



**ORDER NUMBER  
C-6-25**

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

and

FortisBC Energy Inc.  
Application for a Certificate of Public Convenience and Necessity  
for the Tilbury Liquefied Natural Gas Storage Expansion Project

**BEFORE:**

A. K. Fung, KC, Panel Chair  
T. A. Loski, Commissioner  
A. C. Dennier, Commissioner

on October 27, 2025

**CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY**

**WHEREAS:**

- A. On December 29, 2020, FortisBC Energy Inc. (FEI) filed an application with the British Columbia Utilities Commission (BCUC) pursuant to sections 45 and 46 of the *Utilities Commission Act* for the approval of a Certificate of Public Convenience and Necessity (CPCN) for the Tilbury Liquefied Natural Gas (LNG) Storage Expansion (TLSE) Project (Application);
- B. FEI also requests the following related financial approvals pursuant to sections 59 to 61 of the UCA:
- A depreciation rate of 1.67 percent and a net salvage rate of 0.67 percent applicable to the new 3 Bcf LNG tank;
  - A new non-rate base deferral account: the “TLSE Application and Preliminary Stage Development Costs” deferral account; and
  - A deferral account, the “TLSE FX Mark to Market deferral account,” to capture the mark-to-market valuation of any foreign currency forward contracts entered into related to construction of the TLSE Project;
- C. By Orders G-26-21, G-165-21, G-9-22, G-29-22, G-58-22, G-100-22, G-113-22, G-117-22, G-132-22, G-208-22, G-223-22, and G-267-22, respectively, the BCUC established and amended the regulatory timetable for the review of the Application. The regulatory process included: a workshop; an in-camera technical session to address the confidentiality of security sensitive information in the Application; two rounds of written information requests (IRs); filing of intervener evidence, rebuttal evidence, and IRs on the same; one round of Panel IRs; a further round of written IRs regarding the signing of the Tilbury LNG Projects Agreement by the Musqueam Indian Band and FortisBC Holdings Inc.; and written final arguments by FEI and interveners, and reply argument by FEI;

- D. The following parties registered as interveners in this proceeding:
- British Columbia Old Age Pensioners' Organization et al.;
  - BC Sustainable Energy Association;
  - Citizens for My Sea to Sky Society;
  - Commercial Energy Consumers Association of British Columbia;
  - Musqueam Indian Band;
  - Residential Consumer Intervener Association;
  - Sentinel Energy Management Inc.; and
  - Tsleil-Waututh Nation;
- E. By Order G-62-23, dated March 23, 2023, the BCUC adjourned the proceeding and invited FEI to file a resiliency plan and additional evidence;
- F. On October 24, 2024, FEI filed a resiliency plan (2024 Resiliency Plan) and additional evidence (Supplemental Evidence);
- G. By Order G-324-24, dated December 4, 2024, the BCUC established a further regulatory timetable to resume the review of the Application, including two rounds of written IRs and written and reply final arguments;
- H. By Order G-19-25, dated January 28, 2025, the BCUC determined that certain information contained within the 2024 Resiliency Plan and the Supplemental Evidence would be held confidential, and directed that certain confidential information be accessible only to the BCUC; and
- I. The BCUC has considered the Application, evidence and submissions in this proceeding and finds that the following determinations are warranted.

**NOW THEREFORE** pursuant to sections 45, 46, 56 and 59 to 61 of the *Utilities Commission Act*, for the reasons outlined in the decision accompanying this order, the BCUC orders as follows:

1. A CPCN is issued to FEI for the TLSE Project.
2. FEI is approved to use a depreciation rate of 1.67 percent and a net salvage rate of 0.67 percent for the new 3 Bcf LNG tank.
3. FEI is approved to establish the non-rate base TLSE Application and Preliminary Stage Development Costs deferral account to record the Application and preliminary stage development costs to be amortized over three years commencing January 1, 2026, earning a return at FEI's weighted average cost of capital.
4. FEI is approved to establish the TLSE FX Mark to Market deferral account to record the mark-to-market valuation of any foreign currency contracts entered into related to construction of the TLSE Project.

5. Subject to further order of the BCUC, once the TLSE Project is in-service, FEI must:
  - a. Include 1 Bcf from the TLSE storage tank for gas supply in its subsequent annual contracting plans; and
  - b. Allocate 2 Bcf of the TLSE storage tank as a “resiliency reserve” that is set aside by FEI for addressing a potential interruption of firm service on FEI’s system.
6. Directive 5 of this Order is not intended to:
  - a. Restrict FEI’s use of the “resiliency reserve” to addressing a no-flow event on T-South or other potential interruption of firm service;
  - b. Prevent FEI from using LNG allocated to gas supply for resiliency purposes where FEI reasonably determines, based on the available information, that the alternative to using it is the potential interruption of firm service on its system; or
  - c. Permit FEI and/or its affiliates to use LNG from the TLSE storage tank for LNG transportation service customers, export or other related purposes unless otherwise approved by the BCUC.
7. FEI may apply to the BCUC for approval of changes to the allocation specified in Directive 5 of this Order for planning purposes.
8. FEI is directed to comply with all directives outlined in the Decision issued concurrently with this Order, including the reporting specified in Section 9 and Appendix C to the Decision.

**DATED** at the City of Vancouver, in the Province of British Columbia, this 27th day of October 2025.

BY ORDER

*Electronically signed by Anna Fung*

A. K. Fung, KC  
Commissioner

FortisBC Energy Inc.  
Application for a Certificate of Public Convenience and Necessity  
for the Tilbury Liquefied Natural Gas Storage Expansion Project

**DECISION**

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## Executive Summary

On December 29, 2020, FortisBC Energy Inc. (FEI) filed an application with the British Columbia Utilities Commission (BCUC) pursuant to sections 45 and 46 of the *Utilities Commission Act* (UCA) for the approval of a Certificate of Public Convenience and Necessity (CPCN) for the Tilbury Liquefied Natural Gas (LNG) Storage Expansion (TLSE) Project (Application).

The purpose of the TLSE Project is to ensure that FEI continues to have sufficient gas supply to serve its customers on peak demand days and to mitigate the greatest identified risk to the resiliency of FEI's gas delivery system, which is a supply disruption due to a failure on Enbridge Inc.'s T-South pipeline system. FEI proposes to construct and operate a new 3 billion cubic feet (Bcf) LNG storage tank and 800 million cubic feet per day (MMcf/d) of regasification capacity as part of the TLSE Project. The estimated overall cost of the TLSE Project in as-spent dollars is \$1.144 billion. The TLSE Project is scheduled to be in service by 2030.

The BCUC completed its initial review of FEI's TLSE Project Application in March 2023, when it determined that an adjournment of the review process was warranted (2023 Adjournment Decision). At that time, the BCUC identified inadequacies in the analysis provided by FEI in support of the need for the TLSE Project and accordingly invited FEI to file supplemental information (Supplemental Evidence). The BCUC determined that FEI had not sufficiently assessed the condition of its existing LNG peaking supply assets and did not provide detailed evidence regarding the resiliency needs of its system. In response to the 2023 Adjournment Decision, FEI filed Supplemental Evidence and the 2024 Resiliency Plan in October 2024. The BCUC resumed its review of the Application following the filing of this information.

The Panel has reviewed the evidence and submissions in this proceeding and finds that it is in the public interest to issue a CPCN to FEI for the TLSE Project. The Panel accepts that the condition of FEI's existing LNG peaking supply equipment warrants the retirement of these assets. The Panel finds that it is in the public interest to replace the existing peaking supply assets with new on-system supply resources, as without such resources FEI would not be able to reliably meet the demand of its customers on peak days. Further, the Panel considers that incremental investments towards a larger capacity LNG storage tank and increased regasification capacity, above that which is necessary for the purpose of peaking supply, are also in the public interest to mitigate the identified resiliency risk. FEI has demonstrated that a supply disruption due to a failure of the T-South pipeline system represents the single largest outage risk to FEI's customers. Accordingly, the Panel accepts the need to build a 3 Bcf LNG tank and 800 MMcf/d of regasification capacity, as well as the other components of the overall TLSE Project noted in the Decision. The Panel directs FEI to allocate 1 Bcf of LNG storage capacity as a peaking supply and 2 Bcf of LNG storage capacity as a resiliency reserve. FEI may apply to the BCUC for approval of changes to this allocation.

The Panel further directs various reporting requirements relating to the TLSE Project and approves FEI's requests pertaining to the accounting treatment and related deferral accounts for the TLSE Project.

## 1.0 Introduction

On December 29, 2020, FortisBC Energy Inc. (FEI) filed an application with the British Columbia Utilities Commission (BCUC) pursuant to sections 45 and 46 of the *Utilities Commission Act* (UCA) for the approval of a Certificate of Public Convenience and Necessity (CPCN) for the Tilbury Liquefied Natural Gas (LNG) Storage Expansion (TLSE) Project (Application).

The purpose of the TLSE Project is to ensure that FEI continues to have sufficient gas supply to serve its customers on peak demand days and to mitigate an identified risk to the resiliency of FEI's system.<sup>1</sup> The identified resiliency risk relates to the loss of natural gas supply to FEI's Lower Mainland customers that would occur if there were to be a disruption of natural gas supply from the Enbridge Inc. (Enbridge) T-South pipeline (T-South).<sup>2</sup> Currently, FEI relies on the T-South pipeline to deliver approximately 85 percent of the gas entering FEI's own pipeline system.<sup>3</sup> FEI notes that British Columbia's natural gas transmission pipeline system does not have an abundance of inherent resiliency, as the current pipeline system has: 1) a relatively low amount of natural gas pipeline interconnectedness compared to other regions of North America, 2) is highly reliant on a single pipeline for natural gas supply and, 3) has minimal on- and off- system storage.<sup>4</sup> By pursuing the TLSE Project, FEI proposes to provide peaking gas supply and to mitigate the identified resiliency risk by building a new LNG tank to increase the capacity of stored LNG in the Lower Mainland.

FEI proposes to build and operate the TLSE Project at the site of its existing Tilbury LNG facility, located on Tilbury Island in Delta, BC. The original Tilbury base plant (Base Plant) was built between 1969 and 1971, and was sized to support peak demand.<sup>5</sup> The Base Plant consists primarily of three components: i) an LNG storage tank with a capacity of 0.6 billion cubic feet (Bcf), ii) liquefaction equipment with a capacity of 5 million cubic feet per day (MMcf/d) and, iii) regasification equipment with a capacity of 150 MMcf/d.<sup>6</sup>

In recent years, FEI has expanded the liquefaction and LNG storage capacity at the Tilbury LNG facility, such that the Base Plant now forms one part of FEI's overall Tilbury LNG facility. In 2019, FEI began operating an expansion to its Tilbury LNG facility, known as the Tilbury Phase 1A facility. The Tilbury Phase 1A facility includes 33 MMcf/d of liquefaction capacity and a 1 Bcf LNG storage tank.<sup>7</sup> FEI built the Tilbury Phase 1A facility pursuant to a provincial Order in Council for the purpose of supporting the sale of LNG to LNG transportation service customers under Rate Schedule 46 (RS 46).<sup>8</sup>

Figure 1 below shows the locations of the Base Plant and the Tilbury Phase 1A facility within the Tilbury LNG facility.<sup>9</sup>

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<sup>1</sup> Exhibit B-60, p. 1.

<sup>2</sup> Enbridge Inc. is the parent company of Westcoast Energy Inc. The Canada Energy Regulator lists Westcoast Energy Inc. as the regulated owner of the Westcoast pipeline system. The Westcoast pipeline is otherwise known as the BC Pipeline System or the T-South pipeline. In this decision, the BCUC will refer to Enbridge or the T-South. [<https://apps.cer-rec.gc.ca/PPS/en/pipeline-profiles/westcoast-bc-pipeline>]

<sup>3</sup> Exhibit B-1-4, p. 37.

<sup>4</sup> Ibid., p. 39.

<sup>5</sup> Exhibit B-1, p. 62.

<sup>6</sup> Ibid., p. 63.

<sup>7</sup> Exhibit B-1, Appendix P, p. 1.; Exhibit B-1-4, p. 62.

<sup>8</sup> Exhibit B-1, p. 62.

<sup>9</sup> Ibid., p. 120.

**Figure 1: FEI Existing Assets, Tilbury Island, Delta, BC**



FEI proposes to replace the Base Plant with the TLSE Project.<sup>10</sup> The key components of the proposed TLSE Project include:

- a new 3 Bcf LNG storage tank;
- new regasification equipment with a capacity of 800 MMcf/d;
- the addition or modification of any necessary auxiliary systems;<sup>11</sup> and
- the demolition of the above-ground portion of the Base Plant LNG storage tank and liquefaction facilities.<sup>12</sup>

The TLSE Project does not include any additional liquefaction capacity.

By Order G-62-23 (2023 Adjournment Decision) dated March 23, 2023, the BCUC adjourned the proceeding and invited FEI to file additional evidence, including a detailed resiliency plan. This is discussed in greater detail below in Section 1.1.

On October 24, 2024, FEI filed a resiliency plan (2024 Resiliency Plan) and additional evidence (Supplemental Evidence) in response to the 2023 Adjournment Decision. The BCUC resumed its review of the Application after FEI filed this additional information.

<sup>10</sup> Exhibit B-60, p. 5.

<sup>11</sup> Including power supply, utility pipe racks, in-tank pumps, piping, cable trays, instrument air compressors, boil-off gas compressors, connectivity to Tilbury 1A LNG storage tank, and connections to send-out gas pipelines.

<sup>12</sup> Exhibit B-60, pp. 188-189.

## 1.1 Background Information

### 2017 Long-Term Gas Resource Plan (LTGRP) and the 2018 T-South Pipeline Rupture

On February 25, 2019, the BCUC accepted FEI's 2017 LTGRP (2017 LTGRP Decision).<sup>13</sup> Among other things, the 2017 LTGRP Decision directed FEI to address security of supply concerns as part of its next LTGRP filing. The topic of threats to FEI's natural gas supply arose following the rupture of Enbridge's T-South pipeline in 2018. On October 9, 2018, one of the two parallel pipelines which make up the T-South pipeline system ruptured near Prince George, BC.<sup>14</sup> Natural gas escaped from the ruptured pipeline and ignited. The other adjacent T-South pipeline which did not rupture was shut down as a precautionary measure, resulting in zero gas supply south of the rupture location for 2 days. Capacity remained constrained for approximately three weeks, as Enbridge reinstated the non-ruptured parallel pipeline at a reduced capacity while the ruptured pipeline remained out of service.<sup>15</sup>

### TLSE Project Adjournment Decision

On March 23, 2023, the BCUC adjourned the review of the TLSE Project and invited FEI to file additional evidence, including a detailed resiliency plan. The BCUC identified several issues to be addressed by the detailed resiliency plan, including a holistic review of current and future threats to the resiliency of FEI's system, as well as identification of assets that provide resiliency, and any gaps therein. The BCUC noted the following specific inadequacies with FEI's analysis of the resiliency of its system:

- There is no assessment of the type or severity of the risks to the resiliency of the FEI system, the probabilities of these risks occurring and the resultant consequences of these risks materializing;<sup>16</sup>
- FEI presents a three-day no-flow event as its "specific minimum resiliency objective for prospective planning" but provides no broader context for this specific choice of resiliency objective. For example, there is no probabilistic analysis to demonstrate that a three-day event is more likely than a 10-day event, nor does FEI demonstrate that a three-day outage is more likely to occur in winter when consequences may be more significant;<sup>17</sup> and
- The costs and benefits of the TLSE Project were not evaluated against other alternatives that would provide fewer, equivalent or more resiliency benefits to customers. In other words, FEI did not address whether the TLSE Project represented the best alternative to improve FEI's overall system resiliency.<sup>18</sup>

In addition, the BCUC considered that the adjournment would provide FEI an opportunity to conduct a detailed investigation of the condition of the Base Plant.

The BCUC also invited FEI to provide additional evidence with respect to the future demand for natural gas, specifically the risk that the TLSE Project will not remain used and useful over its expected in-service life due to reductions in natural gas demand in an increasingly decarbonized environment.<sup>19</sup>

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<sup>13</sup> Order G-39-19, FortisBC Energy Inc. 2017 Long Term Gas Resource Plan.

<sup>14</sup> The T-South pipeline is made up of two parallel pipelines, one pipeline is 30" diameter and the other is 36" diameter.

<sup>15</sup> Exhibit B-1-4, pp. 39-41.

<sup>16</sup> Order G-62-23, p. 48.

<sup>17</sup> Ibid., p. 50.

<sup>18</sup> Ibid., p. 51.

<sup>19</sup> Order G-23-23, p. 53.

## 2022 Long-Term Gas Resource Plan

On May 9, 2022, FEI filed its 2022 Long-Term Gas Resource Plan (2022 LTGRP) for acceptance by the BCUC. As directed by the 2017 LTGRP Decision, the 2022 LTGRP included a Gas System Resiliency Plan.<sup>20</sup> As the 2022 LTGRP was filed during the BCUC's review of FEI's TLSE Project Application, the BCUC considered this Gas System Resiliency Plan as part of its review prior to the adjournment of this proceeding. The BCUC identified several shortcomings of the Gas System Resiliency Plan and listed them within the 2023 Adjournment Decision (as noted above).

The BCUC's review of FEI's 2022 LTGRP concluded on March 20, 2024, after the TLSE Project review proceeding was adjourned. By Order G-78-24, the BCUC accepted the 2022 LTGRP, except for the Gas System Resiliency Plan component (2022 LTGRP Decision). In the 2022 LTGRP Decision, the BCUC agreed with the shortcomings of the Gas System Resiliency Plan that had been identified within the 2023 Adjournment Decision. During the 2022 LTGRP proceeding, FEI committed to filing a more comprehensive resiliency plan in response to the guidance provided within the 2023 Adjournment Decision.<sup>21</sup>

FEI has filed its more comprehensive resiliency plan, the 2024 Resiliency Plan, as part of this proceeding.

### **1.2 Approvals Sought**

Pursuant to sections 45 and 46 of the UCA, FEI requests that the BCUC issue a CPCN for the TLSE Project, which consists of:<sup>22</sup>

- Construction and operation of a 3 Bcf LNG storage tank;<sup>23</sup>
- Construction and operation of regasification equipment with a capacity of 800 MMcf/d;
- Construction or modification and operation of any of the necessary auxiliary systems, including items such as utility pipe racks, in-tank pumps, piping, and connections to the send-out gas pipeline; and
- Demolition of the above-ground portion of the Base Plant, LNG storage tank and liquefaction facilities.

FEI also requests approval of the following related financial items pursuant to sections 56 and 59 to 61 of the UCA:

- A depreciation rate of 1.67 percent and a net salvage rate of 0.67 percent applicable to the new 3 Bcf LNG tank;
- The establishment of a new non-rate base deferral account: the "TLSE Application and Preliminary Stage Development Costs" deferral account; and
- The establishment of a deferral account, the "TLSE FX Mark to Market deferral account," to capture the mark-to-market valuation of any foreign currency forward contracts entered into related to construction of the TLSE Project.

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<sup>20</sup> FEI 2022 LTGRP proceeding, Exhibit B-1, Appendix E.

<sup>21</sup> Order G-78-24, pp. 39-40.

<sup>22</sup> Exhibit B-1, p. 12.

<sup>23</sup> 142,400 m<sup>3</sup> of LNG provides 3 Bcf of natural gas, once the LNG is converted from liquid phase to vapour phase. See Exhibit B-1, Table 5-1. For the remainder of the decision, LNG storage capacity uses the Bcf unit as this is predominantly the capacity unit relied upon throughout the evidentiary record.

### 1.3 Regulatory Process

Following the filing of the Application in December 2020, the BCUC established a public hearing and regulatory review process. This process, which culminated in the BCUC adjourning the review of the Application as of March 23, 2023, is outlined within the 2023 Adjournment Decision and is not repeated here.

On December 4, 2024, the BCUC established a further regulatory timetable to resume the review of the Application following FEI's filing of the Supplemental Evidence and 2024 Resiliency Plan.<sup>24</sup> The post-adjournment regulatory process included:

- Intervener submissions and FEI reply submission with respect to FEI's confidentiality requests;
- Two rounds of written information requests (IRs); and
- Written final arguments by FEI and interveners, and reply argument by FEI.

The following interveners confirmed their continued participation in the proceeding post-adjournment:

- British Columbia Old Age Pensioners' Organization et al. (BCOAPO);
- BC Sustainable Energy Association (BCSEA);
- Citizens for My Sea to Sky Society (MS2S);
- Commercial Energy Consumers Association of British Columbia (the CEC);
- Residential Consumer Intervener Association (RCIA); and
- Sentinel Energy Management Inc. (Sentinel Energy).

Musqueam Indian Band and the Tsleil-Waututh Nation had participated prior to the 2023 Adjournment Decision; however, neither party participated post-adjournment.

By Order G-19-25, dated January 28, 2025, the BCUC determined that information contained within the 2024 Resiliency Plan and the Supplemental Evidence which FEI has requested be held confidential would be held confidential, and directed that certain confidential information within the 2024 Resiliency Plan and the Supplemental Evidence be accessible only to the BCUC.<sup>25</sup>

### 1.4 Legislative and Regulatory Framework

Sections 45 and 46 of the UCA set out the legislative framework for the BCUC's review of CPCN applications.

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 a CPCN from the BCUC.

Section 46(3) of the UCA states that the BCUC may issue or refuse to issue a CPCN or may issue a CPCN for the construction or operation of only a part of the proposed facility, line, plant, system or extension, and may attach terms and conditions to the CPCN.

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

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<sup>24</sup> Order G-324-24.

<sup>25</sup> Order G-19-25.

- a. the applicable of British Columbia’s energy objectives,<sup>26</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 CPCN is consistent with the applicable requirements under sections 6 and 19 of the *Clean Energy Act* (CEA).<sup>27</sup>

Section 56(2) of the UCA states that the BCUC must determine and, by order after a hearing, set proper and adequate rates of depreciation.

Sections 59 to 61 of the UCA set out the legislative framework for the BCUC’s approval of rates.

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>28</sup>

## 1.5 Decision Framework

This decision is structured to mirror the framework by which the Panel reviewed the evidence and arguments presented in this proceeding. The decision begins by addressing a series of questions regarding the apparent drivers for the TLSE Project, including the following:

- Has the Tilbury Base Plant reached end of life? (Section 2.1.1)
- If so, is there a demonstrated need to maintain an on-system peaking supply resource, which the Tilbury Base Plant has traditionally provided? (Section 2.1.2)
- If so, what is the optimal capacity for such a peaking resource? (Section 2.1.3)

The decision then addresses the separate need to mitigate any identified gaps in the resiliency of FEI’s system, which FEI has identified as one of the drivers for the TLSE Project in addition to the need to deal with the end of life of the Base Plant. Section 2.2.1 reviews how FEI identified and assessed threats to the resiliency of its system and how this information was then incorporated into FEI’s 2024 Resiliency Plan. Following this, Section 2.2.2 examines whether the 2024 Resiliency Plan supports the need to mitigate the risk of a T-South supply disruption.

Having assessed the need to maintain an on-system peaking resource and to reduce resiliency risks, Section 3 considers several feasible alternatives. Section 3 primarily addresses those alternatives that both mitigate the identified resiliency risk and provide a minimum capacity of on-system peaking supply.

Section 4 summarizes the scope of the TLSE Project.

Section 5 outlines TLSE Project costs, examines the rate impact of the TLSE Project and examines the deferral accounts for which FEI has sought BCUC approval.

Section 6 considers environmental and archaeological issues raised by the TLSE Project.

Section 7 reviews the adequacy of FEI’s consultation and engagement with respect to the TLSE Project to date.

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<sup>26</sup> BC’s energy objectives are defined in section 2 of the *Clean Energy Act*.

<sup>27</sup> Sections 6 and 19 of the CEA apply to electric utilities and are therefore not applicable to the Panel’s review of the Application.

<sup>28</sup> Order G-20-15, 2015 Certificate of Public Convenience and Necessity Application Guidelines.

Section 8 outlines BC's energy objectives as they relate to the TLSE Project, including a discussion regarding the incremental GHG emissions associated with the Project, and FEI's 2022 LTGRP.

Section 9 provides the Panel's overall determination with respect to the TLSE Project and the directive with respect to ongoing TLSE Project reporting and allocation of LNG for planning purposes.

Wherever possible, this decision does not revisit issues resolved by the 2023 Adjournment Decision.

## **2.0 Project Need**

In the following sections the Panel reviews the three apparent drivers for the TLSE Project based on the Supplementary Evidence: the end of life of the Base Plant, the requirement for an increased peaking supply resource, and the need to address FEI's greatest resiliency risk on its system. For the following reasons, the Panel viewed it important to first review the condition of the Base Plant and assess the continued need for an on-system peaking supply resource before considering the need to mitigate FEI's system resiliency risks.

The condition of the Base Plant can be established through engineering studies. Similarly, the reliance on the Base Plant for peaking gas supply can be demonstrated through historic usage and gas supply procurement strategies. By comparison, there are elements of uncertainty in the determination of the pipeline failure probabilities that inform the need for resiliency risk mitigation.<sup>29</sup> This uncertainty presents a different set of challenges to demonstrating the need for investments that mitigate resiliency risk, which FEI addresses in the 2024 Resiliency Plan and its modeling of low probability, high consequence pipeline failure events. The decision framework adopted by the Panel acknowledges that if the need to replace the Base Plant is established, then the public interest to construct and operate infrastructure to mitigate the resiliency risks can be assessed based on the incremental associated costs, rather than the standalone need for a resiliency mitigation investment.

In the 2023 Adjournment Decision, the BCUC was unable to assess the merits of the TLSE Project as a replacement for the Base Plant since FEI was not certain of the costs to extend the life of the Base Plant nor did FEI understand the amount of extended life that could be achieved.<sup>30</sup> FEI has since completed investigations to verify the condition of the Base Plant and the feasibility of its refurbishment.

We begin our analysis of the TLSE Project need by reviewing the current state of the Base Plant.

### **2.1 Replacement of the Base Plant**

#### **2.1.1 Has the Base Plant Reached End of Life?**

Following the adjournment of this proceeding, FEI undertook further investigations into the condition of the Base Plant – specifically the regasification and LNG storage assets. FEI submits that its investigations have confirmed that the Base Plant has reached end of life and must be replaced.<sup>31</sup> FEI states that despite investments in recent years, the Base Plant equipment is experiencing unpredictable failures consistent with equipment that is at its end of life.<sup>32</sup> FEI notes that the Base Plant equipment is only called upon to function at times where the supply is needed to meet customer demand, and as such, its continued reliability is critical to avoid curtailment of firm load.<sup>33</sup>

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<sup>29</sup> FEI Final Argument, para. 90.

