the EMAT ILI tool operate within its optimal velocity.<sup>109</sup> REL also notes that FEI indicates that EMAT ILI tools with speed control return to optimal velocity sooner than MFL-C tools.<sup>110</sup>

REL further notes that FEI did not obtain 100 percent inspection data of the two CTS pipelines in which it conducted the EMAT ILI pilot test runs in 2019 and 2020. Despite not obtaining 100 percent inspection data coverage of these pipelines, REL states that it does not appear that FEI plans to re-run the EMAT ILIs on these pipelines prior to the scheduled re-inspections in seven years time (i.e. in 2026).<sup>111</sup> This approach avoids the additional expense of an additional EMAT ILI ahead of the proposed re-inspection date. REL recommends that FEI use the same approach for the ITS pipelines; if heavy-wall segments affect the results of an EMAT ILI run, FEI should only then remove the heavy-wall segments, and do so in advance of the next scheduled EMAT ILI.<sup>112</sup>

REL states that delaying the removal of the heavy-wall segments has the potential to reduce Project costs by \$7.226 million.<sup>113</sup>

FEI filed rebuttal evidence in response to the evidence filed by RCIA's expert, REL. FEI states that it expects speed control technology to be available on EMAT ILI tools by 2026, however it cannot be certain this feature will be available when it inspects the SAV VER 323 and KIN PRI 323 pipelines.<sup>114</sup> FEI is only aware of one vendor that is developing a speed control unit for the necessary EMAT ILI tool to inspect these pipelines; FEI designs its systems in a manner that enables the adoption of technology from multiple vendors.<sup>115</sup>

In its rebuttal evidence, FEI also responds to REL's evidence regarding the re-inspection decision taken by FEI following completion of the two pilot EMAT ILI test runs. FEI states that its decision not to undertake an

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<sup>105</sup> Exhibit C2-6.

<sup>106</sup> Ibid., p. 18.

<sup>107</sup> Ibid., p. 21.

<sup>108</sup> Exhibit B-1, Appendix F, p. 5.

<sup>109</sup> Exhibit C2-6, p. 4.

<sup>110</sup> Ibid., p. 20.

<sup>111</sup> Exhibit C2-6, p. 25.

<sup>112</sup> Ibid.

<sup>113</sup> Exhibit C2-6, p. 18.

<sup>114</sup> Exhibit B-18, p. 20.

<sup>115</sup> Ibid.

additional EMAT ILI re-inspection ahead of the regularly scheduled CTS EMAT ILI runs was informed by the results of the pilot EMAT ILI test runs, which did not indicate any particularly concerning features on the pipelines warranting an acceleration of the planned inspections.<sup>116</sup>

### *Positions of Parties*

BCOAPO recommends that FEI's proposal of proactive replacement of three heavy-walled segments be accepted by the BCUC.<sup>117</sup>

The CEC is of the view that, while the potential savings identified by REL are significant, there is a very high likelihood that the heavy-wall segments will result in significant speed excursions that would ultimately cause an increase in costs and loss of Project planning benefits. The CEC recommends that the BCUC reject REL's proposal to defer proactive removal of the heavy-wall segments and approve the expenditures as proposed by FEI.<sup>118</sup>

RCIA does not support the modifications to the three heavy-wall segments and recommends that the BCUC withhold approval for these expenditures when approving the ITS TIMC Project.<sup>119</sup>

In reply, FEI submits that it has prudently refined the Project scope to the minimum number of pipeline alterations required to ensure it can effectively use EMAT ILI tools. FEI further submits that the reduction in scope recommended by RCIA will likely come with increased safety and/or reliability risks to customers that are not justifiable, and that the BCUC should accordingly reject RCIA's recommendation.<sup>120</sup>

### *Panel Discussion*

The Panel finds that FEI's proposed scope of pipeline alterations, including the proactive removal of three segments of heavy-wall pipeline, to be acceptable. The Panel is satisfied that FEI has refined the scope from a potential 65 speed excursion locations to the currently proposed three. The Panel considers that, based on the evidence, there is a high probability that the three identified heavy-wall segments will cause speed excursions that are likely to lead to degraded pipeline integrity condition data.

The Panel accepts that FEI decided against an additional EMAT ILI run following completion of the two pilot EMAT ILI test runs based on the outcomes of those test runs, which indicated that there were no urgent cracking threats to address. The outcome of the baseline EMAT ILI runs on FEI's ITS pipelines may yield different results. Based on this, as well as the other justification provided by FEI in support of the identified proactive pipeline alteration scope, the Panel is not persuaded by RCIA's proposed reduction in Project scope.

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<sup>116</sup> Ibid., p. 23.

<sup>117</sup> BCOAPO Final Argument, p. 21.

<sup>118</sup> CEC Final Argument, paras. 168-170.

<sup>119</sup> RCIA Final Argument, p. 30.

<sup>120</sup> FEI Reply Argument, para. 34.

## 4.2 Facility Alterations

The Project scope includes alterations to 13 ITS facilities in order to enable successful EMAT ILI runs. The general categories of facility alterations include:<sup>121</sup>

1. Pig barrel modifications, to permit the launching and receiving of the EMAT ILI tools;
2. Installation of flow control capability, to ensure the EMAT ILI tools travel within optimal velocities; and
3. Installation of pressure regulation capability, to permit pressure reductions of ITS pipelines to safeguard the system in the event that severe cracking is found following EMAT ILI runs.

A summary of the facilities requiring alterations is provided by FEI in Table 2 below.<sup>122</sup>

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<sup>121</sup> Exhibit B-1, p. 92.

<sup>122</sup> Ibid., pp. 87-88.



**Table 2: Facility Alterations<sup>123</sup>**

Facility	Associated Pipelines	Summary of Alterations
Savona Compressor Station	SAV VER 323	Modification to one pig barrel.

Facility	Associated Pipelines	Summary of Alterations
SN-3 (Kamloops)	SAV VER 323	Addition of clamp-on ultrasonic flowmeter, power and telemetry.
SN-4 (Kamloops)	SAV VER 323	Addition of temporary pressure regulating capability (PRS)
SN-6-1 (Vernon)	SAV VER 323	Replace existing insertion meter with clamp-on ultrasonic flowmeter, power and telemetry (by others).
Salmon Arm Tap	SAV VER 323	Replace existing insertion flowmeter with clamp-on ultrasonic flowmeter.
SN-7 (Vernon)	SAV VER 323 VER PEN 323	Modification on two pig barrels, addition of flow control station (FCS), including power and telemetry.
Penticton Gate Station	VER PEN 323 PEN OLI 273	Modification to two pig barrels, addition of flow control station (FCS).
Oliver Y Station	PEN OLI 273 PRI OLI 323 OLI GRF 273	Modification to three pig barrels.
Princeton Crossover Control Station	PRI OLI 323 KIN PRI 323	Modification to two pig barrels, addition of flow control capability (FCS), telemetry and power.
Kingsvale Control Station	KIN PRI 323	Modification to one pig barrel.
SN-15 (Grand Forks)	OLI GRF 273 GRF TRA 273	Modification to two pig barrels, addition of flow control capability (FCS), telemetry and power.
SN-17 (Trail)	GRF TRA 273 YAH TRA 323	Modification to two pig barrels.
East Kootenay Exchange	YAH TRA 323	Modification to one pig barrel and addition of permanent pressure regulating system (PRS).

Further information regarding the SN-4 facility and the East Kootenay Exchange is provided below. During the proceeding, interveners challenged the need for FEI to include these items in the Project scope at this time.

#### Alteration at SN-4 Facility

As noted in Table 2 above, FEI proposes to install temporary pressure reducing equipment at its SN-4 facility, which is associated with the SAV VER 323 pipeline. FEI provides the following explanation of this temporary Project scope item.

FEI states that additional capacity is needed on the ITS to meet the forecast increase in demand, particularly in the Okanagan region served by the 12" pipeline between Savona and Penticton (comprising the SAV VER 323 and the VER PEN 323 pipelines).<sup>124</sup> FEI states that should an EMAT ILI run identify significant cracking that

<sup>123</sup> Exhibit B-1, pp. 87-89, Table 5-3.

<sup>124</sup> Exhibit B-4, BCUC IR 1.2.1.



require a reduction in pressure on the 12" pipeline between Savona and Penticton, it will be unable to continue to meet peak demand requirements. Therefore, FEI proposes an operational strategy that involves the installation of temporary pressure reducing equipment at FEI's SN-4 facility, 64 kilometres east of Savona.<sup>125</sup> This strategy, as described below, will allow FEI to maintain capacity in the event that a pressure reduction of the SAV VER 323 pipeline is required following an EMAT ILI run that identifies significant cracking.<sup>126</sup>

FEI states that it has pressure control capabilities on the SAV VER 323 pipeline that allow for operational and maintenance flexibility, however it cannot use these because FEI cannot meet peak demand if pressure is reduced on the SAV VER 323 and VER PEN 323 pipelines, as already noted above. Therefore, following the baseline EMAT ILI runs on these pipelines in 2026 or earlier, FEI's operational strategy will be to prioritize completing crack repair on the 64 kilometres of pipeline directly east of Savona and the 36 kilometres of pipeline directly north of Penticton.<sup>127</sup> FEI plans to complete these repairs before the 2026/2027 winter months. FEI states that it will complete the baseline EMAT ILI runs on these pipelines by 2026, otherwise increasing demand will render this repair prioritization strategy not feasible.<sup>128</sup> Table 3 and Figure 4 below illustrate the lengths of pipeline on which FEI will prioritize repair:<sup>129</sup>

**Table 3: Prioritized Repairs on Savona to Penticton 12" pipeline**

Pipeline	Total Length (km)	Length of Pipeline with Prioritized Repairs (km)	% of Pipeline with Prioritized Repairs
<b>SAV VER 323</b>	143	64	45%
<b>VER PEN 323</b>	99	36	36%
<b>Combined Total</b>	<b>242</b>	<b>100</b>	<b>41%</b>

<sup>125</sup> Exhibit B-8, RCIA IR 13.5.