<sup>30</sup> Order G-62-23, p. 14.

<sup>31</sup> FEI Final Argument, para. 160.

<sup>32</sup> Exhibit B-60, p. 68.

<sup>33</sup> Ibid.

FEI considered the two main components of the Base Plant regasification equipment: 1) the send-out pumps that increase the pressure of the stored LNG and 2) the vapourizers that are used to warm the LNG from its liquid phase to a gaseous phase. With respect to the send-out pumps, FEI states that over the past five years, the three functional Base Plant send-out pumps have experienced a failure rate of 0.6 failures per year, which is significantly higher than the standard failure rate of 0.1 failures per year expected for these types of pumps.<sup>34</sup> With respect to the vapourizers, FEI states that they are severely corroded and it is common for FEI to require multiple attempts to start them when there is need for regassification, citing multiple instances where send-out of gas to customers was delayed by up to 12 hours after being called upon.<sup>35</sup> While FEI currently monitors for occurrences of corrosion and completes spot repairs as required, FEI submits that it expects the number of unplanned repairs to increase since the vapourizers are well beyond their design life.<sup>36</sup>

As for the Base Plant LNG storage tank, FEI states that it is not feasible to pursue its refurbishment. FEI states that more stringent seismic design requirements have been put in place since the installation of the LNG storage tank in 1969, and in order to ensure compliance, FEI currently operates the tank at 58 percent capacity (or 0.35 Bcf).<sup>37</sup> FEI retained two independent engineering firms (CB&I and WSP) to assess the feasibility of refurbishing the LNG storage tank to return it to its original design capacity of 0.6 Bcf while meeting the current day minimum seismic requirements, and both studies recommend the LNG storage tank be replaced and advise against refurbishment.<sup>38</sup> CB&I states that attempting to remediate the deficiencies with the tank would be “fraught with significant risk” while citing the numerous elements of the tank that would not comply with current design and construction standards.<sup>39</sup> WSP concluded that even if all of the tank repairs identified by CB&I could be completed, it would not be cost-effective or feasible to replace the foundation to avoid the tank failing due to earthquake-caused differential settlement.<sup>40</sup>

In aggregate, FEI submits that these ongoing issues with the Base Plant demonstrate that the facility has reached a point where replacement provides better value than making investments to attempt to extend its life.<sup>41</sup>

FEI states that the Base Plant also contains 5 MMcf/d of liquefaction capacity, for which the equipment is now obsolete, with its reliability declining over the past decade.<sup>42</sup> FEI explains that in order to address the issue, it interconnected the Base Plant and Tilbury 1A tanks so that FEI can use 5 MMcf/d of Tilbury 1A liquefaction to fill the Base Plant LNG storage tank. FEI therefore asserts that sustaining the obsolete Base Plant liquefaction equipment is no longer practical, and it recently ceased to use the equipment. In 2022, FEI began the process of decommissioning the Base Plant liquefaction equipment and placing it into long-term storage and preparing for eventual demolition.<sup>43</sup> FEI states that the decommissioning of the Base Plant liquefaction capabilities has not eroded its gas supply and resiliency, given FEI’s ability to rely on Tilbury 1A liquefaction. FEI is therefore not proposing to replace the Base Plant liquefaction equipment as part of the TLSE Project.<sup>44</sup>

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<sup>34</sup> Exhibit B-69. BCUC IR 157.1.

<sup>35</sup> Ibid.

<sup>36</sup> Exhibit B-60, pp. 70-71.

<sup>37</sup> Ibid., p. 75.

<sup>38</sup> Exhibit B-60-1, Confidential Appendices D and E; Exhibit B-60, p. 77.

<sup>39</sup> Exhibit B-60, pp. 77-78.

<sup>40</sup> Ibid., pp. 78-79.

<sup>41</sup> FEI Final Argument, para. 17.

<sup>42</sup> Exhibit B-60, p. 74.

<sup>43</sup> Ibid., pp. 74-75.

<sup>44</sup> Ibid., p. 75.

## *Positions of the Parties*

The CEC, RCIA, BCSEA, and BCOAPO (in its pre-adjudgment final argument) accept that the Base Plant has reached the end of its life.<sup>45</sup>

## *Panel Determination*

The Panel is persuaded by FEI's evidence based on engineering experts and recent detailed investigations, confirming that the Base Plant has now reached its end of life after 56 years of operation. While this was not apparent at the time of the filing of the initial Application due to lack of information on the state of the asset, the recent independent engineering reports tendered post-adjudgment have confirmed this assessment. The Panel accepts that refurbishment of the failing assets, in particular the LNG storage tank, does not appear to be a cost-effective or viable option due to seismic issues and the age and condition of the assets. The Panel acknowledges that the TLSE Project scope and costs include the demolition of the above-ground portion of the existing Base Plant, LNG storage tank and liquefaction facilities, as discussed in Section 4 below.

The Panel further notes that no intervenor disputes the Base Plant is at the end of its life. This logically leads to the next question for consideration: must the Base Plant be replaced and if so, by what?

### **2.1.2 Is there a Need to Maintain an On-system Peaking Resource?**

FEI states that every year, when filing its Annual Contracting Plan (ACP) for BCUC approval, it always includes a mix of supply resources such as pipeline capacity, market area storage, and on-system LNG peaking supply to meet forecast firm demand for Rate Schedules 1 to 7 in a design year (1 in 20-year temperature).<sup>46</sup> Within this mix, the on-system LNG from the Base Plant has played a critical role in FEI's gas supply portfolio. It is typically reserved for peak days, generally 1 to 10 days of peak demand and cold winter days, unless required on short notice to address unexpected supply or demand fluctuations.<sup>47</sup>

FEI notes that on-system LNG's unique attributes allow FEI to avoid holding additional year-round pipeline capacity,<sup>48</sup> provides immediate response time,<sup>49</sup> maintains control over supply,<sup>50</sup> backstops other supply resources,<sup>51</sup> and helps to maintain T-South pipeline pressure during emergencies.<sup>52</sup> Between 2018 and 2024, FEI has repeatedly relied on on-system LNG to manage cold snaps, outages, and emergencies,<sup>53</sup> including in 2024 when Tilbury and Mt. Hayes on-system LNG helped to prevent service disruptions during upstream supply issues.<sup>54</sup> If the Base Plant's regasification capability were to fail, FEI's ability to provide uninterrupted service in winter would be impaired.<sup>55</sup>

In light of the end-of-life condition of the Base Plant, FEI emphasizes that it could not replace the Tilbury Base Plant's 150 MMcf/d and 0.6 Bcf of peaking supply in the market.<sup>56</sup> Current gas supply resources in the Pacific Northwest region, including pipeline capacity and regional storage facilities, are fully contracted.<sup>57</sup> Regional

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<sup>45</sup> RCIA Final Argument, p. 12; The CEC Final Argument, para. 52; BCSEA Final Argument, p. 5; BCOAPO Pre-Adjudgment Final Argument, p. 8.

<sup>46</sup> Exhibit B-60, pp. 81-82; Exhibit B-69, BCUC IR6 143.1.

<sup>47</sup> Exhibit B-60, pp. 81-82.

<sup>48</sup> Ibid., pp. 82-83.

<sup>49</sup> Exhibit B-1-4, p. 129; Exhibit B-15 BCUC IR1 34.1.

<sup>50</sup> Exhibit B-60, pp. 83-84.

<sup>51</sup> Ibid., p. 84.

<sup>52</sup> Ibid.

<sup>53</sup> Exhibit B-63, BCUC IR5 139.1.

<sup>54</sup> Exhibit B-69, BCUC IR6 145.5.

<sup>55</sup> Exhibit B-60, p. 81.

<sup>56</sup> Ibid., pp. 86-96.

<sup>57</sup> Ibid., p. 87.

demand on this infrastructure is increasing, notably from natural gas power production in the United States.<sup>58</sup> Upcoming expansions at regional pipeline and storage facilities, such as Enbridge's T-South Sunrise Expansion and Northwest Natural's Mist storage facility expansion project, only offset declines without adding new capacity.<sup>59</sup> With no new regional capacity-related infrastructure planned and future projects uncertain,<sup>60</sup> the gas supply capacity provided by the Base Plant, which is equivalent to eight percent of current T-South capacity, cannot be replaced through ad hoc peaking call options.<sup>61</sup> Peaking call options would require 24-hour notice<sup>62</sup> and could cost ratepayers between \$8 million and \$40 million each winter.<sup>63</sup> FEI also notes that it has never attempted to buy 150 MMcf/d of peaking supply in the market on cold days, emphasizing that relying entirely on the spot market for its supply would represent a significant departure from its longstanding practice and could put its firm customers at a significant risk of curtailment.<sup>64</sup>

### **2.1.3 What is the Optimal Size for the Replacement of the Base Plant's Peaking Supply?**

FEI states peak day demand on its system has increased by approximately 129 MMcf/d over the past decade, nearly matching the Base Plant's existing 150 MMcf/d send-out limit. FEI attributes this growth in peak day demand to new customer additions and the return of transportation customers to a bundled service.<sup>65</sup> To meet this growing demand, FEI has been using 50 MMcf/d of year-round pipeline capacity originally reserved for contingency, along with peaking call options from East Kootenay. FEI states this demonstrates that the Base Plant at its current capacity and on its own is no longer sufficient to meet the increase in peak day demand.<sup>66</sup>

FEI forecasts further peak demand growth of 8 MMcf/d per year between 2025 to 2030. These forecasts are based on actual usage trends from the past three years and FEI's ACP Spline Model,<sup>67</sup> which FEI reports has accurately predicted demand during past cold winters, including near design day events.<sup>68</sup>

Historic data from 2019 to 2024 indicates that FEI relied on send-out from the Base Plant on as many as 11 days in 2021 for several reasons including cold weather, maintenance, and unplanned outages. FEI did not rely on send-out from Tilbury on any day in 2019 and 2020.<sup>69</sup> This historical variation is because FEI plans to only call upon Tilbury LNG capacity when other resources (i.e. market area storage, pipeline capacity) are deployed at maximum capacity and therefore intentionally operates the Base Plant infrequently to preserve it for true emergencies, making it a resource of last resort. Given this planned usage, a high degree of LNG utilization consistently from year-to-year would suggest a very significant risk of firm customer outages on FEI's system

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<sup>58</sup> Exhibit B-60, p. 88; Appendix F, Raymond Mason Report, pp. 36-43.

<sup>59</sup> Exhibit B-60, pp. 90-92; Exhibit B-63, BCUC IR5 131.1 and 131.9.

<sup>60</sup> *Ibid.*, p. 96.

<sup>61</sup> *Ibid.*, p. 92.

<sup>62</sup> *Ibid.*, Appendix F, Raymond Mason Report, p. 26.

<sup>63</sup> *Ibid.*, pp. 95-96, Table 3-4.

<sup>64</sup> Exhibit B-63, BCUC IR5 139.3, and Appendix F, p. 30 (Expert Raymond Mason states that FEI would require a portfolio of several peaking contracts to meet its peaking supply requirements).

<sup>65</sup> Exhibit B-60, p. 85; Exhibit B-63, BCUC IR5 118.1 and 118.7.1.

<sup>66</sup> Exhibit B-60, p. 85; Exhibit B-63, BCUC IR5 118.5; Exhibit B-69, BCUC IR6 143.1, 143.2, and 143.3.

<sup>67</sup> What is FEI's ACP Spline Model? FEI estimates Core customer peak demand for supply planning as part of the ACP using a scatter plot and piecewise linear spline model/method (referred to as the ACP Spline Model). The inputs to the ACP Spline Model include actual daily send-out from the prior three gas years, along with the average daily temperature from the regional airport. The ACP Spline Model is created by plotting the actual daily send-out data against the average daily temperature and then fitting a piecewise linear spline model through the data points. The ACP Spline Model is a direct regression between actual customer demand and actual weather; therefore, the model does not use other inputs such as peak Use Per Customer, number of firm customers, design degree days, or any other input. (Exhibit B-69, BCUC IR 144.2)

<sup>68</sup> Exhibit B-69, BCUC IR6 144.1-144.2.

<sup>69</sup> Exhibit B-63, BCUC IR5 139.1.

each year.<sup>70</sup> FEI argues that using LNG prematurely could reduce system resilience if conditions were to deteriorate unexpectedly.<sup>71</sup>

Through its modelling, FEI concludes that 200 MMcf/d send-out and 1 Bcf storage offer the best balance of cost, reliability, and operational flexibility. Since FEI plans for peak demand during the coldest days, not average use, FEI's analysis suggests that the proposed gas supply capacity enables lower levelized costs than smaller options due to economies of scale in tank construction and greater avoided gas supply costs. Higher assumed costs to maintain pipeline capacity would further improve the economics of pursuing a 1 Bcf storage tank and 200 MMcf/d regasification capacity.<sup>72</sup> FEI estimates total costs for a 0.6 Bcf storage tank as \$827 million and \$893 million for a 1 Bcf storage tank, indicating that a 0.6 Bcf storage tank entails approximately 93 percent of the cost of a 1 Bcf storage tank.<sup>73</sup>

Finally, FEI states that Tilbury 1A cannot fulfil the role currently provided by the Base Plant for two reasons. First, only the Base Plant has regasification equipment, meaning that LNG stored at Tilbury cannot be used without the Base Plant. Any new regasification equipment would still require a new storage tank. Second, FEI uses Tilbury 1A only as a temporary measure, which is possible because LNG sales growth of Rate Schedule 46 (RS 46)<sup>74</sup> has been slower than anticipated due to delays in the Tilbury Marine Jetty project.<sup>75</sup> However, RS 46 demand is expected to increase significantly and Tilbury 1A may sell out as early as 2028.<sup>76</sup>

### *Positions of the Parties*

RCIA accepts that the peaking supply from the Base Plant is necessary and should be retained. RCIA states that section 48 of the UCA requires FEI to maintain adequate gas supply, and that it is not aware of any natural gas distribution utility that would purposely plan for insufficient peaking resources to meet firm loads. Considering the BCUC's approval of an additional 50 MMcf/d of pipeline capacity in addition to the 150 MMcf/d from the Base Plant under FEI's ACPs, RCIA accepts the need for regasification capacity of 200 MMcf/d and 1 Bcf of LNG storage.<sup>77</sup> RCIA also highlights the risks associated with relying on off-system resources or uncertain infrastructure expansions.<sup>78</sup>

BCSEA states that FEI has provided adequate information and accepts FEI's conclusion that the Base Plant must be replaced with new on-system LNG storage and regasification at Tilbury.<sup>79</sup>

The CEC accepts FEI's evidence that without Tilbury LNG, meeting peak demand would not be possible, and expresses concern over resource constraints, lack of dependability, and price exposures.<sup>80</sup> The CEC submits that FEI has demonstrated it cannot replace the Base Plant's 150 MMcf/d capacity and 0.6 Bcf of storage through market options if these assets were to fail, and agrees that Tilbury 1A cannot perform the same role as the Base Plant.<sup>81</sup>

In contrast, BCOAPO raises several concerns relating to the TLSE Project, as summarized below.

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<sup>70</sup> Exhibit B-69, BCUC IR 145.2.

<sup>71</sup> Ibid., BCUC IR6 145.6.

<sup>72</sup> Exhibit B-60, pp. 132-140; Exhibit B-63, BCUC IR5 118.1, 131.3, 131.9, 132.2.1; Exhibit B-69, BCUC IR6 154.1.

<sup>73</sup> Exhibit B-60, Figure 4-6, p. 131.

<sup>74</sup> RS 46 pertains to LNG sales, dispensing, and transportation services for industrial, commercial, and specialized transportation customers.

<sup>75</sup> Exhibit B-60, p. 86, and Appendix C, p. 39; Exhibit B-63, BCUC IR5 127.5.

<sup>76</sup> Exhibit B-60, pp. 86, 115.

<sup>77</sup> RCIA Final Argument, p. 10.

<sup>78</sup> Ibid., p. 14.

<sup>79</sup> BCSEA Final Argument, paras. 42-44.

<sup>80</sup> The CEC Final Argument, para. 42.

<sup>81</sup> Ibid., para. 44.

BCOAPO submits that the need for additional capacity for peaking supply is mainly driven by large transportation customers returning to bundled service rather than driven by residential customers.<sup>82</sup> BCOAPO expresses concern that the costs of the TLSE Project will have the greatest impact on residential customers even though the need for more peaking supply capacity is driven by other large users of natural gas.<sup>83</sup> BCOAPO further suggests that serving returning transportation customers is only a best-effort obligation on the part of FEI.

FEI responds that it is required under section 26.2 of FEI's General Terms and Conditions (GT&Cs) to supply system gas if additional supply and transportation can be secured. FEI argues that BCOAPO's interpretation incorrectly relies on section 3.3 of the GT&Cs, which only applies to interruptible customers and limits "reasonable efforts" to a 12 month-notice period.<sup>84</sup> FEI adds that it has acted prudently and in accordance with tariff obligations and BCUC-accepted ACPs. FEI notes that 50 MMcf/d of additional pipeline capacity for peaking supply has appeared in every BCUC-accepted ACP in the past ten years and has been beneficial for meeting firm demand.<sup>85</sup> With respect to BCOAPO's concerns about the fairness of cost allocation to residential customers, FEI argues that these are rate-design matters whereas the TLSE Project is concerned with ensuring that FEI has sufficient peaking supply to meet all firm demand in normal operations, regardless of customer class.<sup>86</sup>

Additionally, BCOAPO questions FEI's demand forecast, arguing that the projected increase in demand through 2029/2030 is "markedly different" from the outlook presented in the Generic Cost of Capital (GCOC) and 2022 LTGRP proceedings, where FEI asserted that demand risk is significant and that its business faces a real existential threat.<sup>87</sup>

In reply, FEI states that the forecast near-term increase in net customer additions is not the justification for the TLSE Project. The existing facility is already undersized based on current demand, and FEI has reasonably demonstrated that the TLSE Project will continue to be needed in 2050 even if FEI were to experience extreme adverse load loss scenarios (as discussed further in Section 3 of this decision).<sup>88</sup> Regarding BCOAPO's comparison with demand forecasts presented in the GCOC and LTGRP proceedings, FEI explains that the TLSE Project is not driven by demand growth but by the need to replace peaking supply after the Base Plant is retired.<sup>89</sup> FEI clarifies that the peak day demand forecast for the 2025/2026 ACP, which is directly relevant to winter T-South no-flow events, is distinct from the 2022 LTGRP annual demand forecast.<sup>90</sup>

### *Panel Determination*

The Panel has reviewed the evidence regarding the need and the optimal size of a peaking supply resource that FEI requires to be able to meet its current and future peak day demand. Based on the evidentiary record, the Panel determines that FEI has demonstrated a continued need to maintain a peaking supply resource in its portfolio. On-system LNG has historically provided critical reliability during peak demand days, cold weather events, outages, and supply disruptions. The Base Plant, in particular, has played a unique role in ensuring uninterrupted service for FEI's firm customers under design-day conditions. Without a dedicated peaking supply resource, FEI would not be able to reliably meet firm demand on peak days.

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<sup>82</sup> BCOAPO Final Argument, pp. 8-9.

<sup>83</sup> Ibid.

<sup>84</sup> FEI Reply Argument, para. 70.

<sup>85</sup> Ibid., para. 68.

<sup>86</sup> Ibid., para. 71.

<sup>87</sup> BCOAPO Final Argument, pp. 15, 17.

<sup>88</sup> FEI Reply Argument, para. 58.

<sup>89</sup> Ibid., para. 73.

<sup>90</sup> Ibid., para. 74.

The Panel accepts FEI's submission that alternative supply resources, such as additional pipeline capacity, regional storage, or peaking call options, are either fully contracted, cost-prohibitive, or operationally inadequate to replace the Base Plant. In light of this, the Panel finds that on-system LNG remains the optimal peaking supply resource for FEI's system. Its attributes, including avoidance of costly year-round pipeline commitments, immediate dispatchability, control over supply, and contribution to pipeline pressure stability, cannot be easily replicated by alternative supply resources.

With respect to the sizing of the on-system LNG supply resource, the Panel accepts FEI's evidence that peak demand on its system has grown substantially over the past decade and is forecast to continue to increase in the near term. A like-for-like replacement of the Base Plant's 0.6 Bcf storage and 150 MMcf/d send-out capacity would therefore be insufficient to meet current or forecast future peak day demand. Based on FEI's modelling and cost-benefit analysis, the Panel finds that a replacement facility providing at least 1 Bcf of LNG storage and 200 MMcf/d of regasification capacity achieves an optimal balance of cost, reliability, and operational flexibility. The Panel also notes that a 0.6 Bcf storage tank would cost about approximately 93 percent of the total cost of a 1 Bcf storage facility, but deliver 40 percent less storage, because most of the fixed costs remain the same despite the size difference. Therefore, a minimum of 1 Bcf LNG storage for peaking supply not only better matches forecast peak demand but also provides economies of scale and avoids reliance on more expensive or constrained peaking resources.

Having concluded there is a need to replace and expand the capabilities of the Base Plant, the Panel now goes on to review whether the additional evidence filed by FEI supports the need for incremental investments to mitigate resiliency risk on its system.

## **2.2 Mitigation of Resiliency Risk**

In the original Application, FEI had stated that it based the need for the TLSE Project on the ability of its system to withstand and recover from a 3-day no-flow event. FEI further established this criterion as its "specific minimum resiliency objective for prospective planning" (Minimum Resiliency Objective).<sup>91</sup> Following the BCUC's review of the original Application, the BCUC found in its 2023 Adjournment Decision that FEI had not established that the Minimum Resiliency Objective was a reasonable criterion by which to assess the need for the TLSE Project due, in large part, to FEI's inadequate analysis and lack of detailed evidence pertaining to the overall resiliency needs of FEI's pipeline system.<sup>92</sup> The BCUC invited FEI to file a detailed resiliency plan that addressed these concerns.

In response to the 2023 Adjournment Decision, FEI filed the 2024 Resiliency Plan along with the Supplemental Evidence.<sup>93</sup> FEI states that the 2024 Resiliency Plan addresses the inadequacies of FEI's initial resiliency analysis as identified in the 2023 Adjournment Decision by, among other things, incorporating the following:<sup>94</sup>

- A holistic scan of vulnerabilities that can interrupt supply and expose FEI to a material customer outage (87 potential resiliency vulnerabilities);
- A consequence and probability-based risk assessment of the 58 vulnerabilities associated with the most significant potential customer outages;
- Identification of the vulnerabilities for which the assessed risk is sufficiently great to warrant resiliency-driven investment; and
- Prioritization of the vulnerabilities that warrant resiliency-driven investment.

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

<sup>92</sup> Order G-62-23, pp. (i), 12.

<sup>93</sup> Exhibit B-61.

<sup>94</sup> Ibid., p. 2.

The 2024 Resiliency Plan identifies and assesses in detail the most significant vulnerabilities to FEI's gas delivery systems, and therefore contains highly sensitive information. By Order G-19-25, the BCUC determined that aspects of the 2024 Resiliency Plan would be held confidential and the BCUC directed that certain confidential information within the 2024 Resiliency Plan be accessible only to the BCUC.<sup>95</sup> In an effort to maximize the amount of information available to the public and interveners, FEI has labelled the assessed vulnerabilities within the 2024 Resiliency Plan anonymously by designating 58 assessed vulnerabilities (e.g. AV-1, AV-2, AV-3, etc.). However, FEI has publicly identified four AVs (AV-1, 2, 3, and 54) as being T-South pipeline segments (although the location of each of the four segments remains anonymized).<sup>96</sup> For the remainder of this decision, reference to a no-flow event on the T-South collectively refers to AV-1, 2, 3, and 54.

The following sections of this decision review FEI's development of the 2024 Resiliency Plan – including its underlying assumptions, methodology, and conclusions – to determine the adequacy of that plan and whether the plan supports the need for a resiliency investment.

### **2.2.1 How did FEI Develop its 2024 Resiliency Plan?**

As outlined in the 2024 Resiliency Plan, FEI completed a multi-step process to identify and screen system vulnerabilities so as to assess gaps in resiliency that require mitigation. The following paragraphs summarize how the 2024 Resiliency Plan was developed, as well as the basis for the recommendations included therein. The development of the 2024 Resiliency Plan began with the identification of FEI's system vulnerabilities.

#### How many system vulnerabilities were identified?

FEI states that its scan of possible system vulnerabilities was comprehensive and in-line with the BCUC's guidance in the 2023 Adjournment Decision.<sup>97</sup> FEI describes a system vulnerability as a single failure or event affecting gas infrastructure that could result in a material customer outage.<sup>98</sup> FEI considered vulnerabilities associated with infrastructure upstream of FEI's system, with FEI's own transmission system and with other portions of FEI's distribution system, such as intermediate pressure pipelines. Through this system-level scan, FEI identified 87 total vulnerabilities.<sup>99</sup>

#### How did FEI screen these 87 identified vulnerabilities?

FEI applied judgment-based criteria to screen the 87 total identified vulnerabilities to focus its remaining resiliency analysis on only those vulnerabilities that lead to the most severe outcomes. FEI included only those gas infrastructure vulnerabilities that led to a supply outage affecting 10,000 customers or more and/or would be expected to take FEI two or more weeks to fully restore service to the affected customers.<sup>100</sup> These criteria were chosen to ensure that this iteration of the resiliency plan considers the most significant potential outages, and accordingly reduced the number of vulnerabilities included in further analysis from 87 to 58.<sup>101</sup>

The next step in the development of the 2024 Resiliency Plan involved calculating the risk associated with each of the 58 identified gas infrastructure vulnerabilities, by estimating both the consequence of an outage occurring at each identified vulnerability, and the probability of the outage occurring. The risk associated with each identified gas infrastructure vulnerability is calculated by multiplying consequence and probability values.

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<sup>95</sup> Order G-19-25.

<sup>96</sup> Exhibit B-61, p. 10.

<sup>97</sup> Ibid., p. 23.

<sup>98</sup> Ibid.

<sup>99</sup> Ibid., p. 21, Figure 3-1.

<sup>100</sup> Ibid., pp. 23-24; when assessing the number of customer outages, FEI assumed the outage occurs at design degree day conditions (i.e. the coldest expected weather condition).