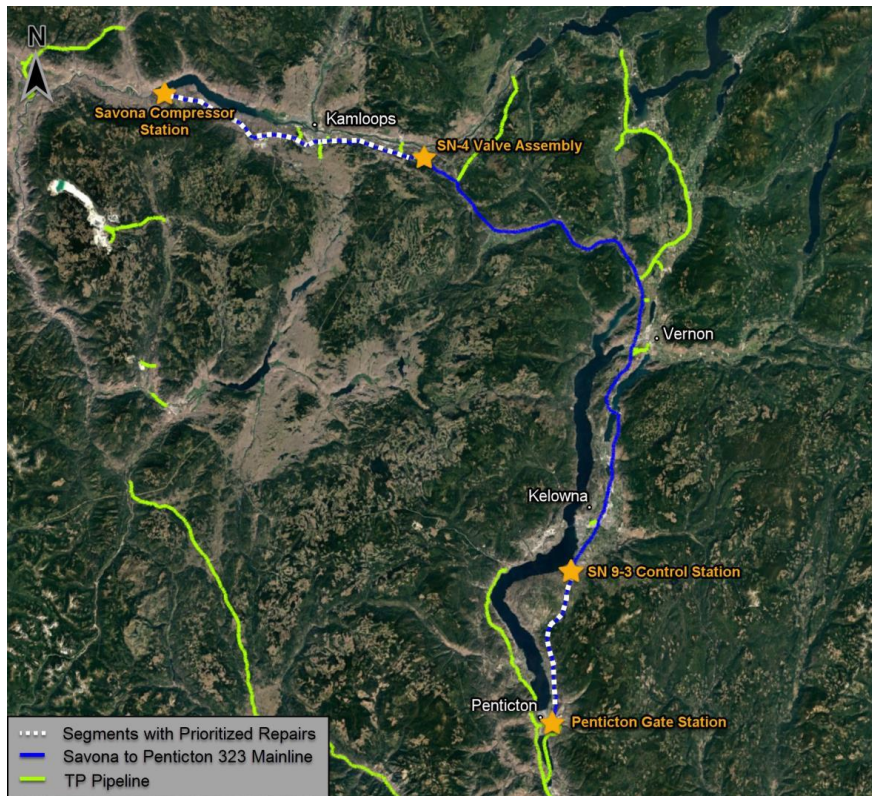
<sup>126</sup> Ibid.

<sup>127</sup> Exhibit B-4, BCUC IR 1.2.1.

<sup>128</sup> Ibid.

<sup>129</sup> Ibid.

**Figure 4: Map of Savona to Penticton 323 Mainline Operational Strategy**



Natural gas supply flows east from Savona Compressor Station into the ITS towards Kamloops and Vernon. Once the prioritized repairs are complete, FEI plans to operate the SAV VER 323 pipeline segment located between Savona Compressor Station and the SN-4 facility without any pressure reduction, while maintaining reduced pressure east of the SN-4 facility through use of the temporary pressure reducing equipment.<sup>130</sup> The use of the temporary pressure reducing equipment is only required through to Q4 2027, after which the pressure on the entire Savona to Penticton pipeline can be restored as all identified pipeline repairs from the 2026 EMAT ILI run will have been completed.<sup>131</sup> FEI states that it plans to re-locate a pressure reducing station to the SN-4 facility, an approach that FEI states saves approximately \$340 thousand when compared to constructing a new PRS.<sup>132</sup>

#### Alteration at East Kootenay Exchange

FEI states that pressure reducing equipment is necessary at the East Kootenay Exchange if the EMAT ILI tool identifies so many cracks and FEI is unable to repair them all before the winter peak gas demand.<sup>133</sup> The East Kootenay Exchange currently has a single pressure reducing valve, which reduces the pressure of both pipelines leaving the East Kootenay Exchange: the YAH OLI 610 pipeline (FEI's Southern Crossing Pipeline) and the YAH TRA 323 pipeline. The additional pressure reducing equipment proposed as part of the ITS TIMC Project scope will permit FEI to separately reduce pressure as may be required on either the YAH OLI 610 or the YAH TRA 323

<sup>130</sup> Exhibit B-8, RCIA IR 13.5.

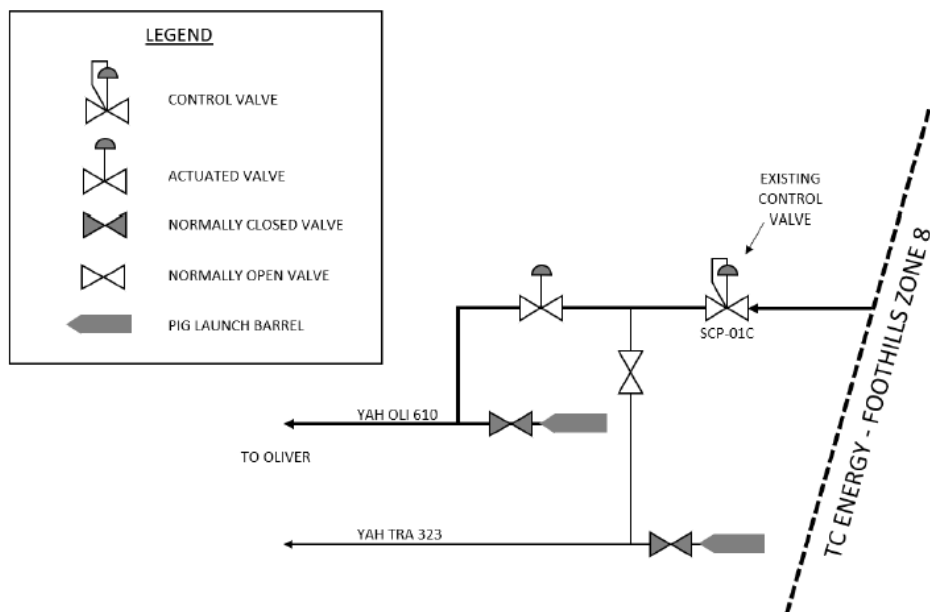
<sup>131</sup> Exhibit B-4, BCUC IR 1.2.1.

<sup>132</sup> Exhibit B-8, RCIA IR 13.5.2.

<sup>133</sup> Exhibit B-1, p. 96.

pipeline.<sup>134</sup> Figure 5 below illustrates the single control valve (valve tag SCP-01C) that is currently on the common feed to both the YAH OLI 610 and the YAH TRA 323 pipelines.<sup>135</sup>

**Figure 5: East Kootenay Exchange Schematic**



FEI states that it relies on the YAH OLI 610 pipeline to deliver gas across southern BC and on to customers within its CTS.<sup>136</sup> FEI explains that using the existing SCP-01C control valve at East Kootenay Exchange to reduce the pressure on the YAH TRE 323 pipeline would also unnecessarily reduce the capacity on the YAH OLI 610 pipeline, which would limit FEI’s ability to deliver gas to the CTS. This alternate supply to the CTS provided by the YAH OLI 610 pipeline is particularly important during winter peak heating demand periods.<sup>137</sup>

FEI states that following its EMAT ILI inspection of the YAH TRE 323 pipeline, if there is a need to expose the pipeline to complete repairs, FEI’s ability to perform work would be limited by the need for capacity on the YAH OLI 610 pipeline.<sup>138</sup> FEI considers that the installation of independent pressure control on the YAH TRA 323 pipeline will provide FEI with improved operability, reliability and resiliency on its YAH TRA 323 and YAH OLI 610 pipelines, and that it will also allow for more efficient and economic operation of these pipelines over the long-term.<sup>139</sup>

<sup>134</sup> Exhibit B-8, RCIA IR 13.5.

<sup>135</sup> Ibid., RCIA IR 13.1.

<sup>136</sup> Exhibit B-1, p. 76.

<sup>137</sup> Exhibit B-18, p. 7.

<sup>138</sup> Ibid., p. 8.

<sup>139</sup> Ibid.

#### 4.2.1 Additional Evidence regarding Installation of Pressure Regulation Equipment

RCIA filed evidence providing an alternative assessment to challenge the need to include the installation of a permanent pressure regulating station at the East Kootenay Exchange within the Project scope. This evidence was prepared by REL on behalf of RCIA.<sup>140</sup>

REL recommends FEI delay the installation of the pressure reducing equipment at the East Kootenay Exchange until FEI receives feedback from the ILI vendor that there are too many instances of severe cracking for FEI to address prior to the next winter peak demand on the ITS.<sup>141</sup>

REL recommends that FEI only install the additional pressure reducing equipment for the YAH TRE 323 pipeline at the East Kootenay Exchange after the EMAT ILI is completed on that pipeline and preliminary feedback from the ILI vendor is obtained.<sup>142</sup> REL states that FEI explained that the installation of the pressure reducing equipment would take 35 days to complete, if materials are already procured and are available.<sup>143</sup> Therefore, REL states that if the EMAT ILI run on the YAH TRA 323 pipeline is completed in the second quarter of the year, FEI would have approximately five months to receive the ILI vendor feedback and install the pressure reducing equipment, if required, prior to the winter heating season when full capacity on the YAH OLI 610 pipeline is needed.<sup>144</sup>

REL states that the potential savings of taking this approach is approximately \$1.97 million.<sup>145</sup>

FEI filed rebuttal evidence in response to RCIA's evidence. FEI states that it is not feasible to defer installation of the pressure reducing equipment until after it has received feedback from the EMAT ILI vendor.<sup>146</sup> FEI explains that it expects that EMAT ILI reporting with respect to cracks over the full length of the EMAT-inspected pipeline could be provided by the vendor up to six months following the EMAT ILI tool run.<sup>147</sup> Further, FEI expects its own analysis and assessment of the vendor-provided information to take approximately one to two months.<sup>148</sup> FEI states its ability to run EMAT ILI tools is limited to certain times of the year, and its ability to install pressure reducing equipment is similarly restricted.<sup>149</sup> Therefore, FEI submits that there are no feasible scenarios in which it is able to install this pressure reducing equipment following receipt of preliminary EMAT ILI run results.<sup>150</sup>

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<sup>140</sup> Exhibit C2-6.

<sup>141</sup> Ibid., p. 3.

<sup>142</sup> Ibid., p. 10.

<sup>143</sup> Ibid.

<sup>144</sup> Ibid.

<sup>145</sup> Ibid., p. 12.

<sup>146</sup> Exhibit B-18, p. 5.

<sup>147</sup> Ibid.

<sup>148</sup> Ibid.

<sup>149</sup> Ibid., p. 6.

<sup>150</sup> Exhibit B-18, p. 5.

### *Positions of Parties*

BCOAPo recommends that the BCUC accept FEI's proposal to install pressure reducing equipment in advance of the EMAT ILI tool runs.<sup>151</sup>

The CEC recommends that the BCUC accept FEI's assessment that delaying the installation of pressure reducing equipment at the East Kootenay Exchange is not feasible, based on the timeframes identified by FEI.<sup>152</sup>

RCIA submits that based on operational constraints described in FEI's rebuttal evidence, it now supports the installation of pressure reducing equipment at East Kootenay Exchange.<sup>153</sup>

However, RCIA questions whether FEI's proposed operational strategy to prioritize repairs on portions of the SAV VER 323 and VER PEN 323 is feasible, based on the repair activity timelines put forward in FEI's rebuttal evidence. RCIA submits that FEI will not have enough time to perform dig repairs on over 100 kilometres of pipeline in rural terrain before winter, and that FEI's operational strategy to conduct EMAT ILI runs on the Savona to Penticton pipeline is contingent on the completion of a capacity upgrade project.<sup>154</sup> Accordingly, RCIA submits that FEI can only complete the EMAT ILI on this pipeline once it has put a capacity upgrade into service.<sup>155</sup> Therefore, RCIA submits that the temporary pressure reducing equipment at the SN-4 facility is unnecessary.

FEI replies that the pressure reducing equipment proposed at FEI's SN-4 facility is necessary to ensure that FEI has the flexibility to proceed with its operational strategy to conduct EMAT ILI runs in a timely manner. FEI submits that, in the event that it is not able to conduct its operational strategy as proposed, temporary pressure reducing equipment may still be needed as part of a revised strategy, one that maintains sufficient capacity to serve customers and addresses the safety and reliability of risk posed by any identified cracks as part of the baseline EMAT ILI run.<sup>156</sup>

### *Panel Discussion*

The Panel is satisfied that the Project scope identified by FEI, including the proposed facility alterations, is reasonable. Regarding the need for pressure reducing equipment at East Kootenay Exchange specifically, the Panel is persuaded by FEI's rebuttal evidence which indicates that there is not sufficient time to install this equipment after baseline EMAT ILI information is received and analyzed.

The Panel notes that RCIA questions the need for the temporary pressure reducing equipment proposed at FEI's SN-4 facility. On this matter, the Panel is persuaded by FEI's stated need to complete EMAT ILI inspections of its pipelines in a timely manner. The Panel accepts that the installation of the temporary pressure reducing equipment at the SN-4 facility provides FEI with the flexibility to schedule the required EMAT ILI runs, reducing the risk of a delay in completing inspection of FEI's pipelines. The Panel considers that accepting RCIA's scope reduction proposal risks imposing unnecessary restrictions on FEI's operational strategies.

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<sup>151</sup> BCOAPo Final Argument, p. 21.

<sup>152</sup> CEC Final Argument, para. 136.

<sup>153</sup> RCIA Final Argument, p. 5.

<sup>154</sup> RCIA Final Argument, p. 17.

<sup>155</sup> Ibid., p. 18.

<sup>156</sup> FEI Reply Argument, para. 10.

The Panel considers total Project costs when assessing whether the proposed scope of a project is in the public interest. With respect to the proposed facility alterations at the SN-4 facility, the Panel acknowledges FEI's efforts to reduce costs by relocating existing pressure reducing equipment.

### 4.3 Project Schedule

FEI provides its schedule for the Project in Table 5-1 of the Application. FEI proposes to execute the Project in two phases:<sup>157</sup>

- Phase 1: consists of activities on the SAV VER 323 and VER PEN 323 pipeline systems, including pipeline alteration Event 1 shown in Figure 1, as well as facility alterations at Savona Compressor Station, SN-3, SN-4, SN6-1, Salmon Arm Tap, SN-7, and Penticton Gate Station.
- Phase 2: consists of pipeline alteration Events 29 and 31 shown in Figure 2 above, as well as facility alterations at Kingsvale Control Station, Princeton Crossover Control Station, Oliver Y Control Station, SN-15, SN-17, and East Kootenay Exchange.

Project construction activities are scheduled to occur between April and September each year. FEI proposes to construct Phase 1 scope, and then construct Phase 2 scope the following year.<sup>158</sup>

Based on BCUC CPCN approval by Q3 2023, FEI had scheduled Project close out to be between September 2026 and March 2027.<sup>159</sup>

### 5.0 Project Costs and Rate Impact

This section provides the capital cost and rate impact of the ITS TIMC Project.

The estimated total cost of the ITS TIMC Project in as-spent dollars is \$84.588 million, which includes an Allowance for Funds Used During Construction (AFUDC).<sup>160</sup> The estimated Project capital budget is provided in Table 4 below:<sup>161</sup>

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<sup>157</sup> Exhibit B-1, p. 98.

<sup>158</sup> Ibid., Table 5-1, p. 98.

<sup>159</sup> Ibid.

<sup>160</sup> Exhibit B-1, p. 116.

<sup>161</sup> Ibid., p. 110.

**Table 4: Project Capital Budget**

Line	Item	Amount (\$millions)
1	Construction Cost Estimate (Contractor + FEI)	\$50.231
2	Owners Costs (FEI)	\$8.133

Line	Item	Amount (\$millions)
3	<b>Subtotal Construction Base Cost Estimate (\$2022-Q2)</b>	<b>\$58.364</b>
4	CPCN Application Costs	\$0.400
5	Pre-Construction Development Costs	\$3.665
6	Contingency	\$5.900
7	<b>Subtotal Project Cost Estimate (\$2021-Q4)</b>	<b>\$68.328</b>
8	Cost Escalation Estimate	\$7.630
9	Management Reserve	\$5.000
10	<b>Sub-Total Project Cost Estimate (As-Spent)</b>	<b>\$80.958</b>
11	AFUDC	\$4.513
12	Income Tax Recovery <sup>84</sup>	\$(0.883)
13	<b>Total Project Cost Estimate (As-Spent)</b>	<b>\$84.588</b>

The capital costs of the Project will be recorded in work-in-progress, attracting AFUDC. As the assets are placed into service, the associated capital cost will enter rate base of the following year, and depreciation of the assets will begin on January 1 of the year that they enter FEI's rate base.<sup>162</sup> This is consistent with FEI's typical treatment of capital costs.<sup>163</sup>

The cost estimate was subject to quality assurance, verification, and independent estimating. FEI, in conjunction with its Front-End Engineering and Design (FEED) and cost estimation consultant, Tetra Tech, developed the cost estimate for the Project using AACE International Recommended Practice.<sup>164</sup> FEI established a Class 3 level cost estimate for the ITS TIMC Project.<sup>165</sup> All cost estimates, including material supply and construction contracts, were developed based on 2022 market prices. The escalation analysis was based on price indices forecasted by economic consulting firm IHS Markit, forecasted global and regional capital spending market conditions, and a cash flow developed from the master schedule. FEI states that this analysis is in accordance with AACE International Recommended Practice and results in an escalation at \$7.630 million (11.9 percent of the total base cost plus contingency) that aligns with the P50 confidence level.<sup>166</sup> The escalation is used to convert the Project capital cost from 2021 dollars to as-spent dollars.<sup>167</sup>

Risk analysis, cost estimates and validation of cost estimates were used to establish a contingency percentage of 10.1 percent (\$5.9 million) and a management reserve of \$5.0 million, which is 8.6 percent of the base cost

<sup>162</sup> Exhibit B-1, p. 119.

<sup>163</sup> Ibid.

<sup>164</sup> Ibid., p. 108.

<sup>165</sup> Ibid., p. 109.

<sup>166</sup> Ibid., p. 113.

<sup>167</sup> Ibid., p. 117.



estimate value, at the P50 confidence level.<sup>168</sup> FEI also included a management reserve based on the contingency analysis and recommendation from Validation Estimating LLC, USA.<sup>169</sup> FEI performed a financial analysis of the Project based on the present value of the incremental revenue requirement and the levelized delivery rate impact to FEI's non-bypass customers.<sup>170</sup> The financial analysis includes a 70-year analysis period, which is based on 65 year post-Project analysis period, reflecting the average service life of transmission mains pooled asset (detailed in FEI's 2017 Depreciation Study),<sup>171</sup> plus five prior years for the estimated Project schedule from 2022 to 2026.<sup>172</sup> The table below summarizes the financial analysis.<sup>173</sup>

**Table 5: Financial Analysis of the Project**

Line	Particular	TOTAL	Reference (Confidential Appendix J, Financial Schedule)
1	Total Charged to Gas Plant in Service (\$ millions)	85.161	Schedule 6, Sum of Line 43 (2022-2027)
2	Total Project Deferral Costs, Net of Tax	(0.574)	Schedule 9, Line 8 (2023)
3	<b>Total Project Cost - Excl. Sustainment Capital (\$ millions)</b>	<b>84.588</b>	<b>Line 1 + Line 2</b>
4	Sustainment Capital	103.062	Schedule 6, Sum of Line 43 (2028-2091)
5	<b>Total Project Cost - incl. Sustainment Capital (\$ millions)</b>	<b>187.650</b>	<b>Line 3 + Line 4</b>
6			
7	Incremental Rate Base in 2028 (\$ millions)	81.004	Schedule 5, Line 19 (2028)
8	Incremental Revenue Requirement in 2028 (\$ millions)	6.860	Schedule 1, Line 11 (2028)
9	<b>PV of Incremental Revenue Requirement 70 years (\$ millions)</b>	<b>93.621</b>	<b>Schedule 10, Line 25</b>
10	Net Cash Flow NPV 70 years (\$ millions)	4.227	Schedule 11, Line 17
11			
12	Delivery Rate Impact in 2028 (%)	0.72%	Schedule 10, Line 28 (2028)
13	<b>Levelized Delivery Rate Impact 70 years (%)</b>	<b>0.54%</b>	<b>Schedule 10, Line 32</b>
14	Levelized Delivery Rate Impact 70 years (\$/GJ)	0.027	Schedule 10, Line 45

The financial analysis includes \$103.062 million of sustainment capital for future replacement costs of the station's telemetry, and the measuring and regulating equipment;<sup>174</sup> however, FEI is not seeking approval for these future replacement costs as part of the ITS TIMC Project.<sup>175</sup> The timing of the replacement costs is based on the average service life of the telemetry and the measuring and regulating equipment, which is 11 years and 47 years, respectively.<sup>176</sup> FEI will request approval of the incremental increase in O&M or Sustainment Capital either in an upcoming Annual Review, or in the next Multi Year Rate Plan or Revenue Requirements application filing, depending on when the runs are planned.<sup>177</sup>

The ITS TIMC Project will result in a cumulative delivery rate impact of 0.72 percent by 2028 when all assets and closing costs have entered FEI's rate base.<sup>178</sup> The average annual delivery rate impact over the five years from 2024 to 2028 is estimated to be 0.14 percent annually or \$0.007 per GJ annually. For a typical FEI residential

<sup>168</sup> Ibid., p. 113.