<sup>101</sup> Ibid., p. 27.

### How did FEI assess the consequences of a failure affecting each of the 58 gas infrastructure vulnerabilities?

The consequence associated with each gas infrastructure vulnerability is expressed using three different metrics:

- Total number of customer outages;
- Customer outage-days (i.e. number of customers affected multiplied by the estimated number of days the customers are without service); and
- Economic harm to society/ gross domestic product (GDP) impact as assessed by FEI's consultant PwC.

FEI relied on the hydraulic model of its system to determine the total number of customer outages following a no-flow event. To determine the customer outage-days and the economic harm to society, FEI first estimated the length of time it would take to restore service following an outage (Total Outage Duration). The Total Outage Duration for each gas infrastructure vulnerability was estimated using FEI's BCUC-approved System Preservation & Restoration (P&R) Plan.<sup>102</sup> Economic harm to society was calculated based on the Total Outage Duration for each gas infrastructure vulnerability and estimates of daily GDP losses associated with a no-flow event.<sup>103</sup> Further discussion of the assumptions made by FEI in order to estimate daily GDP losses is included in Section 2.2.2 below.

The 2023 Adjournment Decision noted that FEI's initial analysis of risk in the Original Application did not adequately consider how FEI's various planned and existing asset investments, such as Advanced Metering Infrastructure (AMI), would reduce Total Outage Durations or otherwise mitigate system-level resiliency risks. In response to the 2023 Adjournment Decision, FEI explains that it has accounted for its planned and existing resiliency capabilities in the 2024 Resiliency Plan.<sup>104</sup> For example, the Total Outage Duration estimated for each gas infrastructure vulnerability assumes that FEI's AMI project is in place. The AMI project, which is scheduled to be implemented by 2028, will allow FEI to remotely and strategically shut-off selected customers, an approach which will help FEI maintain its pipeline system pressurized during a supply outage and ultimately will help reduce recovery times following the disruption.<sup>105</sup> FEI has similarly considered its existing on-system LNG capabilities, such as Mt. Hayes on Vancouver Island and the Tilbury T1A tank, in its assessment of the Total Outage Duration resulting from a failure at each identified vulnerability.<sup>106</sup>

### How did FEI assess the probability of a failure occurring at each of the 58 identified gas infrastructure vulnerabilities?

FEI's consultant Exponent calculated the probability of a failure occurring at each of the 58 identified gas infrastructure vulnerabilities. Exponent's first step in its probability calculation was to calculate annual failure rates for infrastructure based on the combined rates for all applicable modes of failure.<sup>107</sup> Exponent calculated failure rates for both internal and external hazards. Internal hazards refer to several means by which a pipeline may rupture, such as for example corrosion, stress corrosion cracking or material defects.<sup>108</sup> External hazards refer to earth-movement-related failure methods such as earthquakes and landslides.

For input data related to internal hazards, Exponent relied on, among other things, the pipeline failure rate from a Qualitative Safety Risk Assessment Report prepared by JANA Corporation (JANA) in February 2021 as part of

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<sup>102</sup> Exhibit B-61, p. 29.

<sup>103</sup> Exhibit B-63, BCUC IR 141.3.

<sup>104</sup> Exhibit B-61, p. 32; Exhibit B-60, Appendix B, p. 9.

<sup>105</sup> Exhibit B-61, p. 39.

<sup>106</sup> Ibid.

<sup>107</sup> Ibid., p. 43.

<sup>108</sup> Exhibit B-61, Appendix RP2, para. 69.

FEI's ordinary course of business (2021 JANA Pipeline QRA).<sup>109</sup> Further discussion of certain material assumptions with respect to the rate of failure due to internal hazards is included in Section 2.2.2 below.

Exponent's calculated failure rates exclude cybersecurity risk and malicious acts, which FEI submits means the calculated overall failure probabilities are likely understated.<sup>110</sup> To demonstrate current cybersecurity risks, FEI refers to a June 2023 report from the Canadian Centre for Cyber Security that concludes the risk of cyber threat activity faced by energy infrastructure is material and is increasing.<sup>111</sup> FEI submits that while the risk of a successful attack on the T-South pipeline is difficult to quantify and the timing is impossible to predict, it is not unreasonable to conclude that a winter no-flow event could be caused by deliberate action.<sup>112</sup>

Exponent calculated overall annual failure probability for each gas infrastructure vulnerability and then prorated the probability to reflect only the three-month winter period (December to February). Exponent also determined the winter-only cumulative probability (i.e. probability considering all applicable hazards) of pipeline failure over 60 and 20 year time periods.<sup>113</sup>

#### How did FEI calculate the risk associated with each of the 58 identified gas infrastructure vulnerabilities?

The risk associated with each of the 58 identified gas infrastructure vulnerabilities was calculated by multiplying the cumulative probability of failure and the consequence of an outage for each vulnerability. As part of its calculation of risk, FEI considered the impact of future events on both the probability and consequence of a failure or no-flow event. This included, for example, consideration of climate change, developments related to codes and standards, and potential loss of contracted regional storage capacity.<sup>114</sup>

#### What are the outcomes of the 2024 Resiliency Plan?

FEI explains that the 2024 Resiliency Plan allowed it to identify gaps in the resiliency of its system and to subsequently identify which resiliency gaps warrant mitigation. FEI states that the probability-adjusted risk associated with a winter no-flow event on the T-South exceeds the risk associated with any other of the assessed gas infrastructure vulnerabilities. The risk assessment conducted by FEI confirms that FEI's proposed TLSE Project is appropriately targeting FEI's resiliency investments towards addressing the most significant risk.<sup>115</sup> Prioritizing the largest resiliency risk is consistent with the advice of Exponent.<sup>116</sup>

### **2.2.2 Does the 2024 Resiliency Plan Support the Need to Mitigate the Risk of a T-South Supply Disruption?**

In explaining the purpose of the 2024 Resiliency Plan, FEI states that resiliency planning involves recognizing the potential for infrastructure to fail, assessing risks, and considering options to appropriately mitigate the identified risks.<sup>117</sup> The assessment of resiliency risk is a function of both the probability and the consequence of a no-flow event occurring. Estimates of the consequence and the probability of a no-flow event occurring were

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<sup>109</sup> Exhibit B-61, p. 43; Exponent determined rates of failure due to internal hazards for compressor station and control stations/valve assemblies vulnerabilities, and for select pipelines. See Exhibit B-61, Appendix RP 2 – Exponent Report, para. 131.

<sup>110</sup> Exhibit B-61, p. 45.

<sup>111</sup> Ibid., p. 82.

<sup>112</sup> FEI Final Argument, para. 110.

<sup>113</sup> Exhibit B-63, BCUC IR 126.1.

<sup>114</sup> Exhibit B-61, pp. 47-48.

<sup>115</sup> Ibid., p. 4; FEI also identified the need to mitigate resiliency risk related to AV-18. FEI explains that the TLSE Project mitigates the risk associated with both the T-South no-flow (AV-1, 2, 3, and 54) and AV-18. Exhibit B-61, p. 3.

<sup>116</sup> Ibid., p. 50.

<sup>117</sup> Ibid., p. 1.

determined based on economic analysis and engineering judgement.<sup>118</sup> This section examines the reasonableness of this analysis and these judgements, and concludes with the Panel's assessment of whether the 2024 Resiliency Plan supports the need to mitigate the risk of a T-South supply disruption.

#### Are the assumptions made to determine the consequence of a no-flow event reasonable?

FEI estimates customer outage duration resulting from a no-flow event based upon the time to shutdown customer meters, and actions necessary to restore service to customers, including: purging and repressurizing the distribution system, leak surveys, regulatory requirements to verify customer appliance valves are closed, and performing customer appliance relights. Outage duration is used in the calculation of economic impacts.<sup>119</sup>

FEI retained PwC to estimate the economic impacts of winter-only natural gas supply outages, such as GDP losses. PwC's economic analysis considered specific outage scenarios that were provided by FEI based on its engineering analysis of the identified gas infrastructure vulnerabilities and the time required to return natural gas service to customers following an outage.<sup>120</sup> To estimate the economic impacts of natural gas outages, PwC completed 42 interviews with various stakeholders including commercial and industrial consumers of natural gas, municipalities, health authorities and public school districts. The interviews explored how natural gas is currently used, mitigation processes in place in case of a natural gas outage and the direct costs related to a prolonged outage.<sup>121</sup> PwC determined that the GDP losses that would be incurred by the Greater Vancouver and Fraser Valley regions due to a winter-only no-flow event on a segment of the T-South would be approximately between \$2.1 and \$3.8 billion,<sup>122</sup> representing approximately 11 to 20 percent of the GDP of the affected regions during the outage period.<sup>123</sup> For comparison, PwC's review of literature showed that for natural gas utility outages, the estimated GDP losses per occurrence range from between five and 20 percent.<sup>124</sup>

Exponent then used the GDP losses determined by PwC to calculate the expected annual GDP loss associated with each gas infrastructure vulnerability, determined by multiplying the GDP loss associated with a no-flow event by the likelihood of such an event occurring. The expected annual GDP loss value for each gas infrastructure vulnerability is therefore a probability-adjusted representation of risk.<sup>125</sup> Under the current circumstances – in other words, in the absence of the TLSE Project – the expected annual GDP loss due to a winter-only T-South no-flow event is approximately \$278 million.<sup>126</sup>

#### Are FEI's assumptions made to determine the probability of a no-flow event reasonable?

The analysis that underpins the 2024 Resiliency Plan required FEI and its experts to make various assumptions and judgements. This includes assumptions made regarding the rate of internal failures of the T-South pipeline and the duration of a regulatory shutdown following a pipeline rupture. The term regulatory shutdown refers to the length of time required by the Canada Energy Regulator (CER), as safety regulator, to inspect one of the two parallel pipelines which comprise the T-South system following a rupture of the other parallel pipeline (as noted in Section 1.1, the T-South pipeline system is comprised of two parallel pipelines). The following paragraphs first address assumptions made regarding the rate of internal failure.

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<sup>118</sup> Exhibit B-61, Appendix RP 2 Exponent Report, Appendix U Risk Analysis.

<sup>119</sup> Exhibit B-61, pp. 28-29.

<sup>120</sup> Exhibit B-63, BCUC 141.6.

<sup>121</sup> Exhibit B-61, Appendix RP 3 PwC Report, pp. 6-7.

<sup>122</sup> Ibid., p. 11.

<sup>123</sup> Ibid.

<sup>124</sup> Estimates of economic loss based on only the loss of natural gas supply; it is assumed that the electrical grid is unaffected.

<sup>125</sup> Exhibit B-61, Appendix RP 2 Exponent Report, Appendix U, paras. 5-8.

<sup>126</sup> Exhibit B-61, p. 78, Appendix RP 2 Exponent Report, Appendix U, para. 103.

As noted in Section 2.2.1, the analysis included in the 2024 Resiliency Plan based the probability of the T-South pipeline rupturing due to internal hazards on the rates of failure determined by JANA in its JANA 2021 Pipeline QRA. In other words, FEI and its consultants did not conduct a pipeline-specific rate of failure analysis on the T-South pipeline, and instead relied on JANA's previous analysis conducted on similar FEI-owned pipelines.<sup>127</sup> FEI confirms that it has not sought feedback from Enbridge, the owner and operator of the T-South pipeline, with respect to the rate of T-South pipeline internal failure assumptions made within the 2024 Resiliency Plan.<sup>128</sup> FEI would not expect Enbridge to share failure probability information on the T-South pipeline publicly.<sup>129</sup> FEI explains that as a shipper/customer on the T-South system, it has not had a role in Enbridge's pipeline integrity management planning. However, FEI has met with Enbridge to obtain updates with respect to improvements to Enbridge's asset and integrity management systems (e.g. a meeting between them occurred in May 2021).<sup>130</sup> FEI notes that internal failure represents only one of several hazards that collectively contribute to a T-South supply outage being FEI's largest customer outage risk.<sup>131</sup>

Exponent considers the rate of internal failure value it has used in the 2024 Resiliency Plan (Baseline value) to be appropriate.<sup>132</sup> Exponent notes that, in addition to the JANA 2021 Pipeline QRA, JANA also completed an assessment of the probability of a failure on the T-South pipeline that was based on historic data gathered from the US Department of Transportation Pipeline and Hazardous Material Safety Administration (PHMSA) and the Transportation Safety Board of Canada (TSB).<sup>133</sup> To assess the sensitivity of the results of the 2024 Resiliency Plan to the assumed probability of internal failure on the T-South pipeline, Exponent provided additional expected annual GDP loss reduction analysis using various rate of internal failure values, including the value based on PHMSA data.<sup>134</sup> As shown in Table 1 below, decreases in the assumed rate of failure reduce the mitigation of economic harm that the TLSE Project provides because the likelihood of a no-flow event decreases.<sup>135</sup>

**Table 1: Expected Annual GDP Loss Reduction<sup>136</sup>**

|                         | Rate of Internal Failure<br>(failures/km/year) | GDP Loss Reduction |
|-------------------------|------------------------------------------------|--------------------|
| Baseline                | $6.5 \times 10^{-5}$                           | \$166 million      |
| Baseline reduced by 20% | $5.2 \times 10^{-5}$                           | \$151 million      |
| Baseline reduced by 49% | $3.3 \times 10^{-5}$                           | \$131 million      |
| PHMSA                   | $3.1 \times 10^{-5}$                           | \$129 million      |
| TSB                     | $1.4 \times 10^{-5}$                           | Not provided       |

With respect to the duration of a regulatory shutdown, FEI has assumed a 3-day regulatory shutdown duration which it submits is appropriate. FEI's assumption is supported by actual experience during the 2018 T-South no-flow event, published CER emergency response processes and Exponent's expert opinion.<sup>137</sup>

FEI confirms that with respect to failures on the T-South, the duration of the supply outage is either 1) the regulatory shutdown period if only one of the two parallel pipelines is damaged, or 2) the repair duration if both

<sup>127</sup> Exhibit B-63, BCUC IR 116.9.

<sup>128</sup> Exhibit B-63, BCUC IR 116.3.

<sup>129</sup> Exhibit B-63, BCUC IR 116.3.

<sup>130</sup> Exhibit B-62, BCUC IR 116.1.

<sup>131</sup> Exhibit B-62, BCUC IR 116.1.

<sup>132</sup> Exhibit B-63, BCUC IR 116.4.

<sup>133</sup> Exhibit B-15, Attachment 1.5c.

<sup>134</sup> Exhibit B-69, BCUC IR 142.1; Exhibit B-63, BCUC IR 116.4.

<sup>135</sup> For context, under the Baseline rate of internal failure assumption, 2 Bcf of resiliency reserve reduces the probability-adjusted annual GDP loss of a T-South no-flow event from \$278 million to \$112 million (a GDP loss reduction of \$166 million).

<sup>136</sup> Exhibit B-63, BCUC IR 116.4; Exhibit B-75, BCUC IR 23.4; Exhibit B-69, BCUC IR 142.1.

<sup>137</sup> Exhibit B-63, BCUC IR 120.1.

pipelines are damaged.<sup>138</sup> During the 2018 T-South incident, the overall duration of the supply outage was dictated by the duration of CER's regulatory shutdown, which lasted 2 days. FEI has not received any feedback from the CER with respect to FEI's assumption of a 3-day regulatory shutdown, nor does the CER specify the duration in its published information. FEI does not expect that the CER could provide a specific duration for any regulatory shutdown period of a pipeline following an incident.<sup>139</sup> Exponent conducted various analyses to examine the sensitivity of the 2024 Resiliency Plan results to the assumed regulatory shutdown duration.<sup>140</sup> The analyses considered expected GDP losses based on regulatory shutdown durations of between 0.5 days and 4.5 days, and also considered the regulatory shutdown duration as a random variable between 0.5 days and 6 days. The analysis demonstrated that considering uncertainty in the regulatory shutdown period does not have a significant impact on the expected GDP losses if the mean regulatory shutdown period is similar to the assumed 3-day duration.<sup>141</sup>

#### Does a no-flow event on the T-South represent the greatest resiliency threat to FEI's system?

FEI considers the risk associated with a winter no-flow event on the T-South to be significant. FEI explains that the risk of a T-South no-flow event is significantly higher than any other assessed gas infrastructure vulnerability identified in the 2024 Resiliency Plan. For example, the expected winter-only GDP losses related to a T-South no-flow event are eight times greater than the combined expected winter-only losses of all other assessed gas infrastructure vulnerabilities combined.<sup>142</sup>

FEI and its experts state that, based on the analysis provided in the 2024 Resiliency Plan, there is a high probability of a T-South no-flow event occurring during the winter over the 60-year life of the proposed TLSE Project.<sup>143</sup> Exponent calculated that, with respect to a T-South failure event, the 60-year winter-only lower and upper bound failure probabilities are 93 percent and 100 percent, respectively; the 20-year winter-only lower and upper bound failure probabilities are 59 percent and 96 percent, respectively.<sup>144</sup> Exponent states that these high cumulative probabilities are driven by, in part, the long overall length of the T-South pipeline. Exponent explains further that internal failures on the T-South pipeline and earthquake induced failures on a specific segment of the T-South pipeline also contribute significantly to the cumulative likelihood of a pipeline failure.<sup>145</sup>

#### Is a resiliency investment required to mitigate the risk of a T-South no-flow event?

FEI states that a T-South no-flow event would cause hundreds of thousands of customers to lose service and that this would result in significant economic harm. FEI also notes that, in addition to economic harm, a T-South no-flow event would result in negative health and safety impacts. For example, the depressurization of FEI's pipeline system due to a disruption in upstream supply presents a risk of fire and explosions.<sup>146</sup> PwC also provided evidence linking cold residences and workplaces with poor health and mortality.<sup>147</sup> Given the severity of the consequence of a winter-only T-South no-flow event, even a very low probability of occurrence (which FEI states is not the case) would represent a significant risk.<sup>148</sup> FEI believes the risk is unacceptable, and considers that the TLSE Project will reduce the risk from unacceptable into the "As Low As Reasonably Practicable" (ALARP) zone.<sup>149</sup>

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<sup>138</sup> Exhibit B-63, BCUC IR 120.12.

<sup>139</sup> Ibid., BCUC IR 120.1.

<sup>140</sup> Ibid., BCUC IR 120.1, IR 120.6.

<sup>141</sup> Exhibit B-69, BCUC IR 120.6.

<sup>142</sup> Exhibit B-61, p. 78.

<sup>143</sup> Exhibit B-61, RP 2 Exponent Report, para. 138; FEI Post Adjournment Final Argument, para. 9.

<sup>144</sup> Exhibit B-63, BCUC IR 126.1.

<sup>145</sup> Exhibit B-61, RP 2 Exponent Report, para. 138.

<sup>146</sup> Exhibit B-60, p. 55.

<sup>147</sup> Ibid.

<sup>148</sup> Exhibit B-63, BCUC IR 117.2.

<sup>149</sup> Ibid., BCUC IR 117.3.

FEI provided further information regarding its assessment of acceptable and unacceptable levels of risk.<sup>150</sup> FEI explains that definitions of acceptable and unacceptable levels of risk are based on ‘Risk Tolerance Criteria’ which are project specific and often depend on Corporate, Governmental and Regulatory standards.<sup>151</sup> FEI estimates the current risks related to a T-South supply outage to be economically very large (and therefore unacceptable), and that this risk can be reduced with the TLSE Project to a level FEI considers as low as reasonably practicable.<sup>152</sup>

FEI does not believe that the probability of a T-South no-flow event could economically be reduced to the point where FEI’s risk exposure would fall within the ALARP zone of risk assessment.<sup>153</sup> In other words, even a low probability of a T-South no-flow occurrence would represent a significant risk that requires mitigation.

### *Positions of the Parties*

Intervenors generally took issue with the analysis or conclusions set out in the 2024 Resiliency Plan. RCIA does not agree with the absolute magnitude of the GDP loss and customer outage days. In RCIA’s view, these values are overstated because FEI’s restoration and relight plan is overly conservative. Nonetheless, RCIA does not consider these overstated consequences to be fatal to the Application, as even a shorter no-flow event justifies a resiliency solution in RCIA’s assessment.<sup>154</sup>

MS2S views the risk of a no-flow event to be lower than other serious vulnerabilities and that FEI is capable of substantially mitigating the no-flow risk by several actions.<sup>155</sup> MS2S characterizes the likelihood of a no-flow event as being “highly unlikely.”<sup>156</sup>

In reply, FEI states that while MS2S argues that there are other risks that are greater than the risk of a T-South no-flow event, MS2S does not appear to dispute the significant magnitude of the risk of a T-South no-flow event itself. FEI submits that MS2S’ suggestion that there are greater resiliency risks is inconsistent with the evidence.<sup>157</sup> Further, FEI submits that MS2S’ submissions are made without evidentiary support in some cases.<sup>158</sup>

The CEC accepts that the impacts of an outage could be quite severe with respect to health, safety and economic losses. Nevertheless, the CEC does not agree with some elements of FEI’s assessment. The CEC agrees that the commercial and industrial sectors are key to assessing potential GDP loss, and therefore the CEC submits that reducing the relight period for those sectors could dramatically reduce the GDP losses incurred should a no-flow event occur.<sup>159</sup> The CEC submits that it could be in the public interest for FEI to plan to minimize GDP losses by relighting certain key customers earlier.<sup>160</sup> The CEC takes exception to FEI’s characterization that early relighting of business and industrial customers would ‘shift the burden of the customer outage to other customers.’<sup>161</sup>

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<sup>150</sup> Exhibit B-63 BCUC IR 117.2-117.6.

<sup>151</sup> Ibid., BCUC IR 117.2.

<sup>152</sup> Ibid., BCUC IR 117.2-117.3.

<sup>153</sup> Exhibit B-63, BCUC IR 117.2.

<sup>154</sup> RCIA Final Argument, p. 16.

<sup>155</sup> MS2S Final Argument, p. 4.

<sup>156</sup> Ibid., p. 6.

<sup>157</sup> FEI Reply Argument, para. 95.

<sup>158</sup> Ibid., para. 15.

<sup>159</sup> The CEC Final Argument, paras. 84, 86.

<sup>160</sup> Ibid., para. 98.

<sup>161</sup> Ibid., para. 92.

In reply, FEI states that its restoration plans employ the most efficient crew deployment overall to minimize the period critical services and premises are without service. FEI notes that no other intervener has proposed making the trade-off that the CEC is suggesting, and that there is evidence on the record to assess the merits of this trade-off. FEI does not support deviating from its current restoration of service plans.<sup>162</sup>

BCOAPO submits there is a significant degree of subjectivity in FEI's analyses, including in its derivation of the probability of an event occurring and the potential consequences.<sup>163</sup> BCOAPO submits its concerns with the costs residential customers would have to bear to fund the TLSE Project given, among other things, the significant subjectivity and sensitivity in the presented economic analysis due to its heavy reliance upon underlying assumptions. Further, BCOAPO notes that it would have been reasonable to consult with Enbridge or the CER regarding the resiliency of natural gas supply to FEI's system.<sup>164</sup>

In reply, FEI submits that BCOAPO's position fails to acknowledge a number of objective facts that demonstrate the very significant risk posed by a winter T-South no-flow event.<sup>165</sup> Further, FEI states that there is ample basis for the BCUC to conclude that the assumptions made in the risk analysis calculations are reasonable.<sup>166</sup> FEI submits that the probabilistic analysis included within the 2024 Resiliency Plan supports the need to mitigate resiliency risks because it shows that a winter T-South no-flow event is not only plausible but is decidedly not a low probability event over any reasonable time horizon.<sup>167</sup> With respect to assumptions regarding the internal rate of failure, FEI notes that the Baseline value is similar to the rupture rate based on PHMSA data, and that even if the internal rate of failure assumption were adjusted downward, the proposed resiliency reserve of 2 Bcf continues to materially reduce the re-calculated economic harm.<sup>168</sup>

With respect to consultation with Enbridge and the CER, FEI states that evidence on the record indicates that FEI has regularly engaged with Enbridge on a range of matters affecting the T-South system and that FEI has confirmed that the CER's processes to responding to an emergency remain substantially the same since the 2018 T-South incident.<sup>169</sup>

BCSEA accepts that the 2024 Resiliency Plan has been thoroughly examined by the BCUC and the relevant stakeholders in the current proceeding, and that the plan warrants acceptance as one component of FEI's long-term resource plans under section 44.1 of the UCA.<sup>170</sup>

### *Panel Determination*

The Panel considers that the 2024 Resiliency Plan has addressed the shortcomings of FEI's previous analysis, as identified by the BCUC in the 2023 Adjournment Decision. In the 2024 Resiliency Plan, FEI demonstrates that it has conducted a holistic analysis of the resiliency of its entire system by considering a range of its own assets – such as pipelines, compressors and valve stations – as well as critical infrastructure upstream of its own system, namely the T-South pipeline. Additionally, the 2024 Resiliency Plan takes into account the likelihood and impacts of a broad range of potential causes of supply disruptions, including ruptures and natural hazards. The 2024 Resiliency Plan does not focus on achieving FEI's Minimum Resiliency Objective, an objective which the BCUC previously found did not sufficiently justify the need for the TLSE Project. Instead, the duration of a supply disruption is an input into the overall calculation of the risks of a no-flow event occurring at any of the identified

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<sup>162</sup> FEI Reply Argument, paras. 84-85.

<sup>163</sup> BCOAPO Final Argument, p. 6.

<sup>164</sup> Ibid.

<sup>165</sup> FEI Reply Argument, para. 21.

<sup>166</sup> Ibid., para. 22.

<sup>167</sup> Ibid., para. 25.

<sup>168</sup> Ibid., para. 30.

<sup>169</sup> Ibid., paras. 61-62.

<sup>170</sup> BCSEA Final Argument, para. 82.

gas infrastructure vulnerabilities. Further, FEI has now explicitly accounted for the capabilities of its existing and planned assets, such as the AMI project, in its assessment of the gaps in the resiliency of its overall system.

Despite the broad ranges of probabilities and consequences presented by FEI in the 2024 Resiliency Plan, its analysis demonstrates that the risk associated with a loss of supply from the T-South pipeline is significantly greater than any other of the identified gas infrastructure vulnerabilities. Further, the magnitude of the risk is significant in and of itself, as illustrated by the potential billions of dollars of GDP losses that could result from a single winter no-flow event. It is clear that any prolonged outage of supply from the T-South pipeline during the winter would put hundreds of thousands of customers at risk of losing service. FEI provided extensive evidence in the initial phase of the proceeding to demonstrate that a loss of service at this scale would take several weeks to restore service.

In the evidence and in its arguments, FEI addresses the challenge of modelling the risk of low probability, high consequence events. The Panel tested FEI's assumptions in the 2024 Resiliency Plan with respect to the probability and consequences of a no-flow event occurring. The Panel acknowledges the role of judgement in the preparation of the 2024 Resiliency Plan. The usefulness of a risk analysis, such as the one which supports the 2024 Resiliency Plan, depends on the assumptions and judgements made in support of the analysis. The Panel considers that FEI's assumptions with respect to the probability and consequence of a no-flow event to be reasonable and appropriate.

In instances where there appeared to be a considerable degree of uncertainty, such as with the rate of failure of the T-South pipeline due to internal hazards, FEI demonstrated that the outcomes of its analysis were not materially sensitive to changes in the assumed inputs. FEI also provided benchmarks against which to compare its Baseline value of pipeline rate of failure, such as data from PHMSA and TSB. Further, the Panel observes that there are aspects of the 2024 Resiliency Plan that may actually understate the overall level of risk, such as Exponent's exclusion of any impacts arising from cybersecurity breaches or malicious acts.

Overall, while acknowledging that a degree of uncertainty associated with the risk analysis in the 2024 Resiliency Plan is unavoidable, the Panel finds that FEI has comprehensively and reasonably assessed the probability and consequences of a no-flow event. The 2024 Resiliency Plan clearly supports the overall conclusion that a resiliency investment to mitigate the significant risk of a T-South no-flow event is warranted.

**Based upon the foregoing, the Panel accepts FEI's 2024 Resiliency Plan.** As discussed above, the Panel agrees with the conclusions and recommendations arising out of the 2024 Resiliency Plan, specifically that a winter-only no-flow event on the T-South pipeline represents the greatest resiliency threat to FEI's system and that there is a need to mitigate this risk. Having reviewed and accepted the 2024 Resiliency Plan in this proceeding, the Panel finds that there is no need for FEI to file its 2024 Resiliency Plan as part of future LTGRP proceedings, unless there is a material change to the risk profile of FEI's system or FEI wishes to include such plan in a future LTGRP application in support of any approvals sought in that proceeding.

### 3.0 Supplemental Alternative Analysis

Based on our earlier discussion regarding the optimal size of the peaking supply resource, we have primarily focused our review of TLSE Project alternatives on those that mitigate the identified resiliency risk and that provide the necessary amount of peaking supply through on-system LNG storage.

In response to the 2023 Adjournment Decision, FEI completed an expanded alternatives analysis that included 13 project options (Supplemental Alternatives). Those Supplemental Alternatives include continuing to rely on the existing Base Plant with no capital upgrades, new regasification capacity only, new LNG facilities of various sizes and allocations between a resiliency reserve and gas supply functions. FEI also explored several non-Tilbury options, including those identified by the BCUC within the 2023 Adjournment Decision. This included options

such as reversing flow on FEI's Vancouver Island Transmission System, contracting Woodfibre LNG for a long-term firm supply of LNG and purchasing a vessel to provide floating LNG storage.<sup>171</sup> FEI states that the Supplemental Alternatives reflect a planning view, meaning that they treat any stored LNG volumes as being available on a dependable basis for a single planned purpose (i.e. for the 3 Bcf tank under Supplemental Alternative 9, FEI allocates only 2 Bcf for a resiliency reserve and the remaining 1 Bcf for gas supply).<sup>172</sup>

The Supplemental Alternatives were divided into four main categories: (i) alternatives reliant on existing facilities; (ii) new facility with gas supply but no resiliency reserve; (iii) new facility with resiliency reserve but no gas supply; and (iv) new facility with both resiliency reserve and replacement gas supply.

FEI states that it followed a three-step process to identify the preferred alternative from the Supplemental Alternatives.<sup>173</sup>

- Step 1.** Screen out alternatives that are not technically or commercially viable;
- Step 2.** Screen out alternatives that would not retain FEI's existing on-system firm peaking gas supply capabilities; and
- Step 3.** Score the remaining Supplemental Alternatives to select the preferred alternative, having regard to resiliency, gas supply, age-related Base Plant challenges, levelized total rate impact and future use.

FEI states that the non-Tilbury options were screened out as they were determined to be neither technically nor commercially viable. Further, FEI explains that its gas supply and system planning has always been based on being able to meet firm load at all times, and this remains the appropriate basis for planning. Accordingly, it screened out Supplemental Alternatives that would not retain its existing on-system firm peaking gas supply capabilities.<sup>174</sup> Additionally, FEI notes that there are diminishing economies of scale when building tanks of volumes greater than 3 Bcf due to unique design and constructability challenges, therefore it determined tanks of 3 Bcf or less are preferred.<sup>175</sup>

Through steps 1 and 2 of the evaluation process, FEI identified the following Supplemental Alternatives, shown in Table 2 below, as being technically and commercially viable and retaining FEI's existing on-system firm peaking supply (collectively the Viable Alternatives).<sup>176</sup>

**Table 2: Supplemental Alternatives**

| Supplemental Alternative | Regasification Capacity (MMcf/d) | LNG storage tank volume (Bcf) | Gas Supply Allocation (Bcf) | Resiliency Reserve Allocation (Bcf) |
|--------------------------|----------------------------------|-------------------------------|-----------------------------|-------------------------------------|
| 4                        | 150                              | 0.6                           | 0.6                         | 0.0                                 |
| 4A                       | 400                              | 1.0                           | 1.0                         | 0.0                                 |
| 8                        | 800                              | 2.0                           | 0.6                         | 1.4                                 |
| 9                        | 800                              | 3.0                           | 1.0                         | 2.0                                 |

<sup>171</sup> Exhibit B-60, p. 2.

<sup>172</sup> Ibid., p. 104.

<sup>173</sup> Ibid., p. 107.

<sup>174</sup> Ibid.

<sup>175</sup> Exhibit B-1, pp. 102-103.

<sup>176</sup> Exhibit B-60, pp. 116-117.

Table 3 below outlines the evaluation criteria for FEI’s scoring of the Viable Alternatives.<sup>177</sup> FEI explains that due to the broad similarities between the Viable Alternatives, some criteria that it typically considers, such as constructability, have been excluded from the evaluation.<sup>178</sup> FEI states that it assigned each evaluation criterion a weighting based on a qualitative review by FEI subject matter leads that considered the relative importance of each criterion.<sup>179</sup> Through this evaluation process, FEI confirmed that Supplemental Alternative 9, which includes a 3 Bcf tank (2 Bcf resiliency reserve, 1 Bcf gas supply) with 800 MMcf/d regasification capacity, is the preferred alternative (Preferred Alternative).<sup>180</sup>

**Table 3: Evaluation Criteria**

| Evaluation Criteria                                                                                                        | Description                                                                                                                                                                                                                                                             | Weighting |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Resiliency Benefit                                                                                                         | The ability to mitigate the risk associated with a winter T-South no-flow event.                                                                                                                                                                                        | 30%       |
| Availability of Dependable Gas Supply During Peak Demand                                                                   | The impact on the availability of dependable gas supply during peak demand.                                                                                                                                                                                             | 20%       |
| Resolves Age Related Base Plant Challenges                                                                                 | The impact on the age-related Base Plant challenges (send-out reliability, seismic design, flooding, and tank venting).                                                                                                                                                 | 20%       |
| Levelized Total Rate Impact                                                                                                | The levelized total rate impact due to both the capital costs on delivery rates and gas supply impacts/benefits on commodity rates.                                                                                                                                     | 20%       |
| Useful Under the Modified Diversified Energy Scenario <sup>181</sup> (mDEP 2% and 5%) Between the In-Service Date and 2050 | Considers if the alternative is useful or underutilized under two adverse future load sensitivities, in which FEI’s Diversified Energy Scenario is modified to assume higher rates of customer and load loss (2% and 5% annually) between the in-service date and 2050. | 10%       |

### *Positions of Parties*

In BCSEA’s view, the Supplemental Alternatives analysis adequately addresses the deficiencies identified by the Panel in the 2023 Adjournment Decision. BCSEA is satisfied that the Supplemental Alternatives analysis applied appropriate screens and reasonable evaluation criteria and weightings.<sup>182</sup>

Similarly, the CEC finds FEI’s analysis process to be acceptable and submits that it was adequately responsive to the BCUC’s request for additional information related to evaluating additional alternatives including non-Tilbury alternatives, and evaluating these against broader criteria.<sup>183</sup> Additionally, the CEC notes that it does not object to the final conclusion resulting from the evaluation criteria for the Viable Alternatives. However, it does find the scoring criteria and weighting to be too general and subject to manipulation when there is limited quantification.<sup>184</sup>

<sup>177</sup> Exhibit B-60, p. 109.

<sup>178</sup> Ibid., p. 110.

<sup>179</sup> Ibid., pp. 111-112.

<sup>180</sup> Ibid., p. 112.

<sup>181</sup> In the 2022 LTGRP, FEI established its Diversified Energy (Planning) Scenario (DEP Scenario) as a base case forecast of future demand for natural gas. FEI states that, in analyzing the future demand for natural gas, a diversified pathway is required in which both the existing gas and electricity systems within BC have an important role to play in decarbonizing energy use in British Columbia.

<sup>182</sup> BCSEA Final Argument, para. 51.

<sup>183</sup> The CEC Final Argument, para. 115.

<sup>184</sup> Ibid., para. 121.

RCIA submits that FEI appears to require a new LNG storage facility and regasification capacity to address its peaking supply requirements, regardless of any resiliency need.<sup>185</sup>

BCOAPO submits there is a clear focus by FEI to constrain its options of mitigating the risk of a winter no-flow event on T-South to those whereby FEI owns the assets and controls all aspects of that investment. BCOAPO is concerned that FEI has had little or no discussions with external parties who also have a vested interest in minimizing the potential for a no-flow event, or to collaborate to develop a solution that is mutually beneficial and that would reduce the cost impacts for FEI's customers.<sup>186</sup>

### **3.1 How much Additional LNG Storage at Tilbury is Needed to Mitigate Resiliency Risks?**

FEI states that it evaluated each Viable Alternative's ability to mitigate the risk associated with a winter T-South no-flow event. Exponent conducted that evaluation based on the following conditions:<sup>187</sup>

1. Risk reduction provided by the Viable Alternatives at average winter temperature in the Lower Mainland (+4°Celsius) against a T-South winter no-flow event;
2. Expected annual customer-outage-day risk under Supplemental Alternatives 8 and 9 at a fixed temperature of -1.4°Celsius; and
3. Load support duration provided by Supplemental Alternatives 8 and 9 at variable colder temperatures.

FEI states that at an average winter temperature for the Lower Mainland, Supplemental Alternatives 4 and 4A would provide no additional risk mitigation against a winter T-South no-flow event when compared to FEI's current capabilities because there would not be a dedicated resiliency reserve and therefore could not support the Lower Mainland for any duration of time. Further, FEI notes that Supplemental Alternatives 4 and 4A would not provide adequate regasification capacity as 400 MMcf/d would be undersized for the Lower Mainland demand at average winter conditions.<sup>188</sup> FEI states that Supplemental Alternatives 8 and 9 provide significant risk mitigation as both can bridge a 3-day no-flow event, which aligns with FEI's assumption for the regulatory shutdown period as outlined in Section 2.2.2 of this decision, resulting in a reduction in annual expected GDP losses of approximately \$160 million per year.<sup>189</sup> FEI explains that 800 MMcf/d of regasification capacity is adequate to cover the Lower Mainland load during a complete T-South outage on all but the single peak design day.<sup>190</sup> In other words, the TLSE Project will have sufficient capacity to meet forecast demand on all but one day of the coldest year in the 1 in 20 year forecast.<sup>191</sup> FEI believes that this level of regasification capacity is reasonable given the remote probability of a no-flow event occurring simultaneously with the single coldest day of winter.<sup>192</sup>

As Supplemental Alternatives 8 and 9 provided significant risk reduction at average winter temperatures, FEI requested that Exponent conduct an analysis of both options under the fixed temperature of -1.4°Celsius. FEI states that -1.4°Celsius represents the warmest winter in the last 10 years based on selecting the highest value of the minimum daily average temperature for each year from 2013 to 2022.<sup>193</sup> Under these conditions, FEI states that Supplemental Alternative 9 will provide approximately 3.5 days of load support, whereas

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<sup>185</sup> RCIA Final Argument, p. 7.

<sup>186</sup> BCOAPO Final Argument, p. 4.

<sup>187</sup> Exhibit B-60, p. 117.

<sup>188</sup> Ibid., p. 125.

<sup>189</sup> Ibid., p. 120.

<sup>190</sup> Exhibit B-1, p. 118.

<sup>191</sup> Exhibit B-15, BCUC IR 8.5.

<sup>192</sup> Exhibit B-1, pp. 117-118.

<sup>193</sup> Exhibit B-60, p. 44.

Supplemental Alternative 8 will provide approximately 2.5 days of load support which is less likely to bridge a T-South no-flow event.<sup>194</sup>

Under variable colder temperatures, Exponent's modelling determined the load support duration for both Supplemental Alternatives 8 and 9 as a function of temperature. FEI states that, above +1.7°Celsius, both Supplemental Alternatives 8 and 9 can provide at least 3 days of load support duration. Between -6.9°Celsius and +1.7°Celsius, however, FEI notes that only Supplemental Alternative 9 can provide 3 days of total load support and therefore a superior benefit as compared to other Supplemental Alternatives.<sup>195</sup>

### *Positions of Parties*

RCIA submits that even if a 2-day no-flow event were the target for the TLSE Project to bridge, there is justification to select Supplemental Alternative 9 with its 2 Bcf resiliency reserve.<sup>196</sup>

## **3.2 Are the Incremental Benefits of a 2 Bcf Resiliency Reserve Justified?**

Of the Viable Alternatives considered by FEI, only Supplemental Alternatives 8 and 9 allocate a portion of the proposed LNG storage volume as a resiliency reserve. Supplemental Alternative 8 allocates 1.4 Bcf to resiliency reserve (out of a total LNG tank volume of 2 Bcf), whereas Supplemental Alternative 9 allocates 2 Bcf to resiliency reserve (out of a total LNG tank volume of 3 Bcf). FEI explains that the 2 Bcf resiliency reserve provided by Supplemental Alternative 9 has additional resiliency benefits as compared to Supplemental Alternative 8, as discussed below.

FEI states that with a load support duration between 24 hours and 72 hours there is uncertainty as to whether implementing a controlled shutdown of its system is possible; however, 72 hours are considered to be enough time to implement a controlled shutdown.<sup>197</sup> FEI notes that at temperatures of -10°Celsius, Supplemental Alternative 8 will provide a load support duration of 1 day and 22 hours which is within the range where there is uncertainty as to whether a controlled shutdown would be possible. In contrast, FEI explains that Supplemental Alternative 9 will provide 2 days and 17 hours of load support duration and thus is more likely to allow for a controlled shutdown at these conditions.<sup>198</sup>

FEI explains that an uncontrolled shutdown occurs when the ability of FEI to manage its gas distribution system is lost due to a collapse of system pressure and gas supply, and can cause safety concerns and extended outages. FEI further explains that an uncontrolled shutdown can introduce the possibility of air being drawn into the distribution system, which in turn presents a potentially hazardous situation due to the explosive nature of the gas-air mixture. From an outage perspective, FEI notes that any air within the system must be purged prior to re-lighting customer appliances which could extend the outage further.<sup>199</sup> FEI notes that a controlled shutdown reduces the odds of air entering the system and therefore reduces the safety and outage duration risks.<sup>200</sup>

In addition to assessing incremental resiliency benefits, FEI also completed a financial analysis on the Viable Alternatives. In terms of capital cost, FEI states that the difference in capital cost between a 2 Bcf tank (Supplemental Alternative 8) and a 3 Bcf tank (Supplemental Alternative 9, which is the Preferred Alternative) is

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<sup>194</sup> Exhibit B-60, pp. 122-123.

<sup>195</sup> Ibid., p. 124.

<sup>196</sup> RCIA Final Argument, p. 20.

<sup>197</sup> Exhibit B-63, BCUC IR 130.1.

<sup>198</sup> Ibid., BCUC IR 130.2.

<sup>199</sup> Exhibit B-60, p. 175.

<sup>200</sup> Ibid., p. 176.

relatively small due to economies of scale.<sup>201</sup> FEI states that an additional capital cost of approximately \$111 million is required for the 3 Bcf tank as compared to the 2 Bcf tank. FEI explains that the unit cost for Supplemental Alternative 9 with a 3 Bcf tank, including ground improvement, auxiliary systems and regasification is approximately \$135 million less per Bcf than the unit cost for Supplemental Alternative 8 with the 2 Bcf tank.

FEI considered a lifespan of both 67 years and 27 years for the asset, with 27 years representing a situation where the asset is fully depreciated by 2050. Table 4 below shows the financial analysis results for Supplemental Alternatives 8 and 9 over 67 years and 27 years, respectively.<sup>202</sup>

**Table 4: Supplemental Alternatives 8 and 9**

|                                                                  | Supplemental Alternative 8<br>(2 Bcf tank) | Supplemental Alternative 9<br>(3 Bcf tank) |
|------------------------------------------------------------------|--------------------------------------------|--------------------------------------------|
| Total Capital Costs during Construction, As-Spent \$ (\$000s)    | 1,030,286                                  | 1,140,962                                  |
| Total PV of Cost of Service over 27 years (\$000s)               | 849,350                                    | 859,346                                    |
| Levelized Total Rate Impact (Incl. Cost of Gas) 27 years (%)     | 3.51%                                      | 3.56%                                      |
| Levelized Total Rate Impact (Incl. Cost of Gas) 27 years (\$/GJ) | 0.327                                      | 0.331                                      |
| Total PV of Cost of Service over 67 years (\$000s)               | 767,622                                    | 721,218                                    |
| Levelized Total Rate Impact (Incl. Cost of Gas) 67 years (%)     | 2.60%                                      | 2.44%                                      |
| Levelized Total Rate Impact (Incl. Cost of Gas) 67 years (\$/GJ) | 0.242                                      | 0.228                                      |

FEI notes that even in a scenario where the TLSE Project is only useful for 20-years after commissioning, the levelized rate impact of Supplemental Alternative 9, which provides an additional 1 Bcf of LNG storage, is only slightly higher than Supplemental Alternative 8. However, FEI states that it does not consider it reasonable to assume that the TLSE Project will cease to be used and useful after 20 years and therefore finds the likelihood of Supplemental Alternative 8 offering more financial benefits than Supplemental Alternative 9 to be small.<sup>203</sup>

With respect to the consideration of on-system peaking gas supply, FEI evaluated the avoided gas supply-related costs made possible by on-system LNG that result from FEI not having to hold regional market supply for peaking resources. FEI determined that Supplemental Alternatives 9 and 4A, as the only Viable Alternatives that provide at least 1 Bcf of on-system LNG as a peaking supply resource, would avoid gas supply costs estimated at approximately \$63 million per year over the facility's lifetime. This avoided gas supply cost is based on the expected costs associated with existing market supply and planned expansions, along with the assumed costs of potential future upgrades of regional infrastructure. In contrast, Supplemental Alternatives 4 and 8, with a gas supply reserve of 0.6 Bcf, would result in estimated avoided annual gas supply costs of approximately \$15 million. FEI states that Alternatives 4 and 8 would still require FEI to hold peaking gas supply capacity from regional infrastructure to meet the optimized portfolio requirement and as such would have lower avoided gas supply costs.<sup>204</sup>

### *Positions of Parties*

BCSEA concurs that the TLSE Project provides the greatest customer value. Additional on-system LNG storage in the Lower Mainland remains the only feasible means of mitigating the risk exposure to a winter T-South no-flow event.<sup>205</sup>

<sup>201</sup> Exhibit B-60, p. 141.

<sup>202</sup> Exhibit B-63, BCUC IR 131.3; Exhibit B-69, BCUC IR 152.1.

<sup>203</sup> Exhibit B-69, BCUC IR 152.1.

<sup>204</sup> Exhibit B-60, pp. 134-135, 138-139.

<sup>205</sup> BCSEA Final Argument, para. 58.

The CEC notes that Supplemental Alternative 8 ranks as a full point lower than Supplemental Alternative 9 for resiliency benefit and availability of dependable gas supply during peak demand.<sup>206</sup> The CEC acknowledges that even if the circumstances arose that the gas supply benefits for Supplemental Alternative 9 did not arise as predicted relative to Supplemental Alternative 8, there are still other compensating benefits in terms of greater loss reduction, fewer outage days, and generally improved resiliency available from the larger tank.<sup>207</sup> Accordingly, the CEC submits that there is a clear and quantifiable financial benefit to proceeding with the larger capacity project associated with Supplemental Alternative 9.<sup>208</sup>

RCIA submits that economies of scale are such that the incremental investment for the 3 Bcf tank is money well spent due to the additional gas supply benefits and the ability to withstand longer no-flow events. Accordingly, RCIA supports FEI's view that Supplemental Alternative 9 is the best option and recommends the granting of a CPCN.<sup>209</sup>

BCOAPO submits that its largest criticism of the TLSE Project is that its justifications are all based on a "business-as-usual" perspective as FEI has proposed only one, costly option of meeting its self-imposed resiliency needs.<sup>210</sup>

In reply, FEI maintains that standard risk management approaches provide a framework for assessing resiliency. If the BCUC agrees that the current resiliency risk is unacceptable, it should approve an investment to allow the risk to be reduced to as-low-as-reasonably-practicable.<sup>211</sup>

### **3.3 Are the Residual Risks Acceptable?**

FEI states that Supplemental Alternative 9 can provide risk mitigation that results in reductions in annual and lifetime costs, however, the risk is not fully eliminated. FEI notes that T-South failures resulting in the simultaneous failure of both parallel pipes and that require extended repair times will still ultimately result in an outage and thus losses.<sup>212</sup> FEI explains that the expected annual GDP losses at average winter temperatures for the existing facility exceeds \$250 million based on Exponent's modelling (as noted in Section 2.2.2 above).<sup>213</sup> At average winter temperatures, FEI expects that Supplemental Alternative 9 will result in a reduction of the expected annual GDP loss of more than \$175 million.<sup>214</sup>

FEI states that, in a worst-case scenario where a T-South no-flow event is longer than Supplemental Alternative 9's load support duration, it will still: (i) avoid the uncontrolled depressurization and the attendant safety risks expected with the existing facility; and (ii) provide valuable time for customers, governments and social services to prepare.<sup>215</sup> FEI notes that at -10°Celsius, Supplemental Alternative 9 will provide a support duration of 2 days and 17 hours which is more likely to allow for a controlled shutdown than an uncontrolled shutdown.<sup>216</sup> Additionally, FEI states that at -10°Celsius, the support duration provided by Supplemental Alternative 9 will allow for customers, governments, health and social services to prepare for an outage that cannot be bridged by stored LNG volumes. FEI notes that while all preparation activities may not be executed prior to the outage, Supplemental Alternative 9 provides the greatest time to prepare as compared to other alternatives.<sup>217</sup>

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<sup>206</sup> The CEC Final Argument, para. 122.

<sup>207</sup> Ibid., para. 127.

<sup>208</sup> Ibid., para. 124.

<sup>209</sup> RCIA Final Argument, p. 20.

<sup>210</sup> BCOAPO Final Argument, p. 16.

<sup>211</sup> FEI Reply Argument, para. 51.

<sup>212</sup> Exhibit B-61, p. U-138.

<sup>213</sup> Exhibit B-61, p. 5.

<sup>214</sup> Exhibit B-60, p. 185.

<sup>215</sup> Ibid., p. 175.

<sup>216</sup> Exhibit B-63, BCUC IR 130.2.

<sup>217</sup> Ibid., BCUC IR 130.2.

FEI also states that under the ALARP framework, the residual system-wide risk is considered as low as reasonably practicable, and therefore no additional resiliency-driven investments at a community level are necessary at this time.<sup>218</sup> FEI explains that it plans to reassess the need for resiliency investments through future Resiliency Plan updates if changes in risk profile warrant further mitigation. FEI also indicated that potential projects driven by non-resiliency factors could be evaluated for their ability to enhance resiliency.<sup>219</sup>

### 3.4 Risk of Stranded Asset

To assess the risk of stranded assets FEI evaluated the Viable Alternatives under two hypothetical adverse load scenarios which modified FEI's Diversified Energy Planning Scenario (DEP) to reflect customer losses in the Lower Mainland of 2 percent (mDEP 2%) and 5 percent (mDEP 5%) per year from the in-service date to 2050.<sup>220</sup> FEI states that under the mDEP 5% scenario, the most adverse hypothetical scenario considered, FEI would still be serving hundreds of thousands of customers in the Lower Mainland in 2050. FEI notes that the Lower Mainland customers would still be exposed to a significant customer outage following a T-South no-flow event, and that these customers would still need peaking supply.<sup>221</sup> Additionally, demand would need to fall below 3 Bcf system-wide with no remaining market before the asset's value would be undermined.<sup>222</sup>

FEI states that the two hypothetical load loss scenarios illustrate how an on-system LNG facility is a unique asset that can flexibly respond to future changes in demand. FEI notes that it will have options as to how it allocates the LNG stored in the TLSE LNG storage tank between resiliency reserve and gas supply.<sup>223</sup> FEI states that it considered the following two "book-end" approaches to reallocating the TLSE Project's capabilities in the face of hypothetical declining load:<sup>224</sup>

- **Resiliency Maximizing Strategy** – FEI could maintain the same resiliency reserve to achieve progressively more customer outage risk reduction if load declines.
- **Resiliency Retention Strategy** – FEI could maintain a consistent level of risk reduction (i.e. 3 days of load support duration) if load declines by progressively reallocating some of the resiliency reserve to gas supply and realizing additional gas supply benefits for its customers. FEI notes that the additional LNG available for gas supply could provide optionality in future gas supply portfolios by either replacing other gas supply resources or displacing other peaking supply that is exposed to potential commodity price spikes on cold days.

FEI explains that it modelled Supplemental Alternatives 8 and 9 (i.e. a new 2 Bcf LNG tank and a new 3 Bcf LNG tank, respectively), since they would be the largest facilities and any smaller facilities would necessarily be useful if the largest facilities are useful.<sup>225</sup> Under the resiliency maximizing strategy, FEI determined that by 2050, under the mDEP 2% scenario and average winter temperatures of +4°Celsius, Supplemental Alternatives 8 and 9 would provide just under 8 days and 11 days of load support respectively. Under the mDEP 5% scenario and average winter temperatures of +4°Celsius, FEI determined that Supplemental Alternatives 8 and 9 would provide just under 10 days and approximately 13.5 days of load support respectively.