<sup>169</sup> FEI Final Argument, p. 53.

<sup>170</sup> Exhibit B-1, p. 117.

<sup>171</sup> Transmission mains pooled asset account 46500 as detailed in FEI's 2017 depreciation study approved with Order G-165-20 as part of FEI's 2020-2024 Multi Year Rate Plan (MRP) Application.

<sup>172</sup> Exhibit B-1, p. 117.

<sup>173</sup> Ibid., p. 118.

<sup>174</sup> Ibid.

<sup>175</sup> Exhibit B-4, BCUC IR 12.4.

<sup>176</sup> Exhibit B-1, pp. 118-119.

<sup>177</sup> Ibid., p. 115.

<sup>178</sup> Ibid., p. 118.



customer consuming 90 GJ per year, this would equate to an average bill increase of approximately \$0.63 per year over five years, or \$3.15 cumulatively by 2028.<sup>179</sup>

Over the 70-year analysis period, the present value of the incremental revenue requirement is approximately \$93.621 million, and the levelized delivery rate impact is 0.54 percent or \$0.027 per GJ.<sup>180</sup>

### *Positions of Parties*

The CEC considers that the capital costing has been undertaken in accordance with appropriate principles and within the BCUC's guidelines.<sup>181</sup> However, the CEC recommends the BCUC require FEI to include information related to the economies of scale from the two TIMC projects and quantify any of the savings generated as part of its regular reporting for the Project.<sup>182</sup>

In response to the CEC, FEI states that it has saved on other integrity-related projects (e.g., the Inland Gas Upgrade Project) and will seek to secure reduced pricing from its suppliers during the execution phase of the ITS TIMC Project. However, FEI asserts that the direction sought by the CEC is not needed as FEI has already committed to provide semi-annual progress reporting to the BCUC, in which FEI would report on cost variances which would capture cost savings of this kind.<sup>183</sup>

BCOAPO submits that it did not note any significant concerns with respect to the Project cost estimate and rate impact estimates.<sup>184</sup> However, BCOAPO continues to have concerns with respect to the cumulative residential rate increases and bill impacts across the numerous CPCN capital projects that are being proposed by FEI and cost increases associated with legislated environmental targets – as well as the appropriate regulatory proceeding in which a proactive rate mitigation plan for these cumulative rate increases can be addressed.<sup>185</sup>

In response to BCOAPO, FEI states it is mindful of the impacts of delivery rates on customers and will continue to seek opportunities to address future rate increases. Therefore, strategies to mitigate rate impacts are best addressed as part of an annual review or revenue requirement application.<sup>186</sup>

### *Panel Discussion*

The Panel accepts FEI's total Project cost estimate of \$84.588 million in as-spent dollars, including contingency, escalation and AFUDC. The Panel is satisfied with FEI's approach to cost estimation through the quality assurance, verification, and independent estimates performed by FEI's independent experts. Further, the proposed accounting treatment for the capital costs of the Project is consistent with its past practice as previously approved by the BCUC for projects of this nature.

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<sup>179</sup> Ibid., p. 121.

<sup>180</sup> Exhibit B-1, p. 118.

<sup>181</sup> CEC Final Argument, para. 188.

<sup>182</sup> Ibid., para. 196.

<sup>183</sup> FEI Reply Argument, p. 18.

<sup>184</sup> BCOAPO Final Argument, p. 24.

<sup>185</sup> Ibid.

<sup>186</sup> FEI Reply Argument, p. 18.

The Panel is satisfied with FEI's calculation of the rate impact of the ITS TIMC Project, and that the indicative rate impacts are reasonable for the purposes of this Application. The Panel also finds FEI's use of a 70-year period for the financial analysis to be reasonable, as it is based on a 65-year post-Project analysis period which reflects the average service life of transmission mains pooled assets in FEI's 2017 Depreciation Study.<sup>187</sup>

The Panel discusses BCOAPO's submission regarding a proactive rate mitigation plan in Section 9 below.

## 5.1 Deferral Accounts

The BCUC previously approved the creation of the non-rate base TIMC Development Cost deferral account, attracting a weighted average cost of capital return.<sup>188</sup> Costs captured in this deferral account include CPCN application costs, preliminary stage development costs, and pre-construction development costs related to the TIMC projects, including the EMAT ILI pilot projects and the CTS and ITS TIMC Project.<sup>189</sup>

FEI requests the following approvals related to Project costs currently recorded in the non-rate base TIMC Development Cost deferral account:

- Capitalize pre-construction development costs related to the Project, estimated to be \$4.108 million at the end of 2023, by transferring those costs to construction work-in-progress (CWIP);<sup>190</sup> and
- Transfer the remaining Project costs, estimated to be a credit of \$0.574 million at the end of 2023, to the rate-base TIMC Development Cost deferral account on January 1 of the year following a BCUC decision on the ITS TIMC CPCN Application.<sup>191</sup> The rate base TIMC Development Cost deferral account has an approved amortization period of 5 years.<sup>192</sup>

The table below shows the detail for the estimated total deferred costs recorded in the non-rate base TIMC Development Cost deferral account for the project at the end of 2023.<sup>193</sup>

**Table 6: Summary of ITS TIMC Deferral Costs (\$millions)**

Line	Particular	2021	2022	2023	Total
1	Application Costs	0.002	0.228	0.170	0.400
2	ITS Preliminary Stage Development Costs	-	-	-	-
3	ITS Pre-Construction Development Costs (Capitalized)	2.556	0.829	0.279	3.665
4	<b>Subtotal, Pre-Tax Costs<sup>1</sup></b>	<b>2.558</b>	<b>1.057</b>	<b>0.449</b>	<b>4.065</b>
5	Financing, WACC Return	0.043	0.133	0.177	0.353
6	Income Tax Recovery	(0.691)	(0.147)	(0.046)	(0.883)
7	<b>Subtotal w/ Financing &amp; Income Tax Recovery</b>	<b>1.911</b>	<b>1.043</b>	<b>0.581</b>	<b>3.535</b>
8	Less: Cost Capitalized (Incl. AFUDC)	-	(3.619)	(0.489)	(4.108)
9	<b>Total Deferral Costs</b>	<b>1.911</b>	<b>(2.576)</b>	<b>0.092</b>	<b>(0.574)</b>

<sup>187</sup> Transmission mains pooled asset account 46500 as detailed in FEI's 2017 depreciation study approved with Order G-165-20 as part of FEI's 2020-2024 Multi Year Rate Plan (MRP) Application.

<sup>188</sup> Exhibit B-1, p. 119, Order G-237-18.

<sup>189</sup> Exhibit B-1, p. 119.

<sup>190</sup> Ibid., p. 120.

<sup>191</sup> Ibid.

<sup>192</sup> Ibid., p. 4.

<sup>193</sup> Ibid., p. 121.

## *Positions of Parties*

The CEC and BCOAPO either recommend approval or do not have concerns with FEI's request to transfer the total deferred costs related to the Project from the non-rate base TIMC Development Cost deferral account to the rate base TIMC Development Cost deferral account.<sup>194</sup>

## *Panel Determination*

**FEI is approved to capitalize the pre-construction development costs related to the Project, estimated to be \$4.108 million at the end of 2023, by transferring to CWIP. Further, FEI is approved to transfer the remaining Project costs in the non-rate base TIMC Development Cost deferral account, estimated to be a credit of \$0.574 million at the end of 2023, to the rate base TIMC Development Cost deferral account effective January 1, 2024.** This treatment is consistent with BCUC's decision regarding costs associated with the CTS TIMC Project.

## **6.0 Environment and Archaeology**

### Environment

To evaluate the Project's potential impacts on the environment and to provide a basis for the preparation of environmental management plans, FEI retained Wood Environment and Infrastructure Solutions to complete an Environmental Overview Assessment (EOA) of the ITS TIMC Project scope of work. The EOA assessed the overall environmental risk of the Project as low to moderate.<sup>195</sup>

FEI identifies the following potential impacts as posing a moderate risk: the potential modification or disruption of fish habitat at the Cherry Creek crossing (SAV VER Event 1 shown in Figure 1 above), disruption of breeding birds at the locations of the three pipeline alterations and at 11 facility alterations, and the spread of noxious weeds at all pipeline and facility alterations.<sup>196</sup> FEI states that all potential environmental impacts from the Project can be mitigated through the application of standard environmental best management practices and mitigation measures.<sup>197</sup>

FEI commits to following the best management practices and mitigation measures identified in the EOA as applicable to the Project.<sup>198</sup> Detailed environmental specifications will be prepared as part of the future tendering process to retain contractors to execute the Project scope. FEI states that selected contractors will be required to abide by the Project-specific Environmental Management Plan (EMP), submit task-specific Environmental Protection Plans, and retain the services of an environmental monitor prior to commencement of construction activities for the Project.<sup>199</sup> The EMPs are required as part of FEI's Project-related permits from the BCER.