Under the resiliency retention strategy, FEI states that the allocation of more of the tank's stored LNG volume to the gas supply portfolio would create opportunities for FEI to optimize its gas supply portfolio for the benefit of its customers. FEI explains that these benefits could come from substituting LNG for other resources or

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<sup>218</sup> Exhibit B-69, BCUC IR 150.2.

<sup>219</sup> Ibid., BCUC IR 150.4.

<sup>220</sup> Exhibit B-60, pp. 29, 142.

<sup>221</sup> Ibid., pp. 142-143.

<sup>222</sup> Exhibit B-63, BCUC IR 5 129.5.2, IR 129.5.3.

<sup>223</sup> Exhibit B-60, pp. 143 – 144.

<sup>224</sup> Ibid., p. 143.

<sup>225</sup> Ibid., p. 144.

generating mitigation revenue by making peaking supply available in the market.<sup>226</sup> FEI states that 1 Bcf could compensate for approximately 20 percent of FEI's current off-system storage holdings, while the largest gas supply allocation under mDEP 5% is 2.42 Bcf.<sup>227</sup> FEI provides various financial analyses to assess the extent of the benefits that may be achieved by allocating more of the stored LNG for gas supply purposes in the future, should demand decline as it does in the hypothetical load loss scenarios. FEI, through expert evidence provided by Raymond Mason, states that mitigation revenue as high as \$39.4 million is possible from selling 1.5 Bcf over five peak winter days for five years before accounting for any revenue from a standing demand charge. FEI states that an additional \$5.2 million to \$7.0 million of additional incremental value could be realized through an annual standing demand charge for every 50 MMcf/d.<sup>228</sup>

### *Positions of Parties*

MS2S submits that FEI is seriously underestimating the effects of price elasticity on the future demand for its gas service, and consequently the future demand for gas.<sup>229</sup> MS2S submits that FEI's planned future inclusion of renewable natural gas, and possibly hydrogen, in FEI's gas supply will cause the cost to ratepayers to escalate rapidly. MS2S claims that this escalation will lead to many FEI customers seeking alternatives to gas to heat their homes, thereby reducing the need for a resilient supply.<sup>230</sup> Additionally, MS2S submits that natural gas demand for buildings should decline annually by one to two percent due to the adoption of decarbonization requirements for new buildings in municipal zoning rules. MS2S asserts that this reduction in gas demand should, as a consequence, reduce the need for a resilient supply.<sup>231</sup>

In reply, FEI submits that MS2S's arguments centre around the belief that the load will and should decline, thus negating the need for resiliency. FEI notes that its Supplemental Evidence included an entire section devoted to the long-term usefulness of the TLSE Project, and that it was one of the five criteria in the alternatives analysis scoring.<sup>232</sup>

In contrast to MS2S, RCIA sees natural gas, including renewable natural gas, as an important part of the future energy mix.<sup>233</sup> RCIA agrees that even with the most pessimistic demand projections (i.e., mDEP 5%), there is still a need for peaking gas supply and resiliency. RCIA submits that FEI can reduce its reliance on off-system storage and transportation resources to address any decreases in demand while still fully utilizing the TLSE Project's storage capacity and regasification deliverability to meet winter and peak loads as well as resiliency in the event of a T-South outage.<sup>234</sup>

The CEC submits that it has long been concerned with FEI's existential threats arising from the Energy Transition, and is concerned with the risk of stranded assets, should demand decline.

### *Panel Determination*

The Panel has already found that the end of life of the Base Plant, the need for an increased on-system peaking supply resource and the need to address FEI's greatest resiliency risk on its system provide sufficient support for an investment that addresses these needs. As for FEI's methodology for assessment of the various Tilbury and non-Tilbury alternatives, the Panel finds the assumptions and criteria to be thorough and reasonable. They

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<sup>226</sup> Exhibit B-60, p. 153.

<sup>227</sup> Ibid., p. 155.

<sup>228</sup> Ibid., p. 157.

<sup>229</sup> MS2S Final Argument, p. 6.

<sup>230</sup> Ibid., pp. 6-7.

<sup>231</sup> Ibid., p. 6.

<sup>232</sup> FEI Reply Argument, para. 97.

<sup>233</sup> RCIA Final Argument, p. 8.

<sup>234</sup> Ibid.

support the choice of Supplemental Alternative 9 as the Preferred Alternative in light of the significant additional gas supply and resiliency benefits and economies of scale associated with that alternative relative to the other Viable Alternatives. As noted in Section 2.1.3 of this decision, the estimated cost of replacing and expanding the peaking capabilities of the end-of-life Base Plant with a 1 Bcf storage tank is \$893 million. With this context, the Panel considers the estimated incremental costs of approximately \$250 million for the preferred 3 Bcf tank to be a reasonable investment that will significantly enhance FEI's resiliency capabilities compared to today.

In the 2023 Adjournment Decision, the Panel raised concerns about the stranded asset risk of the TLSE Project, noting the uncertainty around the future of natural gas demand. We acknowledge that future natural gas demand is inherently uncertain, but observe that FEI's analysis considered multiple sensitivities for declining natural gas usage which is a reasonable approach to address uncertainty. The Panel is persuaded that the Supplemental Evidence supports that the TLSE Project will continue to be useful for peaking and/or resiliency purposes in a situation where gas demand declines significantly in the long-term, as illustrated by the mDEP 5% scenario.

Importantly, on-system LNG will provide FEI flexibility in the future to adapt to changing circumstances. As discussed further in Section 9 of this decision, the initial allocation of the storage capacity will be one third for peaking supply and two thirds for a resiliency reserve. FEI has illustrated that should circumstances change in the future, there are multiple strategies that could be implemented to best utilize the storage capacity, including maximizing resiliency and thereby further reducing the residual risk, or changes to the gas supply portfolio that could facilitate additional benefits to customers.

As for the residual system wide risk, the Panel is satisfied that FEI's approach of reducing resiliency risks on a system wide basis to an ALARP level is a prudent approach that appropriately balances risk with cost, in light of the fact that risk cannot be reduced to zero without inordinate cost to ratepayers. The Panel acknowledges that the TLSE Project could still provide benefits during a long duration no-flow event, such as avoidance of an uncontrolled shutdown, and increased time to prepare for a potential outage. The Panel also considers FEI's 3 Bcf upper limit on tank size to be reasonable in light of the diminished economies of scale due to the unique design and challenges associated with the construction of tanks larger than 3 Bcf.

The Panel notes FEI's commitment to reassess the need for resiliency investments through future updates to its 2024 Resiliency Plan should changes in risk profile emerge. However, the Panel sees no need to direct the specific timing of such updates although it may be regulatorily efficient for such to occur concurrently with FEI's next LTGRP.

## **4.0 Project Description**

### **4.1 Scope of Work**

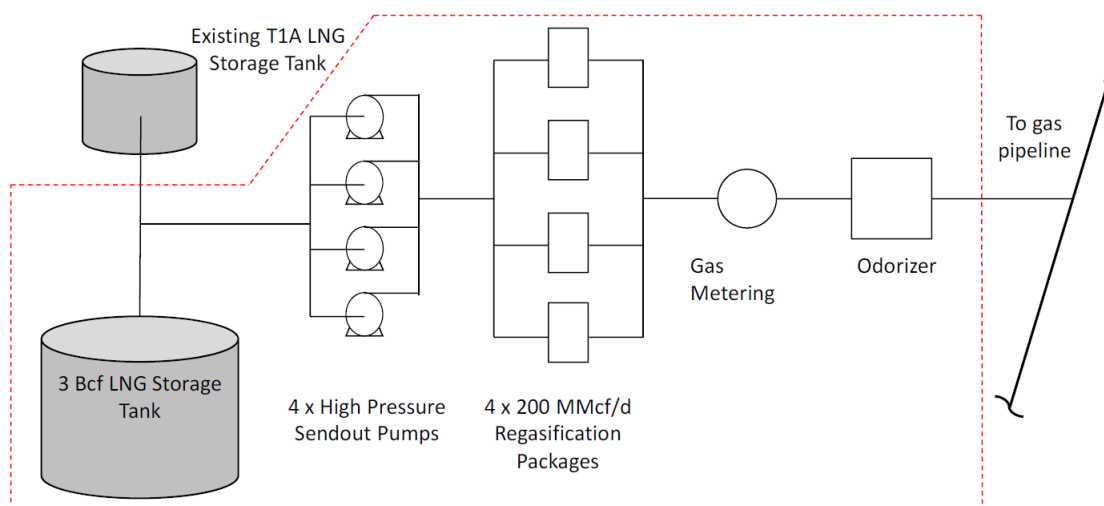
The TLSE Project involves the replacement of the existing Base Plant with a new, larger LNG storage tank, as well as new regasification equipment with increased capacity. As noted earlier, the proposed TLSE Project consists of the following major components:

- LNG storage Tank of 3 Bcf (142,400 m<sup>3</sup>), providing a 2 Bcf resiliency reserve and 1 Bcf allocated to gas supply as a peaking resource;
- Regasification capacity of 800 MMcf/d, which serves gas supply and resiliency functions;
- Addition or modification of any necessary auxiliary systems; and

- Demolition of above-ground portion of the Tilbury Base Plant LNG storage tank and liquefaction facilities.<sup>235</sup>

The TLSE Project components described within the Supplemental Evidence remain the same as the TLSE Project components included in the original Application. FEI notes, however, that the geotechnical requirements of the LNG tank have changed due to significant changes in seismic hazard and design criteria established by a recent revision to the relevant CSA standard.<sup>236</sup> The layout of the TLSE Project components is shown in Figure 2 below:<sup>237</sup>

**Figure 2: Layout of the TLSE Project Components**



### 3 Bcf LNG Storage Tank

The 3 Bcf LNG storage tank will be designed, constructed and operated in accordance with all current applicable codes and standards. The tank will consist of a cryogenic steel tank that is entirely enclosed within a concrete outer tank. This tank assembly is known as a full containment, double wall storage tank and is consistent with current LNG industry practices for construction of above-ground LNG storage tanks. The overall, outer diameter of the 3 Bcf LNG storage tank will be 73.5 metres and the overall tank wall height will be 43.75 metres.<sup>238</sup>

### 800 MMcf/d Regasification Capacity

The regasification system consists of multiple pumps and vapourizers, including four separate high pressure send out pumps and four separate vapourizers. The vapourizers consist of submerged bath heaters that convert the liquefied natural gas into its gaseous state; the capacity of each vapourizer is 200 MMcf/d.<sup>239</sup>

### Auxiliary Systems

Auxiliary systems support the LNG storage and regasification operations as part of the TLSE Project. The scope of auxiliary system includes the addition or modification to auxiliary systems, including power supply, utility pipe

<sup>235</sup> Exhibit B-60, Table 5-1, pp. 188-189.

<sup>236</sup> Ibid., p. 189.

<sup>237</sup> Exhibit B-4, p. 50.

<sup>238</sup> Exhibit B-1, pp. 124-125.

<sup>239</sup> Ibid., p. 128.

racks, two in-tank pumps<sup>240</sup>, piping, cable trays, instrument air compressors, boil-off gas compressors, connectivity to Tilbury 1A LNG storage tank, and connections to the send out gas pipeline.<sup>241</sup>

### Demolition of Base Plant

The demolition of the Base Plant includes the demolition, dismantling and disposal of the following items: Base Plant LNG tank containment wall, Base Plant LNG tank, Base Plant buildings, BOG compressor, interconnecting piping from Tilbury 1A, parking lot, electrical substation, low voltage transformer and diesel tank.<sup>242</sup>

FEI has scheduled construction to begin by October 2026, and for the LNG tank and other TLSE Project components to be completed by October 2030.<sup>243</sup>

### *Positions of the Parties*

The CEC submits that the TLSE Project Design and Construction is acceptable.<sup>244</sup>

No other interveners made submissions regarding the project description.

### *Panel Determination*

The Panel finds FEI's proposed scope of the TLSE Project to be acceptable. The Panel notes that the scope of the TLSE Project remains largely the same as the scope applied for within the original Application, and that interveners have not raised any concerns with the proposed scope.

## **5.0 Project Cost Estimates and Rate Impacts**

### **5.1 Project Costs**

The original Application TLSE Project estimated capital cost was \$639.449 million in 2020 dollars and \$768.988 million in as-spent dollars.<sup>245</sup> The Table 5 below summarizes the updated total TLSE Project capital cost estimate in both 2023 and as-spent dollars. The updated TLSE Project capital cost estimate meets the criteria for an AACE Class 3 Cost Estimate as required by the BCUC's CPCN Guidelines.

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<sup>240</sup> Exhibit B-16, p. 19.

<sup>241</sup> Exhibit B-1, pp. 130-133.

<sup>242</sup> Ibid., pp. 133-134.

<sup>243</sup> Exhibit B-60, p. 191, Table 5-2.

<sup>244</sup> The CEC Final Argument, para. 133.

<sup>245</sup> Exhibit B-1, p. 159.

**Table 5: Breakdown of the TLSE Project Cost Estimate (\$ millions)<sup>246</sup>**

|                                                      | 2023 \$        | As-Spent \$      |
|------------------------------------------------------|----------------|------------------|
| LNG Tank (3 BCF)                                     | 359.749        | 423.480          |
| Regasification Equipment                             | 141.483        | 166.547          |
| Ground Improvement                                   | 60.944         | 71.740           |
| Auxiliary System                                     | 153.964        | 181.239          |
| Base Plant Demolition                                | 14.927         | 17.571           |
| <b>Subtotal Capital Cost</b>                         | <b>731.067</b> | <b>860.578</b>   |
| Contingency                                          | 135.800        | 160.749          |
| <b>Subtotal Project Capital Costs w/ Contingency</b> | <b>866.867</b> | <b>1,021.327</b> |
| CPCN Application                                     | 4.945          | 4.945            |
| CPCN Preliminary Stage Development                   | 1.546          | 1.546            |
| <b>Subtotal w/ Deferral Costs</b>                    | <b>873.358</b> | <b>1,027.818</b> |
| AFUDC                                                | -              | 120.096          |
| Tax Offset                                           | -              | (4.025)          |
| <b>TOTAL Project Cost</b>                            | <b>873.358</b> | <b>1,143.889</b> |

FEI states the updated cost estimate incorporates industry-wide inflationary pressures, a larger contingency, and P70-based escalation (compared to the P50-based escalation used in the original Application).<sup>247</sup> The updated TLSE Project cost estimate, reflected in the table above, is based on the following:<sup>248</sup>

- An updated capital cost estimate of \$731.067 million in 2023 dollars developed by FEI, in conjunction with Linde, Horton CB&I, WSP, and Solaris Management Consultants Inc. The capital cost estimate includes the following items:
  - \$688.321 million of base capital costs comprised of a new 3 Bcf LNG storage tank, 800 MMcf/d of regasification equipment, ground improvement work including installation of stone columns necessary for the new LNG storage tank, new auxiliary systems, and the demolition of the Base Plant.
  - \$42.746 million of pre-construction capitalized development costs, which include actuals of \$28.347 million from 2020 to 2023, and a forecast of \$14.399 million from 2024 to 2025.
- A contingency of \$135.800 million in 2023 dollars, representing approximately 18 percent of the base capital cost estimate of \$731.067 million. This contingency is based on an updated quantitative risk analysis, with Validation Estimating recommending a total capital budget at a P50 confidence level. Validation Estimating did not recommend any specific management reserve.
- A P70 escalation of \$154.460 million is applied to the TLSE Project from 2024 to 2030, covering both the base capital cost and contingency. This higher confidence level escalation budget converts the Project capital cost, including contingency, from \$866.867 million in 2023 dollars to \$1,021.327 million in as-spent dollars. Prior to the adjournment, FEI had estimated escalation at a P50 confidence level.

<sup>246</sup> Exhibit B-60, p. 195.

<sup>247</sup> Exhibit B-60, p. 193; The terms “P70” and “P50” refer to the probability of underrun, or in other words, the probability that final costs will not exceed a cost estimate. AACE International Recommended Practice 10S-90 defines Probability of Underrun as follows: “In risk analysis and contingency estimating, the chance that the cost...will be less (Underrun) ... than a given cost ... from the distribution of outcomes of the risk analysis model.” In practice, a P50 or P70 contingency amount equals the dollar amount of contingency added to the Base Estimate such that there is a 50 percent or 70 percent likelihood that final project costs are less than overall estimated costs.

<sup>248</sup> Ibid., pp. 195-196.

- Estimated \$6.491 million of total deferred costs, which includes \$4.945 million of Application Costs and \$1.546 million of Preliminary Stage Development Costs.
- Financing costs based on FEI's 2024 approved allowance for funds used during construction (AFUDC) rate of 6.24 percent, equivalent to FEI's after-tax weighted average cost of capital (WACC).
- A demolition cost of \$14.927 million which will be charged to FEI's Net Salvage Deferral Account consistent with Order G-44-12. The plant assets will then be retired under standard accounting procedures. While this retirement has no immediate impact on rate base, it will be reflected in FEI's next depreciation study, which is expected to increase depreciation rates to recover the remaining net book value of the assets.<sup>249</sup>

The increase in the TLSE Project capital cost estimate compared to that in the original Application is primarily attributable to inflationary pressures on materials and equipment, with a smaller contribution from higher labor costs, reflecting industry-wide trends since the original estimate was completed in 2020.<sup>250</sup> FEI submits its updated TLSE Project cost estimate is a sound basis for the BCUC to assess the TLSE Project.<sup>251</sup>

### *Positions of the Parties*

BCSEA and the CEC are satisfied with FEI's costing analysis and estimate.<sup>252</sup>

BCOAPO expresses concerns with the reliability of FEI's cost estimate. BCOAPO submits the updated cost estimate of \$1.1 billion is well above the P50 cost forecast provided in the original filing, which FEI had its consultants review and validate. BCOAPO further notes the number of projects in recent years that have significantly exceeded FEI's carefully prepared, expert reviewed and scrutinized cost estimates.<sup>253</sup>

In reply to BCOAPO, FEI submits that the updated base capital cost estimate reflects the inflationary driven increases in material and equipment costs and increased labour costs. Moreover, part of the increase in the overall cost estimate is attributable to Validation Estimating recommending revisions to the contingency and escalation amounts. Lastly, FEI's capital cost estimate remains consistent with the BCUC's CPCN Guidelines.<sup>254</sup>

### *Panel Determination*

The Panel accepts FEI's updated TLSE Project capital cost estimate of \$873.358 million in 2023 dollars and \$1,143.889 million in as spent dollars as a reasonable estimate which has been validated by FEI's experts.

FEI has adequately accounted for the increase attributable to industry-wide inflationary pressures, a larger contingency, and P70-based escalation (compared to the P50-based escalation used in the original Application filed five years ago). As FEI notes, its updated capital cost estimate aligns with the requirements set out in the BCUC's CPCN Guidelines.

The TLSE Project scope includes the demolition of the above-ground portion of the Base Plant, LNG storage tank and liquefaction facilities. The Panel accepts FEI's proposed treatment of the demolition cost of \$14.927 million which will be charged to FEI's Net Salvage Deferral Account consistent with Order G-44-12. The plant assets will then be retired under standard accounting procedures. As FEI notes, while this retirement has no immediate

<sup>249</sup> Exhibit B-1, pp. 164-165.

<sup>250</sup> Exhibit B-60, p. 194.

<sup>251</sup> FEI Final Argument, para. 356.

<sup>252</sup> BCSEA Final Argument, para. 67. The CEC Final Argument, paras. 139-140.

<sup>253</sup> BCOAPO Final Argument, p. 13.

<sup>254</sup> FEI Reply Argument, paras. 117-118.

impact on rate base, it will be reflected in FEI's next depreciation study, which is expected to increase depreciation rates to recover the remaining net book value of the assets.

The Panel acknowledges that the TLSE Project's updated cost estimate is not an insubstantial amount of investment in FEI's system and has a material impact on future rates as outlined in Section 5.3. However, in light of the need to address the end of life of the Base Plant, the requirement for an increased peaking resource and the need to mitigate system resiliency risk, the Panel is satisfied that the TLSE Project is a reasonable and appropriate investment for FEI and its ratepayers particularly given the enhanced gas supply and resiliency benefits that the TLSE Project provides.

## 5.2 Depreciation Rate and Net Salvage Rate

In the 2023 Adjournment Decision, the BCUC was unable to find a 60-year life to be appropriate for the purpose of amortization. The BCUC stated that in light of the uncertainties around the useful life of the new asset given the stranded asset risk, a shorter amortization period may be more appropriate.<sup>255</sup>

In its Supplemental Evidence, FEI continues to seek approval of a depreciation rate of 1.67 percent and a net salvage rate of 0.67 percent, consistent with a 60-year service life for the new 3 Bcf LNG tank using the straight-line Average Service Life method and a net salvage rate of 40 percent of the tank's capitalized value over its 60-year service life per Concentric Advisors, ULC's (Concentric) recommendation.<sup>256, 257</sup> FEI states the use of the straight-line Average Service Life method is consistent with FEI's current depreciation methodology for its assets, including the existing LNG tanks.<sup>258</sup> FEI considered the use of alternative depreciation methods such as the double-declining-balance method and the sum-of-the-years'-digits method, and note the resulting impact on the levelized delivery rate and NPV of the proposed 3 Bcf tank over a 67-year analysis period is small.<sup>259</sup>

The present value of the incremental revenue requirement is approximately \$723.267 million over the 67-year analysis period. This amount reflects a delivery margin impact of approximately \$1,240.821 million related to the Project's capital costs, partially offset by \$517.554 million in avoided gas costs resulting from the additional 1 Bcf of LNG storage reserved for gas supply.<sup>260</sup> The 67-year analysis period is comprised of a seven-year pre-Project period from 2024 to 2030, during which all new assets are expected to be placed in service, plus a 60-year post-Project period. The 60-year post-Project period reflects the average service life of a new 3 Bcf LNG tank, as recommended by Concentric in FEI's most recent Depreciation Study, filed as part of FortisBC's 2025–2027 Rate Setting Framework Application.<sup>261</sup>

FEI provided the financial analysis of the project over a 27 year analysis period (20 years expected service life) in section 6.4 of the Supplemental Evidence.<sup>262</sup> However, FEI submits that a 67-year analysis period is appropriate for the levelized rate impact analysis in light of the resiliency and gas supply benefits the TLSE Project will provide, as further outlined in Section 3.4 of this decision.<sup>263</sup>

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<sup>255</sup> Order G-62-23

<sup>256</sup> Exhibit B-39, BCUC Panel IR 6.1; Exhibit B-60, p. 200.

<sup>257</sup> Exhibit B-1, p. 163.

<sup>258</sup> Exhibit B-39, BCUC Panel IR 6.2.

<sup>259</sup> Ibid., BCUC Panel IR 6.3.

<sup>260</sup> Exhibit B-60, p. 198.

<sup>261</sup> Ibid., pp. 199-200.

<sup>262</sup> Exhibit B-60, pp. 203-204.

<sup>263</sup> FEI Final Argument, para. 369.

## Positions of the Parties

The CEC recommends that the BCUC use 27 years as the term over which it assumes the life of the Project when making its deliberations. However, the CEC does not have strong objections to the use of a 67-year life, with its slightly lower rate impact for customers.<sup>264</sup>

## Panel Determination

As outlined in Section 3 of this decision, the Panel is persuaded that the TLSE Project will remain used and useful in the long term. Based on the expected 60 year service life of the LNG storage tank, the Panel considers a 67 analysis period (consisting of a pre-Project commissioning period of 7 years plus 60 years post-Project) is appropriate for the levelized rate impact analysis, and that the shorter 27 year analysis period with an expected service life of 20 years does not adequately account for the time that the asset is expected to remain used and useful. As the CEC notes, the longer period has the advantage of a slightly lower rate impact for customers. The Panel also observes that the Base Plant has been in place to date for some 56 years. Further, as recommended by Concentric, the 60-year post-Project period reflects the average service life of a new 3 Bcf LNG tank, which would be built to today's engineering standards. **Accordingly, pursuant to section 56 of the UCA, the Panel approves a 1.67 percent depreciation rate for the TLSE Project.**

**Additionally, the Panel approves 0.67 percent net salvage rate.** The Panel notes that this rate is derived from the depreciation rate based upon the expert opinion of Concentric, which the Panel accepts.

## 5.3 Rate Impact

The incremental delivery rate impacts from 2026 to 2031 reflect two primary components: (i) the amortization of the Application and Preliminary Stage Development Costs deferral account between 2026 and 2028; and (ii) the phased addition of TLSE Project capital costs to FEI's rate base between 2028 and 2031.<sup>265</sup> FEI provides the breakdown of TLSE Project capital costs by In-Service Year as shown in Table 6 below:

**Table 6: Breakdown of Project Capital Costs by In-Service Year (2025-2030)**

| As-Spent \$, incl. AFUDC and Tax Offset | Project complete and in-service each year, incl. Project Deferral (\$ millions)<br>(To be transferred to Rate Base January 1 of each following year) |      |        |         |         |         | TOTAL     |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------|---------|---------|---------|-----------|
|                                         | 2025                                                                                                                                                 | 2026 | 2027   | 2028    | 2029    | 2030    |           |
| LNG Tank (3.0 BCF)                      | -                                                                                                                                                    | -    | -      | -       | -       | 572.204 | 572.204   |
| Regasification Equipment                | -                                                                                                                                                    | -    | -      | 111.627 | 102.920 | -       | 214.547   |
| Ground Improvement                      | -                                                                                                                                                    | -    | 95.484 | -       | -       | -       | 95.484    |
| Auxiliary System                        | -                                                                                                                                                    | -    | -      | 129.432 | 48.509  | 58.063  | 236.005   |
| Total Charged to Gas Plant in Service   | -                                                                                                                                                    | -    | 95.484 | 241.058 | 151.429 | 630.267 | 1,118.238 |
| Base Plant Demolition                   | -                                                                                                                                                    | -    | -      | -       | 22.724  | -       | 22.724    |
| Project Deferral Costs                  | 2.927                                                                                                                                                | -    | -      | -       | -       | -       | 2.927     |
| Total Project Costs                     | 2.927                                                                                                                                                | -    | 95.484 | 241.058 | 174.153 | 630.267 | 1,143.889 |
| Annual Project % In-Service             | 0.3%                                                                                                                                                 | 0.0% | 8.3%   | 21.1%   | 15.2%   | 55.1%   | 100.0%    |

FEI presents a summary of the delivery rate impact for the TLSE Project over the construction period which is replicated below in Table 7:

<sup>264</sup> The CEC Final Argument, para. 70.

<sup>265</sup> Exhibit B-60, pp. 202-203.

**Table 7: Summary of Delivery Rate Impact of the TLSE Project**<sup>266,267</sup>

|                                                                                | 2026  | 2027  | 2028   | 2029   | 2030   | 2031    |
|--------------------------------------------------------------------------------|-------|-------|--------|--------|--------|---------|
| Annual Delivery Margin, Incremental to 2026 Approved, Non-Bypass (\$ millions) | 1.328 | 1.456 | 13.834 | 33.280 | 54.792 | 125.920 |
| % Increase to 2026 Approved Delivery Margin, Non-bypass                        | 0.12% | 0.13% | 1.21%  | 2.92%  | 4.80%  | 11.03%  |
| Incremental % Delivery Rate Impact (Year-over-Year)                            | 0.12% | 0.01% | 1.08%  | 1.68%  | 1.83%  | 5.95%   |

Based on the updated capital cost estimate, the Preferred Alternative is projected to result in a cumulative incremental delivery rate impact of 11.03 percent by 2031, relative to FEI's 2024 approved delivery rates. This equates to an average annual increase of approximately 1.78 percent over the six-year construction period.<sup>268</sup>

The levelized total rate impact of the Preferred Alternative over the 67-year period, which accounts for both the delivery rate impact and the benefit from avoided gas costs, is 2.45 percent, equivalent to \$0.228 per GJ. The new Project assets will be included in FEI's rate base upon completion, with capital costs recovered through delivery rates. Avoided gas supply costs, however, reduce FEI's cost of gas and are not part of delivery rates. When considered separately, the levelized delivery rate impact due to the Project is 6.90 percent, while the avoided gas supply costs provide savings of 4.49 percent.<sup>269</sup> For a typical residential customer consuming 90 GJ annually, this represents an average bill increase of approximately \$20.55 per year over the 67-year period.<sup>270</sup>

### *Positions of the Parties*

BCSEA concurs with FEI that its rate impact analysis of the TLSE Project adheres to the BCUC's CPCN Guidelines.<sup>271</sup>

The CEC recommends that the BCUC find the rate impact calculations to be appropriate, and the rate impact results to be acceptable and in the public interest.<sup>272</sup>

### *Panel Determination*

The Panel finds that FEI's analysis of the rate impact of the TLSE Project to be reasonable and in alignment with BCUC's CPCN Guidelines. The Panel accepts that given the TLSE Project's role in FEI's gas supply portfolio, it is appropriate to consider the estimated offsetting impact upon overall rates associated with the long-term forecast of avoided gas supply costs commencing in 2031. The Panel considers that the levelized total rate impact of 2.45 percent, or \$0.228 per GJ, is just and reasonable, and in the public interest given the long term nature of this asset, and the additional resiliency benefit and flexibility it provides to FEI's system to meet increased peaking supply needs.

<sup>266</sup> Ibid., p. 203.

<sup>267</sup> This rate impact analysis is based on an Application and Preliminary Stage Development Costs deferral account balance of \$6.491 million, as set out in Section 6.1.2.2 of the Supplemental Evidence.

<sup>268</sup> Exhibit B-60, p. 202.

<sup>269</sup> Ibid., p. 198.

<sup>270</sup> Ibid., p. 203.

<sup>271</sup> BCSEA Final Argument, para. 74.

<sup>272</sup> The CEC Final Argument, para. 154.

## 5.4 Deferral Accounts

### 5.4.1 TLSE Application and Preliminary Stage Development Costs

FEI seeks BCUC approval for deferral treatment of \$5.991 million in costs associated with the TLSE Project's Application and Preliminary Stage Development. A summary of the forecast of the Application and Preliminary Stage 2 Development Costs is outlined in Table 8 below:

**Table 8: Forecast of the Application and Preliminary Stage 2 Development Costs:**<sup>273</sup>

| Particular                                  | Application (Actual: 2020-2024; Forecast 2025 Onwards) | Preliminary Stage Development (Actual: 2019-2020) | TOTAL        |
|---------------------------------------------|--------------------------------------------------------|---------------------------------------------------|--------------|
| Pre-Tax Costs                               | 4.445                                                  | 1.546                                             | 5.991        |
| WACC Return                                 | 0.485                                                  | (0.094)                                           | 0.391        |
| <b>Total Before Tax Offset</b>              | <b>4.930</b>                                           | <b>1.452</b>                                      | <b>6.382</b> |
| Tax Offset - Costs held in Deferral Account | (1.200)                                                | (0.417)                                           | (1.618)      |
| Tax Offset - Capitalized Costs              | -                                                      | (2.272)                                           | (2.272)      |
| <b>Total</b>                                | <b>3.730</b>                                           | <b>(1.238)</b>                                    | <b>2.492</b> |
| Annual Amortization for 3 years             | 1.243                                                  | (0.413)                                           | 0.831        |

FEI proposes to record the actual Application and Preliminary Stage Development Costs in a non-rate base deferral account, accruing a return at FEI's WACC. In line with its past CPCN applications, FEI would transfer the balance to rate base on January 1 of the year following BCUC approval of the Application, with recovery through amortization over a three-year period.<sup>274</sup>

FEI continues to consider a three-year amortization period for these costs to be reasonable, as it would appropriately manage the delivery rate impact to customers while aligning with the expected in-service date of the TLSE Project. In addition, FEI maintains that a three-year amortization period provides a reasonable level of rate smoothing, avoids unnecessarily lengthy recovery periods that offer only minor additional smoothing benefits beyond three years, and reduces the risk of intergenerational inequity associated with longer amortization periods.<sup>275</sup>

FEI submits the Application and Preliminary Stage Development Costs deferral account is just and reasonable and should be approved under sections 59 to 61 of the UCA.<sup>276</sup>

#### *Positions of the Parties*

BCSEA states the Application and Preliminary Stage Development Costs deferral account would be relevant whether or not the BCUC issues a CPCN for the TLSE Project.<sup>277</sup>

The CEC recommends that the BCUC approve the Application and Preliminary Stage Development Costs deferral account as proposed by FEI.<sup>278</sup>

RCIA states the principal regulatory purpose of depreciation and amortization expense as matching the cost of assets to their use and preserving intergenerational equity. However, regulatory costs differ from construction

<sup>273</sup> Exhibit B-69, BCUC IR 158.1, Table 1.

<sup>274</sup> Exhibit B-60, p. 197-198.

<sup>275</sup> Exhibit B-69, BCUC IR 158.1.

<sup>276</sup> FEI Final Argument, para. 431.

<sup>277</sup> BCSEA Final Argument, p. 15.

<sup>278</sup> The CEC Final Argument, para. 173.

costs, and it would be inappropriate to amortize them over an excessively long period. Accordingly, FEI's proposal represents an appropriate balance.<sup>279</sup>

### *Panel Determination*

The Panel approves FEI's request to record \$5.991 million in costs associated with the TLSE Project's Application and Preliminary Stage Development in a non-rate base deferral account, accruing a return at FEI's WACC, with recovery through amortization over a three-year period. For the reasons stated by FEI, the Panel finds that a three-year amortization period is reasonable, as it would appropriately manage the delivery rate impact to customers while aligning with the expected in-service date of the TLSE Project. In addition, the three-year amortization period achieves a desirable level of rate smoothing while mitigating intergenerational concerns.

#### **5.4.2 TLSE FX Mark to Market**

FEI requests BCUC approval to establish a TLSE FX Mark to Market deferral account for the TLSE Project. The account would record the mark-to-market valuation of foreign currency forward contracts entered into on account of the TLSE Project for hedging purposes. A portion of the TLSE Project's costs may be payable in US dollars, creating exposure to fluctuations in the US dollar (USD)/Canadian dollar exchange rate. To mitigate this risk, FEI intends to enter into foreign exchange forward contracts to lock in rates for the USD-denominated portion of the TLSE Project costs. While this approach fixes the exchange rate and provides cost certainty, accounting standards require these derivative contracts to be fair-valued at each reporting period.<sup>280</sup>

FEI explains that without the requested deferral account, the resulting unrealized gains and losses would be recorded in FEI's income statement, introducing volatility that does not reflect actual cash costs or the economic substance of the hedges. The proposed deferral account would isolate these non-cash accounting impacts from earnings during the TLSE Project execution period. Similar accounts have previously been approved by the BCUC for the Mt. Hayes LNG Facility CPCN and the Customer Care Enhancement CPCN.<sup>281</sup>

FEI states that the deferral account will not earn a financing return, will not increase or decrease the total expected cost of the TLSE Project, and will have no effect on customer rates. Upon Project completion, the balance of the account will be zero, as the forward contracts will have been settled. The account will facilitate the use of hedging instruments that provide customers with certainty over the exchange rate applied to USD-denominated costs. FEI will report on the use and balance of the account as part of its regular TLSE Project progress reporting to the BCUC.<sup>282</sup>

### *Positions of the Parties*

BCSEA submits the deferral account is an important tool to avoid uncontrollable external income statement volatility,<sup>283</sup> and the CEC agrees the deferral account should be approved.<sup>284</sup>

### *Panel Determination*

**The Panel approves FEI's request to establish a TLSE FX Mark to Market deferral account, to capture the mark-to-market valuation of any foreign currency forward contracts entered into for the construction of the TLSE Project.**

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<sup>279</sup> RCIA Final Argument, p. 20.

<sup>280</sup> Exhibit B-1, p. 106.

<sup>281</sup> Ibid., p. 167.

<sup>282</sup> Ibid.

<sup>283</sup> BCSEA Final Argument, para. 70.

<sup>284</sup> The CEC Final Argument, para. 173.

The Panel considers this to be a useful tool to avoid uncontrollable external income statement volatility and to reduce exposure to foreign currency exchange rate risk during the TLSE Project execution period, and particularly so during a time of global uncertainty. The Panel also observes that the establishment of such account is consistent with similar accounts approved for FEI's Mt. Hayes LNG Facility CPCN and the Customer Care Enhancement CPCN. The two interveners that commented on this matter both support the approval of the establishment of this account for the TLSE Project.

## 6.0 Environment and Archaeology

The TLSE Project is a component of FortisBC Holdings Inc.'s (FortisBC Holdings) Tilbury Phase 2 LNG Expansion Project (Phase 2 Expansion). The Phase 2 Expansion triggers the requirements for both a Federal Impact Assessment and a Provincial Environmental Assessment (EA). Therefore, in parallel to the BCUC's review of the TLSE Project, the BC Environmental Assessment Office (BC EAO)<sup>285</sup> is carrying out an EA of the broader Phase 2 Expansion on behalf of both the Provincial and Federal governments, to inform their separate decisions on whether to approve the Phase 2 Expansion.

### Environmental Impact

FEI notes that the TLSE Project LNG tank forms part of the EA for the Phase 2 Expansion. The remaining components of the TLSE Project are considered as part of the cumulative effects assessment in the EA, and will be subject to additional regulatory scrutiny to identify, evaluate and mitigate any potential impacts.<sup>286</sup> In May 2025, the BC EAO requested additional information from FortisBC Holdings to address issues identified during engagement.<sup>287</sup>

Subsequent to the original Application which outlined the potential environmental impacts of the TLSE Project, FEI has undertaken additional environmental assessment work. This has resulted in a downgrading of the potential environmental impacts from "moderate" to "low to moderate," which can be further mitigated. Of the seven biophysical receptors identified in the Environmental Overview Assessment, before taking any mitigation measures into consideration, only the atmospheric receptor has been identified with a "medium to high" risk rating, with all others assessed to a low-risk rating in the Technical Data Reports.<sup>288</sup> The atmospheric impact risks are associated with the Metro Vancouver permitting process.<sup>289</sup>

FEI submits that any potential environmental impacts associated with the TLSE Project can be mitigated through permitting processes, including the EA process, and through the implementation of standard best environmental management practices, which FEI will follow during construction. FEI has accounted for the costs to implement specialized mitigation measures as part of the TLSE Project contingency.<sup>290</sup>

### Archeological Impacts

An Archeological Impact Assessment under the *Heritage Conservation Act* was completed for the TLSE Project site in 2021, with several First Nations providing in-field assistance while others were provided post-fieldwork

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<sup>285</sup> <https://projects.eao.gov.bc.ca/p/5df7f1bfb7434b002164961c/project-details>

<sup>286</sup> FEI Final Submission prior to Adjournment, p. 125.

<sup>287</sup> Exhibit B-1-4, p. 169;

<https://projects.eao.gov.bc.ca/api/public/document/6837936ba1f3b50022977013/download/250403%20TP2%20Notice%20Report%20Final.pdf>

<sup>288</sup> FEI Final Argument, para. 375; Exhibit B-60, pp. 206-207. The other biophysical receptors assessed included the risk of the Project on the surface water, contaminated soils and groundwater, fish & fish habitat, vegetation and wetlands, and wildlife and wildlife habitat.

<sup>289</sup> Exhibit B-1-4, p. 174; Exhibit B-15, BCUC IR 49.1.

<sup>290</sup> FEI Final Argument, para. 377.

summaries. No archaeological materials or features were identified as part of the Archeological Assessment. In 2022, a project-specific Archaeological Chance Find Management Procedure was developed for the TLSE Project site, with input from First Nations who requested to participate. With the recommendations from the Archeological Assessment and development of the Archaeological Chance Find Management Procedure, the risk of archaeological impact has been downgraded by FEI to “low.”<sup>291</sup>

### *Positions of the Parties*

Prior to adjournment of this proceeding, the CEC expressed certain concerns and recommended that the BCUC ensure substantial oversight of environmental and archaeological impacts if the TLSE Project was approved. Post-adjournment, the CEC has reviewed the updated evidence and finds that the environmental and archaeological plan is adequate and appropriate.<sup>292</sup>

Several letters of comment have been received in opposition to the TLSE Project, noting concerns related to the impact of any expansion of the Tilbury facility on local fish populations,<sup>293</sup> the upstream environmental impacts of fracking,<sup>294</sup> and the safety considerations of locating an LNG storage facility in an area of high seismic risk.<sup>295</sup>

### *Panel Determination*

The Panel notes that following additional work done since the adjournment of the proceeding, the potential environmental impacts associated with the TLSE Project have now been downgraded by FEI from “moderate” to “low to moderate”, with the potential for further mitigation. As for the cumulative impacts of the broader Tilbury Phase 2 LNG Expansion work promulgated by FortisBC Holdings, the assessment of these impacts relies on the work of other regulatory authorities which is ongoing. The Panel is satisfied that the environmental impacts of the TLSE Project are to be assessed as part of FEI’s environmental permitting process with the BC EAO and that FEI has committed to mitigating any potential environmental impacts associated with the TLSE Project. As for concerns about the Base Plant’s non-compliance with current seismic design standards, the current proposal to replace the Base Plant addresses those concerns.

The Panel is also satisfied that the Archaeological Impact Assessment has led FEI to reduce the risk of archaeological impact to low and that FEI’s compliance with the *Heritage Conservation Act* is sufficient to safeguard archaeological resources that may be uncovered by the TLSE Project.

## **7.0 Indigenous Consultation and Public Engagement**

FEI began engagement specific to the TLSE Project in Fall 2019, and its engagement with Indigenous groups, the public and other stakeholders with respect to the TLSE Project has been combined with the EA process for FortisBC Holdings’ Phase 2 Expansion which as noted above includes components of the TLSE Project. FEI has synchronized engagement activities between these two regulatory processes where possible.<sup>296</sup>

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<sup>291</sup> Exhibit B-60, p. 208.

<sup>292</sup> The CEC Final Argument, para. 158.

<sup>293</sup> Exhibit E-1; Exhibit E-2; Exhibit E-5; Exhibit E-7; Exhibit E-12; Exhibit E-16.

<sup>294</sup> Exhibit E-1; Exhibit E-2; Exhibit E-6; Exhibit E-7; Exhibit E-8; Exhibit E-10; Exhibit E-13; Exhibit E-16; Exhibit E-17; Exhibit E-19; Exhibit E-20; Exhibit E-21.

<sup>295</sup> Exhibit E-1; Exhibit B-17; Exhibit E-18; Exhibit E-22.

<sup>296</sup> Exhibit B-1-4, p. 183; Exhibit B-60, p. 209.

Engagement with Indigenous groups with respect to the TLSE Project has been guided by FEI's Statement of Indigenous Principles and FEI's Engagement Plan,<sup>297</sup> and designed to be consistent with the BC EAO framework for consensus-seeking with Indigenous groups.

FEI identified 21 potentially affected Indigenous groups to engage with specifically in respect of the TLSE Project and also continues to engage with an additional 22 Indigenous groups that have been identified as potentially affected Indigenous Nations by the BC EAO as part of the ongoing EA process for the Phase 2 Expansion.<sup>298</sup> Given the scope of the TLSE Project, FEI has finalized funding agreements with 15 Indigenous groups to support their capacity to actively participate in the EA process. FEI has also entered into project agreements with the Musqueam Indian Band and Snuneymuxw First Nation.<sup>299</sup>

Since July 2021, FEI has undertaken more than 700 individual engagements with Indigenous groups related to the TLSE Project to ensure that they are kept informed about the TLSE Project, and to identify and respond to issues and concerns identified.<sup>300</sup> FEI has provided consultation logs to demonstrate ongoing engagement with Indigenous groups.<sup>301</sup>

FEI submits engagement regarding the TLSE Project is robust and Indigenous groups have had multiple opportunities to engage in a process of dialogue and consensus-seeking over the course of TLSE Project's development, and in a variety of forums. This includes 11 Technical Advisory Committee meetings held by the BC EAO related to topics relevant to Indigenous groups and the TLSE Project, input into comprehensive engagement summaries, and participation in the ongoing EA comment process. In addition, FEI has met with Indigenous groups to discuss interests and issues raised during the application development and review phase, as well as to offer technical clarifications regarding the information, assessments and studies supporting the Phase 2 Expansion EA application.<sup>302</sup>

FEI has continued to respond to and address concerns raised by Indigenous groups regarding the TLSE Project. Since November 2021, FEI received inquiries regarding the potential environmental impacts of the TLSE Project; including cumulative effects, greenhouse gas (GHG) emissions and marine impacts; and business opportunities related to the TLSE Project.<sup>303</sup>

With respect to public consultation, FEI has continued to engage with the public, including its customers, residents, businesses and landowners located near the facility and surrounding area, governments and other stakeholders regarding the Project. FEI states it has offered multiple opportunities for the public to provide feedback through a variety of engagement methods, including through the ongoing BC EAO process. Since November 2021, FEI has held 76 site tours with stakeholders and governments; 41 project virtual and in-person meetings and presentations; used website and social media resources; participated on local community events to increase opportunities to ask questions; and participated in two virtual open houses hosted by the BC EAO.<sup>304</sup>

FEI has engaged directly with nearby local, provincial, and federal government agencies to share updates and seek feedback regarding the TLSE Project. FEI meets regularly with the City of Delta to provide updates related to the Tilbury LNG facility, and also provides ongoing updates to the nearby City of Richmond. FEI has also engaged local government staff, first responders, and other stakeholders in full-scale emergency exercises at the Tilbury LNG facility, in addition to providing specific LNG training for firefighters.<sup>305</sup>

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<sup>297</sup> Exhibit B-1-4, Appendix R-1; Appendix Q-2.

<sup>298</sup> Exhibit B-60, p. 210.

<sup>299</sup> Exhibit B-60, p. 213-214.

<sup>300</sup> FEI Final Argument, para. 395.

<sup>301</sup> Exhibit B-63, Attachment 137.2; Exhibit B-69, Attachment 160.1.

<sup>302</sup> FEI Final Argument, para. 396.

<sup>303</sup> Exhibit B-60, p. 212.

<sup>304</sup> Ibid., p. 215.

<sup>305</sup> Ibid., p. 216.

## *Positions of the Parties*

BCSEA accepts that FEI's stakeholder consultation regarding the TLSE Project meets the requirements of the BCUC's CPCN Guidelines, and acknowledges the agreement between the Musqueam Indian Band and FortisBC Holdings and between FEI and the Snuneymuxm First Nation regarding the TLSE Project and other Tilbury projects.<sup>306</sup>

The CEC finds that FEI has continued to conduct meaningful consultation and engagement since the TLSE Project's inception and is reasonably confident that this consultation and engagement will continue. FEI has provided adequate detail as to its engagement and has reached funding agreements which support Indigenous participation. The CEC finds the evidence related to consultation and engagement to be satisfactory and recommends that the BCUC find FEI's consultation and engagement to be acceptable.<sup>307</sup>

## *Panel Determination*

The Panel is persuaded by the Supplementary Evidence that FEI's consultation with Indigenous communities and engagement with the public have been ongoing both prior and subsequent to the adjournment. Agreements have now been reached between the Musqueam Indian Band and FortisBC Holdings and between FEI and the Snuneymuxm First Nation regarding the TLSE Project and other Tilbury projects. Based on the evidence in this proceeding, the Panel finds that consultation with Indigenous groups has been adequate to the date of this Decision. Further, the Panel is satisfied that FEI's engagement with the public and other stakeholders has also been adequate to date. The Panel expects, however, that further consultation with Indigenous groups and engagement with the public and other stakeholders will continue as the TLSE Project and other Tilbury projects progress through the BC EAO approval process.

## **8.0 BC Energy Objectives and Resource Planning**

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 public utility, and the extent to which the Application is consistent with the applicable requirements under sections 6 and 19 of the CEA. Those provisions of the CEA, however, only apply to electricity utilities and not to natural gas public utilities like FEI.

### **8.1 BC Energy Objectives and GHG Emissions**

With respect to BC energy objectives, FEI states that the TLSE Project will support objective 2(k), which is "to encourage economic development and the creation and retention of jobs." FEI explains that the TLSE Project will benefit the local economy during the construction phase by creating jobs in BC through FEI's contractors, and result in the procurement of goods and services from locally owned and operated vendors and subcontractors. FEI states that the TLSE Project also supports the energy objective of job retention by reducing the likelihood of prolonged gas supply outages in the Lower Mainland. PwC's analysis confirms that a single outage of this nature will cause billions of dollars of economic harm.<sup>308</sup> Otherwise, FEI states that the remaining BC energy objectives either do not apply and or are not in conflict with the TLSE Project.<sup>309</sup>

FEI states that the TLSE Project will incorporate modern design standards which minimize the potential for venting of methane to the atmosphere, thus decreasing the potential release of greenhouse gases (GHG).<sup>310</sup>

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<sup>306</sup> BCSEA Final Argument, paras. 76-77.

<sup>307</sup> The CEC Final Argument, paras. 162-163.

<sup>308</sup> Exhibit B-60, Table 9-1, p. 223; FEI Final Argument paras. 405-407.

<sup>309</sup> Ibid., p. 220.

<sup>310</sup> Exhibit B-15, BCUC IR 21.4.

However, FEI clarifies that the purpose of the TLSE Project is not related to reducing GHG emissions and that on its own the TLSE Project will not significantly reduce GHG emissions in BC. FEI has identified some incremental GHG emissions that result from various phases of the TLSE Project. For example, the initial fill of the LNG storage tank will result in a one-time release of approximately 6,560 tonnes of CO<sub>2</sub>e.<sup>311</sup> During normal operation, FEI states that the main source of GHG emissions associated with the TLSE Project will come from the infrequent use of the regasification equipment; however, this will not be a significant source of GHG emissions. When operating at the full vapourization capacity of 800 MMcf/day, the total GHG emissions are expected to be 37 tonnes per hour.<sup>312</sup>

FEI notes that the liquefaction process to fill the TLSE LNG tank as needed is powered by electricity, thereby reducing the emissions associated with the production of LNG.<sup>313</sup>

### *Positions of the Parties*

The BCUC received 26 letters of comment regarding the TLSE Project, all of which opposed the BCUC issuing a CPCN to FEI for the TLSE Project. Some expressed concern with the continued dependence on fossil fuels represented by the TLSE Project and the associated continued release of GHG emissions.<sup>314</sup>

FEI submits that the TLSE Project is replacing a 1971 facility with a new facility that will be built to modern standards, which includes significantly reducing the current potential for GHG emissions through venting in normal operations.<sup>315</sup>

BCSEA considers that approval of the TLSE Project will not exacerbate the climate crisis or foster the use of fossil natural gas.<sup>316</sup>

### *Panel Determination*

The construction of the TLSE Project takes place over seven years with a capital cost estimate of more than \$1.14 billion. Panel accepts FEI's assessment that the TLSE Project aligns with applicable BC energy objectives, in particular by benefiting the local economy during the construction phase by creating jobs in BC, along with the procurement of goods and services from locally owned and operated vendors and subcontractors. The TLSE Project further supports the energy objective of economic development and job retention by reducing the likelihood and associated economic impacts of prolonged gas supply outages in the Lower Mainland.

Regarding commentators' concerns about the GHG emissions associated with the TLSE Project, the Panel notes FEI's acknowledgement that TLSE Project is not related to reducing GHG emissions and some incremental GHG emissions will result from various phases of the TLSE Project. The Panel observes that the incremental GHG emissions are expected to be constrained to the initial fill of the tank and infrequent use of regasification equipment.

## **8.2 FEI's 2022 LTGRP**

FEI submits that the TLSE Project is consistent with the outcome of the 2022 LTGRP proceeding.<sup>317</sup>

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<sup>311</sup> Exhibit B-1, Appendix Q, p. 6-1.

<sup>312</sup> Exhibit B-18, BCSEA IR 9.1.

<sup>313</sup> Exhibit B-1, Appendix Q, Section 6.

<sup>314</sup> Exhibits E-1 to E-6, E-8 to E-15, E-17 to E-24, D-2-1, D-5-1.

<sup>315</sup> FEI Final Argument, para. 411.

<sup>316</sup> BCSEA Final Argument, para. 24

<sup>317</sup> FEI Final Argument, para. 427.