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<sup>194</sup> CEC Final Argument, p. 10; BCOAPO Final Argument, pp. 22-23.

<sup>195</sup> Exhibit B-1, p. 124.

<sup>196</sup> Ibid.

<sup>197</sup> Ibid.

<sup>198</sup> Ibid., p. 131.

<sup>199</sup> Ibid.

## Archaeology

To assess the archaeological and/or cultural heritage resources within the Project area, FEI retained Wood Environment and Infrastructure Solutions to complete an Archaeological Overview Assessment (AOA).<sup>200</sup> The AOA did not identify any registered archaeological or heritage sites that overlap with any of the pipeline or facility alterations proposed as part of the Project scope. However, the AOA determined that there is high archaeological potential at one pipeline alteration location (KIN PRI 323 Event 29 shown in Figure 1 above) and four facility alteration locations (Oliver Y Control Station, Princeton Crossover Station, SN-15, and East Kootenay Exchange).<sup>201</sup> Other pipeline and facility locations within the Project scope were assessed as having moderate archaeological potential.<sup>202</sup>

The AOA recommends conducting additional preliminary field reconnaissance (PFR), archaeological monitoring, or Archaeological Impact Assessment (AIA) for Project scope locations identified as having moderate to high archaeological potential prior to, or concurrent with, construction.<sup>203</sup> FEI commits to undertaking the PFR and the AIA as recommended.<sup>204</sup>

FEI states that the AIA will provide a detailed assessment to allow for development of site-specific mitigation strategies to offset any potential impacts associated with the Project.<sup>205</sup> In order to undertake the AIA activities, a permit under the *Heritage Conservation Act* is required. FEI states that any potential archaeological impacts of the Project can be mitigated through the implementation of permit conditions and standard best management practices.<sup>206</sup>

### *Positions of Parties*

The CEC has no concerns with respect to FEI's approach to environmental and archaeological impacts, and recommends that the BCUC accept FEI's approach as being reasonable.<sup>207</sup>

BCOAPO expressed no specific concerns with respect to the environmental and archaeological aspects of the Project.<sup>208</sup>

### *Panel Discussion*

The Panel is satisfied with the environmental and archaeological studies that FEI has completed, and agrees that the further assessments and mitigations that these studies have recommended should be undertaken. The Panel accepts FEI's commitment to undertake the future studies and mitigations identified within FEI's completed environmental and archaeological studies. The Panel is also satisfied that FEI's future environmental and

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<sup>200</sup> Ibid., p. 132.

<sup>201</sup> Ibid., Table 7-7, pp. 133-134.

<sup>202</sup> Ibid.

<sup>203</sup> Ibid., p. 123.

<sup>204</sup> Ibid.

<sup>205</sup> Ibid., p. 135.

<sup>206</sup> Ibid.

<sup>207</sup> CEC Final Argument, paras. 210-211.

<sup>208</sup> BCOAPO Final Argument, p. 25.

archaeological work, such as the development of Project-specific EMPs and its AIA activities, will be assessed by other regulatory authorities as part of FEI's other permitting processes.

## **7.0 Consultation and Engagement**

### **7.1 Indigenous Consultation**

FEI initiated early engagement activities with selected Indigenous groups in May 2021 that included emailing a Project information letter, as well preliminary maps. FEI identified 35 Indigenous groups with asserted rights in the Project area by using the BC government's Consultative Area Database.<sup>209</sup>

FEI commits to keeping potentially affected Indigenous groups informed about the Project, and FEI states that it will provide capacity funding to interested Indigenous groups to facilitate engagement activities.<sup>210</sup> FEI provides a log of all engagement activities and correspondence in the Application. Following early engagement activities, FEI notes that it met with the Skeetchestn Indian Band and Tk'emlups te Secwepemc to discuss the Project.<sup>211</sup>

FEI notes that while the constitutional duty to consult with Indigenous groups rests with the Crown, its Indigenous engagement activities will aid the appropriate Crown agencies in meeting that duty.<sup>212</sup> FEI states that its goal is to incorporate feedback from Indigenous groups throughout the Project lifecycle, including Project planning, the BCER permitting processes, construction and restoration.<sup>213</sup>

### **7.2 Public Consultation**

In May 2021, FEI distributed Project information letters to 13 municipalities and regional districts that may be impacted by the Project. FEI states that initial consultation activities introduced the Project to local governments, regional stakeholders and residents.<sup>214</sup> FEI provides in the Application a full list of the municipal and regional governments with which it has consulted.<sup>215</sup> FEI states that, at the time of filing the Application, it had not received responses to the information letters, and that these local governments have not identified any issues or concerns. FEI further states that follow-up meetings and communication with local governments will continue throughout the Project lifecycle.<sup>216</sup>

FEI has identified residents and businesses directly affected by work related within FEI's Project-related rights of way, and FEI commits to sending notifications in advance of construction in these areas.<sup>217</sup> FEI commits to responding to any feedback received from stakeholders as the Project continues to develop; at the time of filing the Application, FEI states no concerns have been raised by stakeholders.<sup>218</sup>

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<sup>209</sup> Exhibit B-1, Table 8-2, p. 145.

<sup>210</sup> Ibid., p. 144.

<sup>211</sup> Ibid., Table 8-3, pp. 146-148.

<sup>212</sup> Ibid., p. 144.

<sup>213</sup> Ibid., p. 145.

<sup>214</sup> Ibid., 137.

<sup>215</sup> Ibid., p. 138.

<sup>216</sup> Ibid., p. 140.

<sup>217</sup> Ibid., p. 140.

<sup>218</sup> Ibid., p. 143.

### *Positions of Parties*

The CEC recommends that the BCUC find FEI's public and Indigenous consultation to be appropriate at this time.<sup>219</sup>

With respect to public consultation, BCOAPO has no concerns with FEI's approach to date and on a go-forward basis if the Project is approved by the BCUC. However, as it relates to engagement with Indigenous groups, BCOAPO is concerned that the way that FEI describes this aspect of engagement is more in alignment with "Consult" (feedback) than "Involve" in reference to the International Association of Public Participation public participation spectrum that specifies 5 levels of participation: (i) Inform; (ii) Consult; (iii) Involve; (iv) Collaborate; and (v) Empower. BCOAPO is also concerned with respect to the lack of specifics and active plans in the go-forward engagement plan that would be necessary to achieve the "Involve" level of engagement with Indigenous groups.<sup>220</sup>

In response to BCOAPO, FEI considers its engagement level for Indigenous Groups as "Involve" because FEI works directly with potentially affected groups throughout the process to ensure that the concerns and aspirations are consistently understood and considered. FEI submits that its engagement with Indigenous groups has been reasonable and appropriate.<sup>221</sup>

### *Panel Discussion*

The Panel is satisfied that FEI has properly identified the Indigenous groups that may be affected by the Project and finds that consultation to date has been adequate. Further, the Panel accepts FEI's commitment to continue to consult with the identified Indigenous groups throughout the life of the Project, and to provide capacity funding to facilitate meaningful engagement activities.

The Panel is similarly satisfied with FEI's public consultation efforts to date.

## **8.0 Provincial Government Energy Objectives and Long-Term Resource Plan**

Section 46(3.1) of the UCA requires the BCUC to consider "the applicable of British Columbia's energy objectives," the most recent long-term resource plan filed by the utility and the extent to which the Application is consistent with the applicable requirements under sections 6 and 19 of the *Clean Energy Act* (CEA).

FEI submits that the Project will support BC's energy objective 2(k), which is "to encourage economic development and the creation and retention of jobs."<sup>222</sup>

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<sup>219</sup> CEC Final Argument, p. 2.

<sup>220</sup> BCOAPO Final Argument, p. 27.

<sup>221</sup> FEI Reply Argument, pp. 17-18.

<sup>222</sup> Exhibit B-1, p. 150.

FEI states that the Project is described in section 7.6.4 of FEI's most recently filed long-term gas resource plan (LTGRP), which is its 2022 LTGRP, currently being reviewed by the BCUC.<sup>223</sup> FEI also notes that the Project was described in section 6.4 of FEI's 2017 LTGRP, which was accepted by the BCUC as being in the public interest in 2019.<sup>224</sup>

FEI further submits that the Project supports its decarbonization goals. FEI envisions hydrogen playing a critical role in meeting BC's climate targets, and the information gathered through EMAT ILI runs will factor into FEI's analysis regarding the concentration of hydrogen each ITS pipeline can safely accommodate in the future.<sup>225</sup>

FEI states that sections 6 and 19 of the CEA do not apply to FEI.<sup>226</sup>

### *Positions of Parties*

The CEC agrees with FEI that the Project will encourage economic development and the creation and retention of jobs, that the Project will support FEI's decarbonization goals by supporting the transition to renewable energy and low carbon energy, such as various hydrogen blends.<sup>227</sup>

BCOAPO submits that it has no concerns regarding the consistency of the Project with BC's provincial energy objectives and FEI's LTGRPs.<sup>228</sup>

### *Panel Discussion*

The Panel finds that the Project aligns with British Columbia's energy objective 2(k) as it can reasonably be expected to result in employment and procurement opportunities for the duration of the Project. The Panel is also satisfied that the Project is consistent with FEI's long-term planning as reflected in its 2022 LTGRP.

## **9.0 Other Issues Arising**

### **9.1 Value of Incremental Risk Reduction Measures**

As noted above, the BCUC issued a CPCN to FEI in 2022 for the CTS TIMC project. BCOAPO participated as an intervener in the review of the CPCN for the CTS TIMC application proceeding. Although BCOAPO took the position that the CTS TIMC project should be approved, it expressed concerns that FEI had not sufficiently quantified the reduction in risk that would result from implementing the CTS TIMC project. BCOAPO submitted that the BCUC should develop a robust process to assess the value of incremental improvements in risk to fully assess the costs and benefits of integrity projects to ratepayers.<sup>229</sup> The BCUC acknowledged BCOAPO's submission, and requested that FEI provide a compliance filing on the topic:<sup>230</sup>

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<sup>223</sup> Ibid.