The 2022 LTGRP explained the important role of the Base Plant in providing gas supply throughout the year and noted that the peaking supply provided by the Base Plant is difficult to replace. Further, the BCUC decision with respect to the 2022 LTGRP determined that additional analysis in the form of a holistic resiliency plan was necessary before decisions with respect to the TLSE Project could be made. FEI submits that its 2024 Resiliency Plan is responsive to the BCUC's guidance.<sup>318</sup>

### *Panel Determination*

The Panel finds that the TLSE Project aligns with the acceptance of FEI's 2022 LTGRP, except in respect of the deficiencies identified in the Gas System Resiliency Plan. Those deficiencies have since been addressed in the 2024 Resiliency Plan which has been accepted in this proceeding for the reasons stated earlier in this decision.

## **9.0 CPCN Determination**

This section summarizes interveners' positions with respect to the Application and provides the Panel's overall determination.

### *Positions of the Parties*

The CEC, RCIA and BCSEA support the issuance of a CPCN to FEI for the TLSE Project.<sup>319</sup>

MS2S opposes the issuance of a CPCN to FEI, as does BCOAPO. MS2S submits that FEI's analysis to date has been inadequate and does not justify proceeding with the TLSE Project.<sup>320</sup> BCOAPO submits that this proceeding is not the appropriate venue to consider the outcomes of the 2024 Resiliency Plan, as this should be done as part of a long-term gas resource plan.<sup>321</sup> BCOAPO submits that, despite the Supplemental Evidence addressing some shortcomings identified by the 2023 Adjournment Decision, FEI still has not provided sufficient evidence that the TLSE Project serves the public interest.<sup>322</sup>

### *Panel Determination*

**The Panel finds the public convenience and necessity require the construction and operation of the TLSE Project, and pursuant to section 46(3) of the UCA, the Panel issues a CPCN to FEI for the TLSE Project, subject to the Panel's determination in Section 9.1 below.**

The Panel considered two key matters in its review of the TLSE Project: 1) the need to replace FEI's aging on-system peaking supply resource, and 2) the need to mitigate the identified resiliency risk.

The Panel finds that FEI has demonstrated that the Base Plant has reached the end of its service life. Further, the Panel finds that it is in the public interest to replace this asset with a new on-system peaking supply resource. As noted in the Decision, without an adequate peaking supply resource, FEI would not be able to reliably meet the demand of its customers on peak days. The Panel views that at least 1 Bcf of LNG storage and 200 MMcf/d of regasification capacity is the appropriate peaking supply resource.

The Panel considers, however, that incremental investments towards a larger capacity LNG storage tank and increased regasification capacity, above that which is necessary for the purpose of peaking supply, is also in the

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<sup>318</sup> FEI Final Argument, para. 428.

<sup>319</sup> The CEC Final Argument, para. 2; RCIA Final Argument, p. 6; BCSEA Final Argument, para. 1.

<sup>320</sup> MS2S Final Argument, p. 10.

<sup>321</sup> BCOAPO Final Argument, p. 17.

<sup>322</sup> Ibid., p. 2.

public interest as this would address FEI's identified resiliency risk. FEI has demonstrated that a winter-only no-flow event on the T-South pipeline system represents the greatest resiliency risk to FEI's system and that it must be mitigated. Accordingly, the Panel accepts the need to build a 3 Bcf LNG tank and 800 MMcf/d of regasification capacity, as well as the other components of the overall TLSE Project noted in the Decision.

The Panel finds FEI's assessment of alternative options and the impact of the TLSE Project on customer rates to be reasonable. Further, the Panel is satisfied that FEI's consultation and engagement with respect to the TLSE Project have been adequate to date.

Section 9.1 below discusses how the 3 Bcf of LNG storage volume will be allocated between gas supply and resiliency reserve

### **9.1 Allocation of LNG Storage Volume between Gas Supply and Resiliency Reserve**

FEI proposes to designate one third (i.e. 1 Bcf) of the 3 Bcf LNG storage tank volume as a gas supply resource, and to designate the remaining two thirds (i.e. 2 Bcf) as a resiliency reserve. FEI intends to consider the TLSE Project's resiliency reserve and gas supply allocations as part of its future ACP preparations. FEI files its ACP with the BCUC for acceptance each year, pursuant to section 14 of the BCUC Rules for Natural Gas Energy Supply Contracts.<sup>323</sup>

FEI acknowledges that the BCUC has jurisdiction to include terms in its CPCN addressing the allocation of LNG storage capacity, pursuant to section 46(3) of the UCA.<sup>324</sup> FEI submits that it has no objection to the BCUC specifying an allocation of the TLSE Project LNG tank for planning purposes as between a "resiliency reserve" and FEI's gas supply portfolio. However, FEI states it is critical that the term directing allocation of LNG storage capacity be focused on allocation for planning purposes so as to avoid a circumstance wherein FEI may need to make LNG storage capacity allocation decisions in response to unforeseen adverse supply conditions.<sup>325</sup> FEI must also be able to submit a request to the BCUC to change the directed allocation of LNG storage capacity.

Accordingly, FEI proposes the following term be added to the CPCN:

- *Subject to further order of the BCUC, once the TLSE Project is in-service, FEI must:*
  - *include 1 Bcf from the TLSE tank in its subsequent ACPs; and*
  - *allocate 2 Bcf of the TLSE tank as a "resiliency reserve" that is set aside for addressing a potential interruption of firm service.*
- *For clarity, nothing in this order is intended to:*
  - *restrict FEI's use of the "resiliency reserve" to a no-flow event on T-South or otherwise,*
  - *prevent FEI from using LNG allocated to gas supply for resiliency purposes where FEI believes, based on the available information, that the alternative to using it is the potential interruption of firm service.*
  - *FEI may apply to the BCUC if it believes that the allocation for planning purposes should be changed.*

FEI does not, however, anticipate proposing regular adjustments to the allocation of LNG storage volume between gas supply and resiliency reserve. Any allocation changes would generally be considered in response to material changes in circumstances, including changing load conditions over the lifespan of the TLSE Project. For example, under a hypothetical scenario where FEI's load has reduced dramatically, a resiliency reserve smaller than 2 Bcf may adequately mitigate the risk posed by a winter T-South no-flow event. Under those

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<sup>323</sup> Exhibit B-63, BCUC IR 129.3.

<sup>324</sup> FEI Post-Adjournment Final Argument, para. 436.

<sup>325</sup> Ibid., para. 437.

circumstances, FEI states it would consider reallocating some of the resiliency reserve to gas supply. FEI's assessment would be driven by what is in the best interest of FEI's customers at such time.<sup>326</sup>

With respect to the potential use of LNG for marine fueling or export, FEI clarified that it intends to serve its marine fueling customers using the existing Tilbury 1A storage tank.<sup>327</sup> Similarly, FEI confirmed that it does not have any plans to utilize the TLSE LNG tank to provide LNG storage capacity for FortisBC Holding's Phase 2 Expansion Liquefaction Facility.<sup>328</sup> FEI explains that the capacity of the Phase 2 Expansion Liquefaction Facility continues to be evaluated; should it be sized to serve regulated sales of LNG under RS 46, FEI would continue to rely on the existing Tilbury 1A LNG storage tank. Should the Phase 2 Expansion Liquefaction Facility be sized to support the export market, FEI could configure the use of either the TLSE LNG tank or the existing Tilbury 1A storage tank. In any event, use of either the TLSE LNG tank or the existing Tilbury 1A tank for export purposes would be subject to further BCUC regulatory oversight.<sup>329</sup>

### *Positions of the Parties*

BCSEA supports the inclusion of a term in the CPCN specifying the allocation of LNG storage capacity, pursuant to section 46(3) of the UCA.<sup>330</sup>

The CEC generally agrees with FEI's proposal to have the BCUC include terms in the CPCN it issues to FEI that direct how the TLSE Project LNG storage tank volume is allocated, between resiliency reserve and gas supply.<sup>331</sup> The CEC recommends that the BCUC not try to regulate these allocations but should have accountability reporting on a regular basis to enable BCUC oversight.<sup>332</sup>

RCIA submits that FEI could use a portion of the 2 Bcf resiliency reserve as a mitigation activity within the Gas Supply Mitigation Incentive Program, if it deemed that 2 Bcf was no longer needed for resiliency purposes. It would be inappropriate, however, for FEI to use the resiliency reserve to generate revenue under the assumption that it is no longer necessary to hold the full amount of reserves for resiliency. Therefore, it would be in the public interest for the BCUC to stipulate the size of the resiliency reserve.<sup>333</sup>

### *Panel Determination*

Having found that the issuance of a CPCN for the TLSE Project is in the public interest and a necessity, the Panel considers it important to ensure that the LNG resource provided by the TLSE Project remain available to serve the needs of FEI's ratepayers. In short, the benefits of this resource, whose costs will be borne by ratepayers, must continue to accrue to ratepayers to serve their peaking supply and resiliency needs as opposed to FEI's shareholder. With that in mind, the Panel orders that the following conditions be attached to the issuance of the CPCN to FEI for the TLSE Project:

- *Subject to further order of the BCUC, once the TLSE Project is in-service, FEI must:*
  - *include 1 Bcf from the TLSE storage tank for gas supply in its subsequent ACPs; and*
  - *allocate 2 Bcf of the TLSE storage tank as a "resiliency reserve" that is set aside by FEI for addressing a potential interruption of firm service on FEI's system.*

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<sup>326</sup> Exhibit B-63, BCUC IR 129.3.

<sup>327</sup> Exhibit B-69, BCUC IR 146.2.

<sup>328</sup> Ibid., BCUC IR 146.4.

<sup>329</sup> Exhibit B-69, BCUC IR 146.4.

<sup>330</sup> BCSEA Final Argument, para. 49.

<sup>331</sup> The CEC Final Argument, para. 179.

<sup>332</sup> Ibid., para. 182.

<sup>333</sup> RCIA Final Argument, p. 24.

- *For clarity, nothing in this order is intended to:*
  - *restrict FEI's use of the "resiliency reserve" to addressing a no-flow event on T-South or other potential interruption of firm service;*
  - *prevent FEI from using LNG allocated to gas supply for resiliency purposes where FEI reasonably determines, based on the available information, that the alternative to using it is the potential interruption of firm service on its system; or*
  - *permit FEI and/or its affiliates to use LNG from the TLSE storage tank for LNG transportation service customers, export or other related purposes unless otherwise approved by the BCUC.*
- *FEI may apply to the BCUC for approval of changes to the above allocation for planning purposes.*

## **9.2 TLSE Project Reporting**

**The Panel directs FEI to provide progress reporting on the TLSE Project as stipulated in Appendix C to this decision.**

**DATED** at the City of Vancouver, in the Province of British Columbia, this 27th day of October 2025.

*Electronically signed by Anna Fung*

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A. K. Fung, KC  
Panel Chair/Commissioner

*Electronically signed by Tom Loski*

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T. A. Loski  
Commissioner

*Electronically signed by Ana Dennier*

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A. C. Dennier  
Commissioner

FortisBC Energy Inc.  
Application for a Certificate of Public Convenience and Necessity  
for the Tilbury Liquefied Natural Gas Storage Expansion Project

### GLOSSARY AND ACRONYMS

| Acronym/Glossary                 | Description                                                                                              |
|----------------------------------|----------------------------------------------------------------------------------------------------------|
| 2017 LTGRP Decision              | FortisBC Energy Inc. 2017 Long Term Gas Resource Plan Decision and Order G-39-19 dated February 25, 2019 |
| 2022 LTGRP Decision              | FortisBC Energy Inc. 2022 Long Term Gas Resource Plan Decision and Order G-78-24 dated March 20, 2024    |
| 2023 Adjournment Decision        | Order G-62-23 dated March 23, 2023                                                                       |
| ACP                              | Annual Contracting Plan                                                                                  |
| AFUDC                            | Allowance For Funds Used During Construction                                                             |
| ALARP                            | As Low As Reasonably Practicable                                                                         |
| AMI                              | Advanced Metering Infrastructure                                                                         |
| Assessed Vulnerabilities, or AVs | Vulnerabilities associated with the most significant potential customer outages                          |
| Base Plant                       | The original Tilbury base plant                                                                          |
| BC EAO                           | BC Environmental Assessment Office                                                                       |
| Bcf                              | billion cubic feet                                                                                       |
| BCOAPO                           | British Columbia Old Age Pensioners' Organization et al.                                                 |
| BCSEA                            | BC Sustainable Energy Association                                                                        |
| BCUC                             | British Columbia Utilities Commission                                                                    |
| CEA                              | <i>Clean Energy Act</i>                                                                                  |
| CER                              | Canada Energy Regulator                                                                                  |
| Concentric                       | Concentric Advisors                                                                                      |

| Acronym/Glossary             | Description                                                                                                                                       |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| CPCN                         | Certificate of Public Convenience and Necessity                                                                                                   |
| DEP                          | Diversified Energy Planning Scenario                                                                                                              |
| EA                           | Environmental Assessment                                                                                                                          |
| Enbridge                     | Enbridge Inc.                                                                                                                                     |
| FEI                          | FortisBC Energy Inc.                                                                                                                              |
| FortisBC Holdings            | FortisBC Holdings Inc.                                                                                                                            |
| GCOC                         | Generic Cost of Capital                                                                                                                           |
| GDP                          | Gross Domestic Product                                                                                                                            |
| GHG                          | Greenhouse Gas                                                                                                                                    |
| GJ                           | Gigajoule                                                                                                                                         |
| GSMIP                        | Gas Supply Mitigation Incentive Program                                                                                                           |
| GT&Cs                        | General Terms and Conditions                                                                                                                      |
| IRs                          | Information Requests                                                                                                                              |
| JANA                         | JANA Corporation                                                                                                                                  |
| LNG                          | Liquefied Natural Gas                                                                                                                             |
| LTGRP                        | Long-Term Gas Resource Plan                                                                                                                       |
| Minimum Resiliency Objective | Specific minimum resiliency objective for prospective planning                                                                                    |
| MS2S                         | Citizens for My Sea to Sky Society                                                                                                                |
| Original Application         | Application for the approval of a Certificate of Public Convenience and Necessity for the Tilbury Liquefied Natural Gas Storage Expansion Project |
| P&R Plan                     | Preservation & Restoration Plan                                                                                                                   |
| PHMSA                        | Pipeline and Hazardous Material Safety Administration                                                                                             |

| Acronym/Glossary          | Description                                                                     |
|---------------------------|---------------------------------------------------------------------------------|
| PwC Report                | Estimating the economic impact of potential natural gas outage scenarios Report |
| RCIA                      | Residential Consumer Intervener Association                                     |
| RS 46                     | Rate Schedule 46                                                                |
| Sentinel Energy           | Sentinel Energy Management Inc.                                                 |
| Supplemental Alternatives | Expanded alternatives analysis that included 13 project options                 |
| Supplemental Evidence     | Additional evidence filed by FEI on October 24, 2024                            |
| The CEC                   | Commercial Energy Consumers Association of British Columbia                     |
| TLSE Project              | Tilbury Liquefied Natural Gas Storage Expansion Project                         |
| TSB                       | Transportation Safety Board                                                     |
| T-South                   | T-South pipeline                                                                |
| TWN                       | Tsleil-Waututh Nation                                                           |
| UCA                       | <i>Utilities Commission Act</i>                                                 |
| WACC                      | Weighted Average Cost of Capital                                                |

FortisBC Energy Inc.  
Application for a Certificate of Public Convenience and Necessity  
for the Tilbury Liquefied Natural Gas Storage Expansion Project

**EXHIBIT LIST**

**Exhibit No.**                      **Description**

*COMMISSION DOCUMENTS*

|      |                                                                                                                                                                                                                                 |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-1  | Letter dated January 11, 2021 – Appointment of Panel for the review of FortisBC Energy Inc.'s Application for a Certificate of Public Convenience and Necessity for the Tilbury Liquefied Natural Gas Storage Expansion Project |
| A-2  | Letter dated January 26, 2021 – BCUC Order G-26-21 establishing the regulatory timetable                                                                                                                                        |
| A-3  | Letter dated February 17, 2021 – BCUC providing guidance and information regarding upcoming Workshop                                                                                                                            |
| A-4  | Letter dated March 17, 2021 – BCUC Order G-80-21 suspending the regulatory timetable                                                                                                                                            |
| A-5  | Letter dated March 22, 2021 – BCUC acknowledging FEI's filing dated March 18, 2021                                                                                                                                              |
| A-6  | Letter dated April 1, 2021 – BCUC providing information to FEI for an <i>in camera</i> technical session scheduled for Wednesday, April 7, 2021 for the Panel, BCUC staff and legal counsel, and FEI staff and legal counsel    |
| A-7  | Letter dated April 14, 2021 – BCUC outlining further process concerning security-sensitive information                                                                                                                          |
| A-8  | Letter dated May 12, 2021 – BCUC Order G-147-21 with Reasons for Decision                                                                                                                                                       |
| A-9  | Letter dated May 27, 2021 – BCUC Order G-161-21 with Reasons for Decision                                                                                                                                                       |
| A-10 | Letter dated May 28, 2021 – BCUC Order G-165-21 establishing a further regulatory timetable                                                                                                                                     |
| A-11 | Letter dated June 16, 2021 – BCUC Order G-185-21 amending the regulatory timetable                                                                                                                                              |
| A-12 | Letter dated June 17, 2021 – BCUC Information Request No. 1 to FEI                                                                                                                                                              |
| A-13 | <b>CONFIDENTIAL</b> Letter dated June 17, 2021 - BCUC Confidential Information Request No. 1 to FEI                                                                                                                             |

|        |                                                                                                                                                   |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| A-14   | Letter dated July 8, 2021 – BCUC response to the CEC’s extension request to file Information Requests                                             |
| A-15   | Letter dated September 8, 2021 – BCUC response to the FEI’s extension request to file responses to BCUC and Intervener Information Requests No. 1 |
| A-16   | Letter dated September 27, 2021 – BCUC addressing the filing of intervener evidence and matters to be addressed at the procedural conference      |
| A-17   | Letter dated October 6, 2021 – BCUC Information Request No. 2 to FEI                                                                              |
| A-18   | <b>CONFIDENTIAL</b> Letter dated October 6, 2021 - BCUC Confidential Information Request No. 2 to FEI                                             |
| A-19   | Letter dated October 6, 2021 – BCUC response to the CEC’s extension request to file Information Request No. 2                                     |
| A-20   | Letter dated October 8, 2021 – BCUC response to the CEC’s further extension request to file Information Request No. 2                             |
| A-21   | Letter dated November 16, 2021 – BCUC providing Procedural Conference information                                                                 |
| A-22   | Letter dated December 16, 2021 – BCUC Update after Procedural Conference to follow                                                                |
| A-23   | Letter dated January 13, 2022 – BCUC Order G-9-22 establishing a further regulatory timetable with Reasons for Decision                           |
| A-24   | Letter dated January 19, 2022 – Panel Information Request No. 1 to FEI                                                                            |
| A-25   | <b>CONFIDENTIAL</b> - Letter dated January 19, 2022 – Panel Confidential Information Request No. 1 to FEI                                         |
| A-25-1 | <b>CONFIDENTIAL</b> - Letter dated January 24, 2022 – Amended Panel Confidential Information Request No. 1 to FEI                                 |
| A-26   | Letter dated February 10, 2022 – BCUC Order G-29-22 amending the regulatory timetable with reasons for decision                                   |
| A-27   | Letter dated February 25, 2022 – BCUC Order G-51-22 amending the regulatory timetable                                                             |
| A-28   | Letter dated March 1, 2022 – BCUC Order G-58-22 amending the regulatory timetable                                                                 |
| A-29   | Letter dated March 29, 2022 – BCUC providing Oral Hearing Information                                                                             |
| A-30   | Letter dated April 12, 2022 – BCUC Order G-100-22 amending the regulatory timetable                                                               |
| A-31   | Letter dated April 21, 2022 – BCUC Information Request No. 1 to RCIA on Intervener Evidence                                                       |

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| A-32 | Letter dated April 29, 2022 – BCUC Order G-113-22 amending the regulatory timetable                                                           |
| A-33 | Letter dated May 2, 2022 – BCUC Information Request No. 1 to TWN on Written Evidence                                                          |
| A-34 | Letter dated May 3, 2022 – BCUC Order G-117-22 amending the regulatory timetable                                                              |
| A-35 | Letter dated May 16, 2022 – BCUC Order G-132-22 amending the regulatory timetable with Reasons for Decision                                   |
| A-36 | Letter dated May 20, 2022 – BCUC confirming the regulatory timetable established in Order G-132-22                                            |
| A-37 | Letter dated June 23, 2022 – BCUC Information Request No. 3 to FEI                                                                            |
| A-38 | Letter dated July 25, 2022 – BCUC Order G-208-22 with a regulatory timetable and reasons for decision                                         |
| A-39 | Letter dated August 12, 2022 – BCUC response to Musqueam Indian Band's request to intervene                                                   |
| A-40 | Letter dated August 12, 2022 – BCUC Order G-223-22 amending the regulatory timetable                                                          |
| A-41 | Letter dated August 23, 2022 – BCUC Information Request No. 4 to FEI                                                                          |
| A-42 | Letter dated September 26, 2022 – BCUC Order G-267-22 establishing a further regulatory timetable                                             |
| A-43 | Letter dated November 22, 2022 – BCUC response to BCOAPO extension request                                                                    |
| A-44 | Letter dated March 23, 2023 – BCUC Decision and Order G-62-23 adjourning the proceeding                                                       |
| A-45 | Letter dated September 27, 2023 – BCUC amending the Panel and requesting for comments regarding the appointment of an additional panel member |
| A-46 | Letter dated December 3, 2024 – BCUC amending the Panel                                                                                       |
| A-47 | Letter dated December 4, 2024 – BCUC Order G-324-24 establishing a further regulatory timetable                                               |
| A-48 | Letter dated January 28, 2025 – BCUC Order G-19-25 regarding FEI's confidentiality request                                                    |
| A-49 | February 6, 2025 – BCUC Information Request No. 5 to FEI                                                                                      |
| A-50 | April 24, 2025 – BCUC Information Request No. 6 to FEI                                                                                        |

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| A-51 | <b>RESTRICTED CONFIDENTIAL</b> – April 24, 2025 – BCUC Confidential Information Request No. 3 to FEI |
| A-52 | June 4, 2025 – BCUC Guidance for Final Arguments                                                     |

*COMMISSION STAFF DOCUMENTS*

|      |                                                                                                                                                           |
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| A2-1 | Letter dated August 12, 2022 – BCUC Staff submission: Press Release - Musqueam Indian Band and FortisBC Holdings Inc. sign Tilbury LNG Projects Agreement |
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*APPLICANT DOCUMENTS*

|         |                                                                                                                                                                                                                                                    |
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| B-1     | <b>REDACTED - FORTISBC ENERGY INC. (FEI OR THE COMPANY)</b> - Application for a Certificate of Public Convenience and Necessity (CPCN) for the Tilbury Liquefied Natural Gas (LNG) Storage Expansion Project (Application) dated December 29, 2020 |
| B-1-1   | <b>CONFIDENTIAL</b> - FEI Application for a CPCN for the Tilbury LNG Storage Expansion Project dated December 29, 2020                                                                                                                             |
| B-1-2   | <b>CONFIDENTIAL</b> - Letter dated January 27, 2021 – FEI submitting confidential Unredacted Highlighted Application                                                                                                                               |
| B-1-3   | Letter dated March 25, 2021 – FEI submitting revised redacted Application – Public                                                                                                                                                                 |
| B-1-3-1 | <b>CONFIDENTIAL</b> – Letter dated March 25, 2021 – FEI submitting revised confidential Application                                                                                                                                                |
| B-1-4   | Letter dated May 19, 2021 – FEI submitting Updated Public Application                                                                                                                                                                              |
| B-2     | <b>CONFIDENTIAL</b> – Letter dated February 26, 2021 - FEI submitting confidential Financial Models                                                                                                                                                |
| B-3     | Letter dated March 4, 2021 - FEI submitting Workshop Agenda                                                                                                                                                                                        |
| B-4     | Letter dated March 11, 2021 - FEI submitted Workshop Presentation                                                                                                                                                                                  |
| B-5     | Letter dated March 11, 2021 - FEI submitted Workshop Guidehouse Presentation                                                                                                                                                                       |
| B-6     | Letter dated March 18, 2021 – FEI submitting update on timing for revised redacted Application                                                                                                                                                     |
| B-7     | <b>CONFIDENTIAL</b> – Letter dated April 7, 2021 - FEI submitting confidential In-Camera Technical Session Material                                                                                                                                |

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| B-8    | <b>CONFIDENTIAL</b> - Letter dated April 19, 2021 - FEI submitting proposed redactions to confidential In-Camera Technical Session Transcript and Materials |
| B-9    | Letter dated April 20, 2021 - FEI submitting notice of redacted confidential In-Camera Technical Session Transcript and Materials to Intervener Counsels    |
| B-10   | Letter dated May 3, 2021 – FEI submitting reply to Intervener Counsel Submissions regarding security sensitive information                                  |
| B-11   | Letter dated May 6, 2021 – FEI submitting response to Sentinel Energy submission request for access to security sensitive information                       |
| B-12   | Letter dated May 21, 2021 – FEI submitting reply to Intervener submissions on Non-Disclosure Agreement                                                      |
| B-13   | Letter dated June 14, 2021 – FEI submitting request to amend the Regulatory Timetable                                                                       |
| B-14   | Letter dated September 7, 2021 – FEI submitting request for extension to respond to Information Requests No. 1                                              |
| B-15   | Letter dated September 13, 2021 – FEI submitting redacted response to BCUC Information Request No. 1                                                        |
| B-15-1 | <b>SECURITY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to BCUC Information Request No. 1                                  |
| B-16   | Letter dated September 13, 2021 – FEI submitting redacted response to BCUC Confidential Information Request No. 1                                           |
| B-16-1 | <b>COMMERCIALLY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to BCUC Confidential Information Request No. 1                 |
| B-16-2 | <b>SECURITY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to BCUC Confidential Information Request No. 1                     |
| B-17   | Letter dated September 13, 2021 – FEI submitting response to BCOAPO Information Request No. 1                                                               |
| B-18   | Letter dated September 13, 2021 – FEI submitting response to BCSEA Information Request No. 1                                                                |
| B-19   | Letter dated September 13, 2021 – FEI submitting response to CEC Information Request No. 1                                                                  |
| B-20   | Letter dated September 13, 2021 – FEI submitting redacted response to CEC Confidential Information Request No. 1                                            |