<sup>224</sup> G-39-19, dated February 25, 2019.

<sup>225</sup> Ibid.

<sup>226</sup> Exhibit B-1, p. 150.

<sup>227</sup> CEC Final Argument, p. 31.

<sup>228</sup> BCOAPO Final Argument, p. 28.

<sup>229</sup> FEI CPCN CTS TIMC application proceeding, BCOAPO Final Argument, p. 7.

<sup>230</sup> FEI CTS TIMC Decision, p. 12.

We find BCOAPO's suggestion that the BCUC develop a robust process to assess the value of incremental improvements in risk to fully assess the cost and benefit to ratepayers of a proposed project to be interesting and worthy of future consideration. Accordingly, the **Panel requests FEI to provide suggestions in terms of timing for the preparation and review of such a proposal in a compliance filing within 30 days of the issuance of this Decision.**

FEI filed a letter with the BCUC, dated June 17, 2022, indicating its intent to include considerations associated with assessing the value of incremental improvements in risk in the ITS TIMC Project Application. Accordingly, FEI included this assessment in Appendix R of the Application that is the subject of this proceeding. In the Application, FEI states that it considered processes to assess the value of incremental improvements in risk resulting from a given project and concludes that there is no "silver bullet" answer to the question of how to assess incremental improvement in risks. FEI states that the CPCN regulatory process remains the best opportunity to assess and test the costs and benefits of a project for ratepayers, including the incremental value of risk mitigation.<sup>231</sup>

FEI notes the following:<sup>232</sup>

- Risk Mitigation is only one of a number of potential project drivers;
- FEI is continuously investigating new processes to analyze and evaluate risk mitigation;
- In some areas, industry is moving from a qualitative to a quantitative assessment of risk;
- Assessing incremental improvement in risks will vary by project; and
- CPCN proceedings should remain open and flexible to different approaches to analyzing risks.

FEI recognizes the natural gas industry's movement to quantitative methods and has accordingly implemented QRAs of the safety risks posed by its transmission pipelines. FEI relies on the output from QRAs to prioritize safety-related integrity risks and the selection of appropriate mitigation options.<sup>233</sup> FEI states that the "value of a QRA is dependent on factors such as the availability of quality data and inputs, and risk estimates can vary due to the models/methods themselves. High-quality asset condition data, such as EMAT data for cracking, improves probability of failure estimates due to particular hazards."<sup>234</sup>

FEI notes that where risk is a driver of the need for a Project, it identifies and then undertakes a robust analysis to qualitatively or quantitatively assess and mitigate the risk identified.<sup>235</sup> In a recent risk mitigation CPCN, the Inland Gas Upgrade project, FEI stated: "Ideally, the value of each of FEI's integrity management activities would be determined by modeling the achieved reduction in risk, and comparing the risk reduction as a ratio to dollars spent (thus providing a measure of risk reduction per dollar spent)."<sup>236</sup>

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<sup>231</sup> Exhibit B-1, Appendix R, p. 5.

<sup>232</sup> Ibid., p. 1.

<sup>233</sup> Ibid., p. 2.

<sup>234</sup> Ibid.

<sup>235</sup> Ibid., p. 3.

<sup>236</sup> Ibid.



FEI states that the flexibility of a CPCN proceeding allows for a robust qualitative assessment which ensures that important, but difficult-to-quantify costs and benefits are properly evaluated.<sup>237</sup> Further, FEI notes that the CPCN process adapts to the circumstances of individual projects that may have varying drivers and justifications. FEI states “the method by which a utility demonstrates that an incremental improvement in risk is justified, in order to assess the cost and benefits to ratepayers of a proposed project, will vary by project and by the type of risk(s) that it seeks to mitigate.”<sup>238</sup>

During the proceeding, the BCUC asked FEI how it balances the cost of pursuing the three proactive heavy-wall pipeline replacements against the magnitude of the resulting risk reduction. In response, FEI compared the cost of proactive heavy-wall pipeline replacement to other alternatives that would permit FEI to assess the condition of these pipeline segments if that initial EMAT ILI runs yield incomplete pipeline integrity data; specifically, PLE, or PLR. FEI states that at all three locations, it expects proactive heavy-wall pipeline replacement to be less costly and disruptive than PLE or PLR.<sup>239</sup> FEI states that it must be able to determine the integrity of the entire length of its pipeline system, and that regulations rely on the permit holder to determine the most effective and prudent approach to achieving full coverage for crack mitigation.<sup>240</sup>

### *Positions of Parties*

BCOAPO submits that FEI’s response to the BCUC directive from the CTS TIMC Decision is disappointing and inconsistent with FEI’s assertions that it is continually investigating new processes to analyze and evaluate risk mitigation.<sup>241</sup> In BCOAPO’s view, FEI should be proactive in investigating improvements and advanced methods in quantifying the consequences of risk, risk interconnectivities and compounding effects, risk tolerances and reduction in risk from response strategies. BCOAPO submits that these advanced methods of risk quantification would serve to increase the effectiveness and efficiency of the CPCN regulatory process.<sup>242</sup>

BCOAPO recommends that the BCUC find that FEI has not responded to the BCUC directive from the CTS TIMC Decision with respect to the value of incremental reduction in risk, and that the directive is still outstanding. BCOAPO further recommends that the BCUC provide any necessary guidance and set a specific date by which FEI is to provide a full response to this directive.<sup>243</sup>

In reply, FEI submits that it has complied with the BCUC directive set out in the CTS TIMC Decision.<sup>244</sup> FEI maintains that: (1) risk mitigation is only one of a number of potential project drivers; (2) it is continually investigating new processes to analyze and evaluate risk mitigation; (3) industry is moving from a qualitative to a quantitative assessment of risks in some areas; and (4) that assessing incremental improvement in risks will vary by project.<sup>245</sup>

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<sup>237</sup> Ibid., p. 5.

<sup>238</sup> Exhibit B-1, Appendix R, p. 5.

<sup>239</sup> Exhibit B-9, BCUC IR 20.8

<sup>240</sup> Exhibit B-18, p. 26.

<sup>241</sup> BCOAPO Final Argument, p. 29.

<sup>242</sup> Ibid., p. 30.

<sup>243</sup> Ibid.

<sup>244</sup> FEI Reply Argument, para. 37.

<sup>245</sup> Ibid.

FEI concludes by noting that BCOAPO has not identified any alternative solution for the Panel or FEI to consider, nor has BCOAPO explained why FEI's response to the BCUC directive from the CTS TIMC Decision is incorrect or flawed.<sup>246</sup>

### *Panel Discussion*

The Panel considers that FEI has adequately responded to the BCUC's CTS TIMC request regarding the assessment of the value of incremental improvements in risk.

As noted earlier in this Decision, the Panel finds that FEI has demonstrated a need to improve its ability to monitor the risk of cracking threats over the entire length of the ITS pipelines. An assessment of alternatives was completed by FEI to determine a cost-effective method to address this need, and this assessment by FEI was examined in this proceeding. For example, FEI responded to information requests regarding the cost-effectiveness of proactively modifying segments of heavy-wall pipe. Further evidence on this topic was filed by RCIA, as was rebuttal evidence by FEI. The evidence elicited by the CPCN Application process illustrated the many factors that influence FEI's pipeline integrity-related decision making; factors such as regulatory requirements, capacity constraints and operational limitations.

The Panel acknowledges that a measure of risk reduction per dollar spent was not provided in this proceeding, a modelled measure that FEI describes above as being 'ideal'. However, the Panel considers that sufficient evidence has been presented, including analysis of alternatives and costs, to assess whether the proposed Project is in the public interest.

The Panel notes the BCER's expectation that FEI continue to improve and advance its IMP-P, and that FEI considers that the ITS TIMC Project demonstrates its commitment to continual improvement.<sup>247</sup> The Panel anticipates that as FEI advances and improves its IMP-P, that its continued ability to demonstrate the evidence-based value of incremental risk reduction measures in future integrity-related applications to the BCUC will similarly advance.

## **9.2 Rate Mitigation Strategy**

As mentioned in Section 5 of this Decision, BCOAPO submits that it continues to have concerns with respect to the cumulative residential rate increases and bill impacts across the numerous CPCN capital projects that are being proposed by FEI and cost increases associated with legislated environmental targets – as well as the appropriate regulatory proceeding in which a proactive rate mitigation plan for these cumulative rate increases can be addressed. BCOAPO states that it outlined these concerns and the request for guidance from the BCUC as to timing and venue in the FEI Okanagan Capacity Upgrade project CPCN proceeding and therefore did not repeat those submissions in this proceeding.<sup>248</sup>

In reply, FEI states that it is mindful of the impacts of delivery rates on customers and will continue to seek opportunities to address future rate increases. However, as the BCUC stated in the CTS TIMC Decision, the BCUC

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<sup>246</sup> Ibid., para. 39.

<sup>247</sup> Exhibit B-4, BCUC IR 2.2.

<sup>248</sup> BCOAPO Final Argument, pp. 23-24.

“must assess the need of the Project and its individual rate impact on their own merits,” rather than in relation to other projects.<sup>249</sup> Therefore, strategies to mitigate rate impacts are best addressed as part of an annual review or revenue requirement application. These processes permit the rate impacts of major projects to be viewed holistically in light of all of the costs and revenues forecast for a given year or years. Through these proceedings, FEI, the BCUC and interveners can assess and consider not only the costs of the projects at the time they enter rate base, but also any increased demand or cost reductions that can help offset those costs, and the timing of those costs/revenues, thus providing a full picture of all the factors impacting rates in a given year.<sup>250</sup>

### *Panel Discussion*

The Panel acknowledges BCOAPO’s concern regarding the potential for cumulative rate impacts due to FEI’s capital projects and costs associated with other items such as legislated environmental targets. However, the Panel agrees with the BCUC’s position as stated in its decision on FEI’s CTS TIMC application, “While the Panel shares similar concerns as some interveners over the cumulative rate impact of FEI’s major projects in the upcoming 10-year period, the Panel must assess the need of the Project and its individual rate impact on their own merits.”<sup>251</sup>

The Panel notes that FEI’s 2022 LTGRP, currently being reviewed by the BCUC, provides indicative rate impact implications of its diversified energy and other scenarios. FEI explains that the LTGRP includes the incremental cost of service related to FEI’s major projects, including the ITS TIMC Project. Although the LTGRP illustrates some rate implications, this does not amount to a rate mitigation strategy. Similarly, while FEI submits in this proceeding that strategies to mitigate rate impacts are best addressed as part of an annual review or revenue requirement application, so as to address rate impact in a given year, this is not a long-term strategy.

The Panel recognizes that it may be useful to canvass, in a future proceeding, whether a proactive rate mitigation plan for cumulative rate increases is warranted. Therefore, the Panel recommends that the BCUC consider this matter during the review of FEI’s upcoming 2025 Multi Year Rate Plan, which is anticipated in 2024.

## **10.0 CPCN Determinations**

The CEC recommends that the BCUC approve the Project and grant a CPCN to FEI for the ITS TIMC Project.<sup>252</sup>

While BCOAPO ultimately takes the position that the Application should be approved, its support for the Project is not unqualified based on its concerns related to the lack of assessment of the value of incremental improvement of risk to fully assess the costs and benefits to ratepayers, the lack of sub-alternatives to the EMAT ILI given that the Project has a lower coverage and higher cost on a relative basis to the CTS TIMC project, and the lack of specifics in the go-forward engagement with Indigenous groups necessary to achieve the “Involve” level of engagement.<sup>253</sup>

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<sup>249</sup> FEI CTS TIMC Decision, p. 49.

<sup>250</sup> FEI Reply Argument, pp. 18-19.

<sup>251</sup> FEI CTS TIMC Decision, p. 49.

<sup>252</sup> CEC Final Argument, p. 1.

<sup>253</sup> BCOAPO Final Argument, p. 30.

Overall, RCIA believes that FEI is justified in proceeding with the ITS TIMC Project. However, while RCIA supports the TIMC project in principle, RCIA recommends not proceeding with certain pipeline and facility alterations already identified in Section 4 of this Decision.<sup>254</sup>

### *Panel Determination*

The Panel finds that the public convenience and necessity require the Project to modify the ITS pipelines and facilities to allow for EMAT ILI. The Panel finds that the Project is appropriately justified and costed, and further finds that it is necessary to mitigate the risk of rupture due to the credible threat of undetected cracking on the ITS pipeline. As such, the Panel finds the Project to be in the public interest and to warrant the granting of a CPCN.

**Accordingly, pursuant to sections 45, 46, and sections 59 to 61 of the UCA, the Panel:**

- 1. Grants to FEI a CPCN for the ITS TIMC Project;**
- 2. Approves the transfer of the remaining Project costs in the non-rate base TIMC Development Cost Deferral Account estimated to be a credit of \$0.574 million at the end of 2023, to the rate base TIMC Development Cost deferral account effective January 1, 2024;**
- 3. Approves the transfer of the pre-construction development costs related to the Project, estimated to be \$4.108 million at the end of 2023, to CWIP; and**
- 4. Determines that the Confidential Information will be held confidential until the BCUC determines otherwise, and directs FEI to inform the BCUC upon completion of the Project about any Confidential Information which is no longer required to be kept confidential.**

**Given the magnitude of the Project and the timeline for its implementation, the Panel also finds it appropriate to direct FEI to provide ongoing reporting to the BCUC for the duration of the Project, as detailed in Appendix A of this Decision.**

**DATED** at the City of Vancouver, in the Province of British Columbia, this 15<sup>th</sup> day of January 2024.

*Original signed by:*

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C. M. Brewer  
Panel Chair / Commissioner

*Original signed by:*

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A. C. Dennier  
Commissioner

*Original signed by:*

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E. B. Lockhart

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<sup>254</sup> RCIA Final Argument, p. 5.

Commissioner



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**ORDER NUMBER  
C-1-24**

IN THE MATTER OF  
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Energy Inc.  
Application for a Certificate of Convenience and Necessity  
for the Interior Transmission System Transmission Integrity Management Capabilities Project

**BEFORE:**

C. M. Brewer, Panel Chair  
A. C. Dennier, Commissioner  
E. B. Lockhart, Commissioner

on January 15, 2024

**CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY**

**WHEREAS:**

- A. On September 20, 2022, FortisBC Energy Inc. (FEI) filed an application with the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN) pursuant to sections 45 and 46 of the *Utilities Commission Act* (UCA) for FEI's Interior Transmission System (ITS) Transmission Integrity Management Capabilities (TIMC) Project (ITS TIMC Project) (Application);
- B. The ITS TIMC Project consists of work necessary to prepare eight pipelines on the ITS for the use of in-line inspection tools. The scope of the ITS TIMC Project includes:
  1. Replacement of three heavy wall pipeline segments on two of the ITS pipelines; and
  2. Modification to 13 transmission pressure facilities within the ITS;
- C. FEI also requests approval, pursuant to sections 59 to 61 of the UCA, to transfer the balance of the TIMC Development Cost deferral account associated with the Application, estimated to be a credit of \$0.574 million, from the non-rate base TIMC Development Cost deferral account to the rate base TIMC Development Cost deferral account;
- D. In the Application, FEI requests that certain appendices filed with the Application be held confidential on the basis that these appendices include information that is commercially sensitive, poses a safety risk if disclosed, or may impede FEI's ability to reliably operate its gas system assets (Confidential Information);
- E. By December 8, 2022, British Columbia Old Age Pensioners' Organization et al.; Residential Consumer Intervener Association; and Commercial Energy Consumers Association of BC registered as interveners in the proceeding;

- F. By Orders G-320-22, G-48-23, G-94-23 and G-115-23, the BCUC established and amended the regulatory timetable for the review of the Application. The regulatory process included: two rounds of information requests (IRs); FEI responses to IRs; Panel IRs; intervenor evidence; IRs on the intervenor evidence; rebuttal evidence; IRs on the rebuttal evidence; final arguments and FEI's reply arguments; and
- G. The BCUC has considered the Application, the evidence and submissions in this proceeding and determines that certain approvals are warranted.

**NOW THEREFORE** pursuant to sections 45 to 46 and 59 to 61 of the *Utilities Commission Act* and for the reasons set out in the Decision issued concurrently with this order, the BCUC orders the following:

1. FEI is granted a CPCN for the ITS TIMC Project.
2. FEI is approved to transfer the remaining Project costs in the non-rate base TIMC Development Cost deferral account, estimated to be a credit of \$0.574 million at the end of 2023, to the rate base TIMC Development Cost deferral account, effective January 1, 2024.
3. FEI is approved to capitalize the pre-construction development costs related to the Project, estimated to be \$4.108 million at the end of 2023, by transferring to Construction Work in Progress.
4. FEI is directed to file reports as outlined in Appendix A to the Decision.
5. The Confidential Information will be held confidential until the BCUC determines otherwise. Upon completion of the Project, FEI is directed to inform the BCUC which Confidential Information is no longer required to be kept confidential.

**DATED** at the City of Vancouver, in the Province of British Columbia, this 15<sup>th</sup> day of January 2024.

BY ORDER

*Original signed by:*

C. M. Brewer  
Commissioner

FortisBC Energy Inc.  
Application for a Certificate of Public Convenience and Necessity for the  
Interior Transmission System Transmission Integrity Management Capabilities Project

## PROJECT REPORTING

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The scope of Project reporting for the duration of the Project comprises the following:

### 1 Semi-annual Progress Reports

Each report is required to detail:

- Actual costs incurred to date compared to the Project cost breakdown estimate provided in Table 6-1 of the Application, highlighting variances and with an explanation of significant variances;
- Updated forecast of costs, highlighting the reasons for significant changes in Project costs / savings anticipated to be incurred; and
- The status of identified risks noted in section 5.9.2 and confidential Appendix H of the Application, highlighting the status of identified risks, changes in and additions to risks, the options available to address the risks, the actions that FEI is taking to deal with the risks and the likely impact on the Project's schedule and cost.

FEI must file semi-annual progress reports within 30 days of the end of each semi-annual reporting period, with the first report covering the period ending June 30, 2024.

### 2 Material Change Reports

A material change (Material Change) is a change in FEI's plan for the Project that would reasonably be expected to have a significant impact on the schedule, cost or scope, such that:

- There is a schedule delay of greater than six months compared to the schedule provided in Table 5-1 of the Application;
- The forecasted total Project cost at completion exceeds 30 percent of the estimated Project cost provided in Table 6-1 of the Application; or
- There is a change to the Project scope detailed in section 5 of the Application.

In the event of a Material Change, FEI must file a Material Change report with the BCUC explaining the reasons for the Material Change, FEI's consideration of the Project risk and the options available, and actions FEI is taking to address the Material Change. FEI must file the Material Change report as soon as practicable and in any event within 30 days of the date on which the Material Change occurs.



### 3. Final Report

A Final Report within three months of substantial completion or the in-service date of the Project, whichever is earlier. The report is to include:

- The final cost of the Project, including a breakdown of the final costs;
- A comparison of the final costs to the estimates provided in Table 6-1 of the Application; and
- An explanation of all final cost variances for any of the cost items in Table 6-1 of the Application that exceed 30 percent of the estimates.

FortisBC Energy Inc.  
Application for a Certificate of Public Convenience and Necessity for the  
Interior Transmission System Transmission Integrity Management Capabilities Project

**LIST OF ACRONYMS**

ACRONYM	DESCRIPTION
AACE International	Association for the Advancement of Cost Engineering International
AFUDC	Allowance for Funds Used During Construction
AIA	Archaeological Impact Assessment
AOA	Archaeological Overview Assessment
Application	Application for a Certificate of Public Convenience and Necessity for FEI's Interior Transmission System Transmission Integrity Management Capabilities Project
BC OGC	BC Oil and Gas Commission
BCER	BC Energy Regulator
BCOAPO	British Columbia Old Age Pensioners' Organization et al.
BCUC	British Columbia Utilities Commission
CEA	<i>Clean Energy Act</i>
CEC	Commercial Energy Consumers Association of British Columbia
CPCN	Certificate of Public Convenience and Necessity
CSA	Canadian Standards Association
CTS	Coastal Transmission System
CWIP	Construction Work In Progress
EMAT	Electro-magnetic Acoustic Transducer
EMAT ILI	EMAT In-line Inspection
EMP	Environmental Management Plan
EOA	Environmental Overview Assessment
ERAA	<i>Energy Resource Activities Act</i>
FCS	Flow Control Station
FEED	Front-End Engineering and Design
FEI	FortisBC Energy Inc.
GJ	Gigajoule

HSTP	Hydrostatic Test Program
IGU	Inland Gas Upgrade
ILI	In-line Inspection
IMP-P	Pipeline Integrity Management Program
IRs	Information Requests
ITS	Interior Transmission System
ITS TIMC Project	Interior Transmission System Transmission Integrity Management Capabilities Project
JANA	JANA Corporation
LTGRP	Long Term Gas Resource Plan
MRP	Multi Year Rate Plan
O&M	Operations & Maintenance
PFR	Preliminary Field Reconnaissance
PLE	Pipeline Exposure and Recoat
PLR	Pipeline Replacement
PRS	Pressure Regulating Station
QRA	Quantitative Risk Assessment
RCIA	Residential Consumer Intervener Association
REL	Ryall Engineering Ltd.
SCC	Stress Corrosion Cracking
SCCDA	Stress Corrosion Cracking Direct Assessment
SMYS	Specified Minimum Yield Stress
SOE	Spatial Overview Engine
TIMC	Transmission Integrity Management Capabilities
UCA	<i>Utilities Commission Act</i>
VITS	Vancouver Island Transmission System
WACC	Weighted Average Cost of Capital

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Interior Transmission System Transmission Integrity Management Capabilities Project t

**EXHIBIT LIST**

<b>Exhibit No.</b>	<b>Description</b>
<i>COMMISSION DOCUMENTS</i>	
A-1	Letter dated October 19, 2022– Appointing the Panel for the review of the Certificate of Public Convenience and Necessity (CPCN) for the Interior Transmission System (ITS) Transmission Integrity Management Capabilities (TIMC) Project Application
A-2	Letter dated November 7, 2022 – BCUC Order G-320-22 establishing a regulatory timetable for the review of the Application
A-3	Letter dated December 15, 2022 – BCUC Information Request No. 1 to FEI
A-4	<b>CONFIDENTIAL</b> - Letter dated December 15, 2022 – BCUC Confidential Information Request No. 1 to FEI
A-5	Letter dated January 26, 2023 – BCUC Order G-18-23 amending the regulatory timetable
A-6	Letter dated March 10, 2023 – BCUC Order G-48-23 establishing a further regulatory timetable
A-7	Letter dated March 15, 2023 – BCUC response to BCOAPO’s extension request to file Information Request No. 2
A-8	Letter dated March 30, 2023 – BCUC Information Request No. 2 to FEI
A-9	Letter dated April 24, 2023 – BCUC Order G-94-23 establishing a further regulatory timetable
A-10	Letter dated May 12, 2023 – BCUC Order G-115-23 establishing a further regulatory timetable
A-11	Letter dated May 12, 2023 – BCUC Panel Information Request No. 1 to FEI
A-12	Letter dated June 29, 2023 – BCUC Information Request No. 1 to RCIA on Intervener Evidence
A-13	Letter dated August 21, 2023 – BCUC Information Request No. 3 to FEI

*APPLICANT DOCUMENTS*

- B-1        **FORTISBC ENERGY INC. (FEI)** – Certificate of Public Convenience and Necessity (CPCN) for the Interior Transmission System (ITS) Transmission Integrity Management Capabilities (TIMC) Project dated September 20, 2022
- B-1-1     **CONFIDENTIAL** – Letter dated September 20, 2022 – FEI submitting confidential Appendices to the CPCN ITS TIMC Project
- B-1-2     Letter dated September 21, 2022 – FEI submitting amended Appendix Q1 to the CPCN ITS TIMC Project
- B-2        Letter dated November 29, 2022 – FEI submitting confirmation of Public Notice
- B-3        Letter dated January 24, 2023 – FEI submitting extension request to file Information Request No. 1 responses
- B-4        Letter dated February 16, 2023 – FEI submitting response to BCUC Information Request No. 1
- B-4-1     **CONFIDENTIAL** - Letter dated February 16, 2023 – FEI submitting confidential responses to BCUC Information Request No. 1
- B-4-2     Letter dated April 20, 2023 – FEI submitting errata to response to BCUC Information Request No. 1
- B-5        **CONFIDENTIAL** – Letter dated February 16, 2023 – FEI submitting responses to BCUC confidential Information Request No. 1
- B-6        Letter dated February 16, 2023 – FEI submitting response to BCOAPO Information Request No. 1
- B-7        Letter dated February 16, 2023 – FEI submitting response to CEC Information Request No. 1
- B-7-1     Letter dated April 20, 2023 – FEI submitting errata to response to CEC Information Request No. 1
- B-8        Letter dated February 16, 2023 – FEI submitting response to RCIA Information Request No. 1
- B-8-1     **CONFIDENTIAL** – Letter dated February 16, 2023 – FEI submitting confidential responses to RCIA Information Request No. 1
- B-9        **PUBLIC** - Letter dated April 20, 2023 – FEI submitting response to BCUC Information Request No. 2
- B-9-1     **CONFIDENTIAL** – Letter dated April 20, 2023 – FEI submitting confidential response to BCUC Information Request No. 2

- B-10 Letter dated April 20, 2023 – FEI submitting response to CEC Information Request No. 2
- B-11 Letter dated April 20, 2023 – FEI submitting response to RCIA Information Request No. 2
- B-12 Letter dated April 20, 2023 – FEI submitting response to BCOAPO Information Request No. 2
- B-13 Letter dated May 4, 2023 – FEI submission on further process
- B-14 Letter dated May 10, 2023 – FEI reply submission on further process
- B-15 Letter dated May 26, 2023 – FEI submitting response to BCUC Panel Information Request No. 1
- B-16 Letter dated May 26, 2023 – FEI submitting clarification to RCIA Information Request No. 2 Questions
- B-17 Letter dated June 27, 2023 – FEI submitting notice regarding Information Requests and Rebuttal Evidence
- B-18 Letter dated August 4, 2023 – FEI submitting Rebuttal Evidence on RCIA Intervener Evidence
- B-18-1 Letter dated September 7, 2023 – FEI submitting Rebuttal Evidence on RCIA Intervener Evidence - Errata
- B-19 Letter dated September 7, 2023 – FEI submitting response to BCUC Information Request No. 3
- B-20 Letter dated September 7, 2023 – FEI submitting response to BCOAPO Information Request No. 3
- B-21 Letter dated September 7, 2023 – FEI submitting response to CEC Information Request No. 3
- B-22 Letter dated September 7, 2023 – FEI submitting response to RCIA Information Request No. 3
- B-22-1 **CONFIDENTIAL** - Letter dated September 7, 2023 – FEI submitting confidential response to RCIA Information Request No. 3

*INTERVENER DOCUMENTS*

- C1-1 **BRITISH COLUMBIA OLD AGE PENSIONERS’ ORGANIZATION, ACTIVE SUPPORT AGAINST POVERTY, DISABILITY ALLIANCE BC, COUNCIL OF SENIOR CITIZENS’ ORGANIZATIONS OF BC, TENANTS RESOURCE AND ADVISORY CENTRE, AND TOGETHER AGAINST POVERTY SOCIETY (BCOAPO)** – Letter dated November 22, 2022 submitting request to intervene by Leigha Worth

- C1-2 Letter dated January 10, 2023 – BCOAPO submitting Information Request No. 1 to FEI
- C1-3 Letter dated March 14, 2023 – BCOAPO submitting extension request to file Information Request No. 2 to FEI
- C1-4 Letter dated April 11, 2023 – BCOAPO submitting Information Request No. 2 to FEI
- C1-5 Letter dated May 4, 2023 – BCOAPO submission on further process
- C1-6 Letter dated June 29, 2023 – BCOAPO Information Request No. 1 to RCIA on Intervener Evidence
- C1-7 Letter dated August 21, 2023 – BCOPAO submitting Information Request No. 3 to FEI on Rebuttal Evidence
- C2-1 **RESIDENTIAL CONSUMER INTERVENER ASSOCIATION (RCIA)** – Letter dated December 8, 2022 Request to intervene by Samuel Mason
- C2-2 Letter dated December 21, 2022 – RCIA submitting Confidentiality Declaration and Undertakings
- C2-3 Letter dated January 10, 2023 – RCIA submitting Information Request No. 1 to FEI
- C2-4 Letter dated March 30, 2023 – RCIA submitting Information Request No. 2 to FEI
- C2-5 Letter dated May 4, 2023 – RCIA submission on further process
- C2-6 Letter dated June 16, 2023 – RCIA submitting Evidence by Ryall Engineering Limited
- C2-7 Letter dated July 14, 2023 – RCIA submitting response to BCUC Information Request No. 1 on Intervener Evidence
- C2-8 Letter dated July 14, 2023 – RCIA submitting response to CEC Information Request No. 1 on Intervener Evidence
- C2-9 Letter dated July 14, 2023 – RCIA submitting response to BCPOAPO Information Request No. 1 on Intervener Evidence
- C2-10 Letter dated August 21, 2023 – RCIA submitting Information Request No. 3 to FEI on Rebuttal Evidence
- C3-1 **COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BC (CEC)** – Letter dated December 8, 2022 Request to intervene by David Craig
- C3-2 Letter dated January 3, 2023 – CEC submitting Confidentiality Declaration and Undertakings
- C3-3 Letter dated January 10, 2023 – CEC submitting Information Request No. 1 to FEI
- C3-4 Letter dated March 30, 2023 – CEC submitting Information Request No. 2 to FEI



- C3-5 Letter dated May 4, 2023 – CEC submission on further process
- C3-6 Letter dated June 29, 2023 – CEC Information Request No. 1 to RCIA on Intervener Evidence
- C3-7 Letter dated August 21, 2023 – CEC submitting Information Request to FEI on Rebuttal Evidence