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| B-20-1 | <b>COMMERCIALLY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to CEC Confidential Information Request No. 1  |
| B-20-2 | <b>SECURITY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to CEC Confidential Information Request No. 1      |
| B-21   | Letter dated September 13, 2021 – FEI submitting response to MS2S Information Request No. 1                                                 |
| B-22   | Letter dated September 13, 2021 – FEI submitting redacted response to RCIA Information Request No. 1                                        |
| B-22-1 | <b>SECURITY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to RCIA Information Request No. 1                  |
| B-23   | Letter dated September 13, 2021 – FEI submitting redacted response to RCIA Confidential Information Request No. 1                           |
| B-23-1 | <b>COMMERCIALLY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to RCIA Confidential Information Request No. 1 |
| B-23-2 | <b>SECURITY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to RCIA Confidential Information Request No. 1     |
| B-24   | Letter dated September 13, 2021 – FEI submitting redacted response to Sentinel Information Request No. 1                                    |
| B-24-1 | <b>COMMERCIALLY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to Sentinel Information Request No. 1          |
| B-24-2 | <b>SECURITY CONFIDENTIAL</b> - Letter dated September 13, 2021 – FEI submitting response to Sentinel Information Request No. 1              |
| B-25   | Letter dated September 13, 2021 – FEI submitting response to TWN Information Request No. 1                                                  |
| B-26   | Letter dated November 10, 2021 – FEI submitting redacted response to BCUC Information Request No. 2                                         |
| B-26-1 | <b>COMMERCIALLY CONFIDENTIAL</b> - Letter dated November 10, 2021 – FEI submitting response to BCUC Information Request No. 2               |
| B-26-2 | <b>SECURITY CONFIDENTIAL</b> - Letter dated November 10, 2021 – FEI submitting response to BCUC Information Request No. 2                   |
| B-27   | Letter dated November 10, 2021 – FEI submitting redacted response to BCUC Confidential Information Request No. 2                            |

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| B-27-1 | <b>COMMERCIALLY CONFIDENTIAL</b> - Letter dated November 10, 2021 – FEI submitting response to BCUC Confidential Information Request No. 2 |
| B-27-2 | <b>SECURITY CONFIDENTIAL</b> - Letter dated November 10, 2021 – FEI submitting response to BCUC Confidential Information Request No. 2     |
| B-28   | Letter dated November 10, 2021 – FEI submitting response to RCIA Information Request No. 2                                                 |
| B-29   | Letter dated November 10, 2021 – FEI submitting redacted response to RCIA Confidential Information Request No. 2                           |
| B-29-1 | <b>SECURITY CONFIDENTIAL</b> - Letter dated November 10, 2021 – FEI submitting response to RCIA Confidential Information Request No. 2     |
| B-30   | Letter dated November 10, 2021 – FEI submitting response to BCSEA Information Request No. 2                                                |
| B-31   | Letter dated November 10, 2021 – FEI submitting response to MS2S Information Request No. 2                                                 |
| B-32   | Letter dated November 10, 2021 – FEI submitting redacted response to BCOAPO Information Request No. 2                                      |
| B-32-1 | <b>COMMERCIALLY CONFIDENTIAL</b> - Letter dated November 10, 2021 – FEI submitting response to BCOAPO Information Request No. 2            |
| B-33   | Letter dated November 10, 2021 – FEI submitting response to CEC Information Request No. 2                                                  |
| B-34   | Letter dated November 10, 2021 – FEI submitting public response to CEC Confidential Information Request No. 2                              |
| B-35   | Letter dated November 10, 2021 – FEI submitting response to Sentinel Information Request No. 2                                             |
| B-36   | Letter dated November 10, 2021 – FEI submitting response to TWN Information Request No. 2                                                  |
| B-37   | Letter dated November 23, 2021 – FEI submission for Procedural Conference                                                                  |
| B-38   | Letter dated March 1, 2022 – FEI submitting extension request to file responses to Panel Information Requests No. 1                        |
| B-39   | Letter dated March 4, 2022 – FEI submitting response to BCUC Panel Information Request No. 1                                               |
| B-40   | <b>CONFIDENTIAL</b> - Letter dated March 4, 2022 – FEI submitting response to confidential BCUC Panel Information Request No. 1            |

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| B-41   | Letter dated April 21, 2022 – FEI Information Request No. 1 to RCIA Intervener Evidence                                                                                                  |
| B-42   | Letter dated May 2, 2022 – FEI submitting Notice of Intent to file Rebuttal Evidence                                                                                                     |
| B-43   | <b>CONFIDENTIAL</b> - Letter dated May 19, 2022 – FEI submitting confidential Information Request No. 1 to TWN on Oral Evidence                                                          |
| B-44   | Letter dated June 2, 2022 – FEI submitting Rebuttal Evidence to TWN Oral Evidence                                                                                                        |
| B-45   | Letter dated June 2, 2022 – FEI submitting response to MS2S Exhibit C3-9                                                                                                                 |
| B-46   | <b>CONFIDENTIAL</b> - Letter dated June 2, 2022 – FEI submitting confidential Rebuttal Evidence to RCIA Evidence                                                                         |
| B-46-1 | <b>REDACTED</b> - Letter dated June 2, 2022 – FEI submitting redacted Rebuttal Evidence to RCIA Evidence                                                                                 |
| B-47   | Letter dated June 27, 2022 – FEI submission on further process                                                                                                                           |
| B-48   | Letter dated July 14, 2022 – FEI response to BCSEA Information Request No. 3 on Rebuttal Evidence                                                                                        |
| B-48-1 | <b>CONFIDENTIAL</b> - Letter dated July 14, 2022 – FEI response to BCSEA Information Request No. 3 on Rebuttal Evidence confidential Attachment 14.2                                     |
| B-49   | Letter dated July 14, 2022 – FEI response to TWN Information Request No. 3 on Rebuttal Evidence                                                                                          |
| B-50   | Letter dated July 14, 2022 – FEI response to RCIA Information Request No. 3 on Rebuttal Evidence                                                                                         |
| B-51   | Letter dated July 14, 2022 – FEI response to CEC Information Request No. 3 on Rebuttal Evidence                                                                                          |
| B-51-1 | <b>CONFIDENTIAL</b> - Letter dated July 14, 2022 – FEI response to CEC Information Request No. 3 on Rebuttal Evidence confidential responses to Questions 119.1 and 120.2 Pages 8 and 10 |
| B-51-2 | <b>UNREDACTED</b> - Letter dated September 16, 2022 – FEI unredacted response to CEC Information Request No. 3 on Rebuttal Evidence confidential responses to Question 119.1 Page 8      |
| B-52   | Letter dated July 14, 2022 – FEI response to BCUC Information Request No. 3 on Rebuttal Evidence                                                                                         |
| B-53   | Letter dated July 14, 2022 – FEI reply submission on Further Process                                                                                                                     |

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| B-54   | <b>PUBLIC</b> - Letter dated September 16, 2022 – FEI response to BCUC Information Request No. 4                                    |
| B-54-1 | <b>CONFIDENTIAL</b> - Letter dated September 16, 2022 – FEI confidential response to BCUC Information Request No. 4                 |
| B-54-2 | <b>CONFIDENTIAL</b> - Letter dated September 16, 2022 – FEI confidential response to BCUC Information Request No. 4 for Interveners |
| B-55   | Letter dated September 16, 2022 – FEI response to BCOAPO Information Request No. 4                                                  |
| B-56   | Letter dated September 16, 2022 – FEI response to BCSEA Information Request No. 4                                                   |
| B-57   | Letter dated September 16, 2022 – FEI response to RCIA Information Request No. 4                                                    |
| B-58   | Letter dated September 16, 2022 – FEI response to CEC Information Request No. 4                                                     |
| B-59   | Letter dated September 16, 2022 – FEI response to TWN Information Request No. 4                                                     |
| B-60   | <b>PUBLIC</b> - Letter dated October 24, 2024 – FEI submitting public Supplemental Evidence                                         |
| B-60-1 | <b>CONFIDENTIAL</b> - Letter dated October 24, 2024 – FEI submitting confidential Supplemental Evidence                             |
| B-61   | <b>PUBLIC</b> - Letter dated October 24, 2024 – FEI submitting redacted 2024 Gas System Resiliency Plan                             |
| B-61-1 | <b>SECURITY CONFIDENTIAL</b> - Letter dated October 24, 2024 – FEI submitting confidential 2024 Gas System Resiliency Plan          |
| B-62   | Letter dated January 9, 2025 – FEI reply submission on confidentiality request responses                                            |
| B-63   | <b>PUBLIC</b> – Letter dated March 20, 2025 – FEI submitting response to BCUC Information Request No. 5 – Redacted                  |
| B-63-1 | <b>COMMERCIAL CONFIDENTIAL</b> – Letter dated March 20, 2025 – FEI submitting response to BCUC Information Request No. 5            |
| B-63-2 | <b>RESTRICTED CONFIDENTIAL</b> – Letter dated March 20, 2025 – FEI submitting response to BCUC Information Request No. 5            |

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| B-64   | Letter dated March 20, 2025 – FEI submitting response to BCOAPO Information Request No. 5                                                                        |
| B-65   | Letter dated March 20, 2025 – FEI submitting response to BCSEA Information Request No. 5                                                                         |
| B-66   | Letter dated March 20, 2025 – FEI submitting response to CEC Information Request No. 5                                                                           |
| B-67   | Letter dated March 20, 2025 – FEI submitting response to MS2S Information Request No. 5                                                                          |
| B-68   | <b>PUBLIC</b> – Letter dated March 20, 2025 – FEI submitting response to RCIA Information Request No. 5 - Redacted                                               |
| B-68-1 | <b>RESTRICTED CONFIDENTIAL</b> – Letter dated March 20, 2025 – FEI submitting response to RCIA Information Request No. 5                                         |
| B-69   | Letter dated May 22, 2025 – FEI submitting response to BCUC Information Request No. 6                                                                            |
| B-69-1 | <b>CONFIDENTIAL</b> - Letter dated May 22, 2025 – FEI submitting confidential attachment to the response to BCUC Information Request No. 6                       |
| B-69-2 | <b>RESTRICTED CONFIDENTIAL</b> – Letter dated May 22, 2025 – FEI submitting restricted confidential attachment to the response to BCUC Information Request No. 6 |
| B-70   | Letter dated May 22, 2025 – FEI submitting response to BCOAPO Information Request No. 6                                                                          |
| B-71   | Letter dated May 22, 2025 – FEI submitting response to BCSEA Information Request No. 6                                                                           |
| B-72   | Letter dated May 22, 2025 – FEI submitting response to CEC Information Request No. 6                                                                             |
| B-73   | Letter dated May 22, 2025 – FEI submitting response to MS2S Information Request No. 6                                                                            |
| B-74   | Letter dated May 22, 2025 – FEI submitting response to RCIA Information Request No. 6                                                                            |
| B-75   | <b>PUBLIC</b> – Letter dated May 22, 2025 – FEI submitting public response to BCUC Confidential Information Request No. 3                                        |
| B-75-1 | <b>CONFIDENTIAL</b> – Letter dated May 22, 2025 – FEI submitting confidential response to BCUC Confidential Information Request No. 3                            |

## INTERVENER DOCUMENTS

|         |                                                                                                                                              |
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| C1-1    | <b>RESIDENTIAL CONSUMER INTERVENOR GROUP (RCIG)</b> – Letter dated January 29, 2021 Request to Intervene by Sam Mason                        |
| C1-2    | Letter dated March 10, 2021 – RCIG submitting Confidential Declaration and Undertaking for Brady Ryall and Sam Mason                         |
| C1-3    | Letter dated April 20, 2021 – RCIA submitting notice of Legal Representation and Confidential Declaration and Undertaking for Frederick Cass |
| C1-4    | <b>CONFIDENTIAL</b> - Letter dated April 28, 2021 – RCIA submitting Counsel Submissions regarding security sensitive information             |
| C1-5    | Letter dated May 18, 2021 – RCIA submitting comments on FEI Non-Disclosure Agreement                                                         |
| C1-6    | Letter dated June 9, 2021 – RCIA submitting Non-Disclosure Agreement and Undertakings for Brady Ryall and Samuel Mason                       |
| C1-7    | Letter dated July 9, 2021 – RCIA submitting Information Request No.1 to FEI                                                                  |
| C1-7-1  | <b>CONFIDENTIAL</b> - Letter dated July 9, 2021 – RCIA submitting confidential Information Request No.1 to FEI                               |
| C1-8    | Letter dated October 6, 2021 – RCIA submitting Information Request No. 2 to FEI                                                              |
| C1-8-1  | <b>SECURITY CONFIDENTIAL</b> – Letter dated October 6, 2021 – RCIA submitting Confidential Information Request No. 2 to FEI                  |
| C1-9    | Letter dated January 21, 2022 – RCIA submission regarding TWN request to exclude interveners from the Oral Tsleil-Waututh Knowledge Hearing  |
| C1-10   | Letter dated March 18, 2022 – RCIA submitting evidence                                                                                       |
| C1-10-1 | <b>CONFIDENTIAL</b> - Letter dated March 18, 2022 – RCIA submitting confidential unredacted evidence                                         |
| C1-11   | Letter dated May 2, 2022 – RCIA Information Request No. 1 to TWN on Written Evidence                                                         |
| C1-12   | Letter dated May 6, 2021 – RCIA submission regarding TWN request for Redacted Transcript to Remain Confidential                              |
| C1-13   | Letter dated May 11, 2022 – RCIA submitting responses to CEC Information Request No. 1                                                       |

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| C1-14   | Letter dated May 11, 2022 – RCIA submitting responses to FEI Information Request No. 1                                            |
| C1-15   | Letter dated May 11, 2022 – RCIA submitting responses to BCSEA Information Request No. 1                                          |
| C1-16   | <b>CONFIDENTIAL</b> - Letter dated May 11, 2022 – RCIA submitting confidential responses to BCUC Information Request No. 1        |
| C1-16-1 | <b>PUBLIC</b> - Letter dated May 11, 2022 – RCIA submitting redacted confidential responses to BCUC Information Request No. 1     |
| C1-17   | Letter dated May 18, 2022 – RCIA will not be submitting Information Requests to TWN on Oral Evidence                              |
| C1-18   | Letter dated June 23, 2022 – RCIA submitting Information Request No. 3 to FEI on Rebuttal Evidence                                |
| C1-19   | Letter dated July 5, 2022 – RCIA submitting comment on further process                                                            |
| C1-20   | Letter dated September 1, 2022 – RCIA submitting Information Request No. 4 to FEI                                                 |
| C1-21   | Letter dated November 6, 2024 – RCIA submitting Confidentiality Declaration and Undertaking Forms                                 |
| C1-22   | Letter dated December 24, 2024 – RCIA submitting confirmation of continued participation                                          |
| C1-23   | Letter dated January 3, 2025 – RCIA submission on FEI confidentiality requests                                                    |
| C1-24   | Letter dated February 13, 2025 – RCIA submitting Information Request No. 5 to FEI                                                 |
| C1-25   | Letter dated April 30, 2025 – RCIA submitting Information Request No. 6 to FEI                                                    |
| C2-1    | <b>BC SUSTAINABLE ENERGY ASSOCIATION (BCSEA)</b> – Letter dated January 30, 2021 Request to Intervene by William Andrews          |
| C2-2    | Letter dated April 12, 2021 – BCSEA submitting Confidential Declaration and Undertakings for William Andrews and Thomas Hackney   |
| C2-3    | <b>CONFIDENTIAL</b> - Letter dated April 28, 2021 – BCSEA submitting Counsel Submissions regarding security sensitive information |

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| C2-4  | Letter dated May 19, 2021 – BCSEA submitting comments on FEI Non-Disclosure Agreement                                                        |
| C2-5  | Letter dated July 9, 2021 – BCSEA submitting Information Request No.1 to FEI                                                                 |
| C2-6  | Letter dated October 12, 2021 – BCSEA submitting Information Request No. 2 to FEI                                                            |
| C2-7  | Letter dated January 21, 2022 – BCSEA submission regarding TWN request to exclude interveners from the Oral Tsleil-Waututh Knowledge Hearing |
| C2-8  | Letter dated May 2, 2022 – BCSEA Information Request No. 1 to TWN on Written Evidence                                                        |
| C2-9  | Letter dated April 21, 2022 – BCSEA Information Request No. 1 to RCIA on Written Evidence                                                    |
| C2-10 | Letter dated May 5, 2021 – BCSEA submission regarding TWN request for Redacted Transcript to Remain Confidential                             |
| C2-11 | Letter dated May 17, 2021 – BCSEA will not be submitting Information Requests to TWN regarding TWN Oral Evidence                             |
| C2-12 | Letter dated June 23, 2022 – BCSEA Information Request No. 3 to FEI                                                                          |
| C2-13 | Letter dated July 5, 2022 – BCSEA submitting comment on further process                                                                      |
| C2-14 | Letter dated August 30, 2022 – BCSEA Information Request No. 4 to FEI                                                                        |
| C2-15 | Letter dated October 3, 2023 – BCSEA submission in response to panel amendment                                                               |
| C2-16 | Letter dated December 12, 2024 – BCSEA submitting confirmation of continued intervener participation                                         |
| C2-17 | Letter dated January 3, 2025 – BCSEA submission on FEI confidentiality requests                                                              |
| C2-18 | Letter dated February 13, 2025 – BCSEA submitting Information Request No. 5 to FEI                                                           |
| C2-19 | Letter dated May 1, 2025 – BCSEA submitting Information Request No. 6 to FEI                                                                 |
| C3-1  | <b>CITIZENS FOR MY SEA TO SKY SOCIETY (MS2S)</b> – Letter dated February 18, 2021 - Request to Intervene by Eoin Finn                        |

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| C3-2  | Letter dated April 19, 2021 – Devlin Gailus Watson notice of representation of MS2S also submitting Confidential Declaration and Undertaking for Tanner Doerges                                                                                                                                                 |
| C3-3  | <del>CONFIDENTIAL</del> - Letter dated April 28, 2021 – MS2S submitting Counsel Submissions regarding security sensitive information                                                                                                                                                                            |
| C3-4  | Letter dated May 19, 2021 – MS2S submitting comments on FEI Non-Disclosure Agreement                                                                                                                                                                                                                            |
| C3-5  | Letter dated July 9, 2021 – MS2S submitting Information Request No.1 to FEI                                                                                                                                                                                                                                     |
| C3-6  | Letter dated September 29, 2021 – Tanner Doerges of Devlin Gailus Watson submitting they will no longer be representing MS2S in the proceeding                                                                                                                                                                  |
| C3-7  | Letter dated October 6, 2021 – MS2S submitting Information Request No. 2 to FEI                                                                                                                                                                                                                                 |
| C3-8  | Letter dated November 23, 2021 – MS2S submission for Procedural Conference                                                                                                                                                                                                                                      |
| C3-9  | Letter dated March 28, 2021 – MS2S late comment on FEI response to BCUC Information Request No. 1                                                                                                                                                                                                               |
| C3-10 | Letter dated September 1, 2022 – MS2S submission regarding Information Request No. 4 to FEI                                                                                                                                                                                                                     |
| C3-11 | Letter dated December 17, 2024 – MS2S submitting confirmation of continued intervener participation                                                                                                                                                                                                             |
| C3-12 | Letter dated February 13, 2025 – MS2S submitting Information Request No. 5 to FEI                                                                                                                                                                                                                               |
| C3-13 | Letter dated May 1, 2025 – MS2S submitting Information Request No. 6 to FEI                                                                                                                                                                                                                                     |
| C4-1  | <b>BRITISH COLUMBIA OLD AGE PENSIONERS' ORGANIZATION, ACTIVE SUPPORT AGAINST POVERTY, DISABILITY ALLIANCE BC, COUNCIL OF SENIOR CITIZENS' ORGANIZATIONS OF BC, AND TENANTS RESOURCE AND ADVISORY CENTRE (BCOAPO ET AL.)</b> – Letter dated February 25, 2021 Request to Intervene by Leigha Worth and Irina Mis |
| C4-2  | Letter dated March 22, 2021 – BCOAPO submitting Confidential Declaration and Undertakings for Janet Rhodes, Irina Mis, Darren Rainkie and Kelly Derksen                                                                                                                                                         |
| C4-3  | <del>CONFIDENTIAL</del> - Letter dated April 27, 2021 – BCOAPO submitting Counsel Submissions regarding security sensitive information                                                                                                                                                                          |

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| C4-4  | Letter dated May 19, 2021 – BCOAPO submitting comments on FEI Non-Disclosure Agreement                                                        |
| C4-5  | Letter dated July 9, 2021 – BCOAPO submitting Information Request No.1 to FEI                                                                 |
| C4-6  | Letter dated October 6, 2021 – BCOAPO submitting Information Request No. 2 to FEI                                                             |
| C4-7  | Letter dated November 23, 2021 – BCOAPO submitting Confidential Declaration and Undertaking for Kristin Baram                                 |
| C4-8  | Letter dated January 21, 2022 – BCOAPO submission regarding TWN request to exclude interveners from the Oral Tsleil-Waututh Knowledge Hearing |
| C4-9  | Letter dated May 5, 2021 – BCOAPO submission regarding TWN request for Redacted Transcript to Remain Confidential                             |
| C4-10 | Letter dated May 18, 2021 – BCOAPO submitting request for access to TWN Redacted Oral Evidence Transcript                                     |
| C4-11 | Letter dated May 20, 2021 – BCOAPO submission advising they will not be filing Information Requests on TWN's Oral Evidence                    |
| C4-12 | Letter dated July 6, 2022 – BCOAPO submitting comment on further process                                                                      |
| C4-13 | Letter dated September 1, 2022 – BCOAPO submitting Information Request No. 4 to FEI                                                           |
| C4-14 | Letter dated November 21, 2022 – BCOAPO submitting extension request to file Final Argument                                                   |
| C4-15 | Letter dated January 3, 2025 – BCOAPO confirming continued participation                                                                      |
| C4-16 | Letter dated February 13, 2025 – BCOAPO submitting Information Request No. 5 to FEI                                                           |
| C4-17 | Letter dated May 1, 2025 – BCOAPO submitting Information Request No. 6 to FEI                                                                 |
| C5-1  | <b>COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BRITISH COLUMBIA (CEC)</b> – Letter dated February 25, 2021 by Christopher Weafer               |
| C5-2  | Letter dated March 11, 2021 – CEC submitting Confidential Declaration and Undertaking for Christopher Weafer                                  |
| C5-3  | Letter dated March 16, 2021 – CEC submitting Confidential Declaration and Undertaking for Patrick Weafer                                      |

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| C5-4  | Letter dated March 16, 2021 – CEC submitting Confidential Declaration and Undertaking for Janet Rhodes                                       |
| C5-5  | <b>CONFIDENTIAL</b> - Letter dated April 28, 2021 – CEC submitting Counsel Submissions regarding security sensitive information              |
| C5-6  | Letter dated May 19, 2021 – CEC submitting comments on FEI Non-Disclosure Agreement                                                          |
| C5-7  | Letter dated June 10, 2021 – CEC submitting Confidential Declaration and Undertaking for Christopher Weafer, Janet Rhodes and Patrick Weafer |
| C5-8  | Letter dated June 14, 2021 – CEC submitting Non-Disclosure Agreement and Declaration for David Craig                                         |
| C5-9  | Letter dated July 7, 2021 – CEC submitting extension request to file Information Requests                                                    |
| C5-10 | Letter dated July 12, 2021 – CEC submitting Information Request No. 1 to FEI                                                                 |
| C5-11 | <b>CONFIDENTIAL – REVISED</b> - Letter dated July 13, 2021 – CEC submitting Revised Confidential Information Request No. 1 to FEI            |
| C5-12 | Letter dated October 6, 2021 – CEC submitting extension request to file Information Request No. 2 to FEI                                     |
| C5-13 | Letter dated October 7, 2021 – CEC submitting second extension request to file Information Request No. 2 to FEI                              |
| C5-14 | Letter dated October 12, 2021 – CEC submitting Information Request No. 2 to FEI                                                              |
| C5-15 | <b>CONFIDENTIAL</b> - Letter dated October 12, 2021 – CEC submitting Confidential Information Request No. 2 to FEI                           |
| C5-16 | Letter dated January 21, 2022 – CEC submission regarding TWN request to exclude interveners from the Oral Tsleil-Waututh Knowledge Hearing   |
| C5-17 | Letter dated April 21, 2022 – CEC Information Request No. 1 to RCIA Intervener Evidence                                                      |
| C5-18 | Letter dated May 2, 2022 – CEC Information Request No. 1 to TWN Intervener Evidence                                                          |
| C5-19 | Letter dated May 6, 2021 – CEC submission supporting BCOAPO regarding TWN request for Redacted Transcript to Remain Confidential             |
| C5-20 | Letter dated May 18, 2021 – CEC submitting request for access to TWN Redacted Oral Evidence Transcript                                       |

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| C5-21 | Letter dated June 23, 2022 – CEC submitting Information Request No. 3 to FEI Rebuttal Evidence and TWN Intervener Evidence                                                                   |
| C5-22 | Letter dated July 6, 2022 – CEC submitting comment on further process                                                                                                                        |
| C5-23 | Letter dated September 1, 2022 – CEC submitting Information Request No. 4 to FEI                                                                                                             |
| C5-24 | Letter dated December 16, 2024 – CEC submitting confirmation of continued intervener participation                                                                                           |
| C5-25 | Letter dated January 3, 2025 – CEC submission on FEI confidentiality requests                                                                                                                |
| C5-26 | Letter dated February 13, 2025 – CEC submitting Information Request No. 5 to FEI                                                                                                             |
| C5-27 | Letter dated May 1, 2025 – CEC submitting Information Request No. 6 to FEI                                                                                                                   |
| C6-1  | <b>SENTINEL ENERGY MANAGEMENT INC. (SENTINEL ENERGY)</b> - Letter dated March 5, 2021 Late Request to Intervene by Jim Langley – Change of status from Interested Party to Intervener        |
| C6-2  | <b>CONFIDENTIAL</b> - Letter dated April 28, 2021 – Sentinel Energy letter regarding security sensitive information                                                                          |
| C6-3  | Letter dated May 4, 2021 – Sentinel Energy submitting response regarding Further Process and Security Sensitive Information and Confidential Declaration and Undertaking for Charles W. Bois |
| C6-4  | Letter dated May 6, 2021 - Sentinel Energy submitting clarification on Further Process                                                                                                       |
| C6-5  | Letter dated May 19, 2021 – Sentinel Energy submitting comments on FEI Non-Disclosure Agreement                                                                                              |
| C6-6  | Letter dated May 27, 2021 – Sentinel Energy submitting Confidential Declaration and Undertaking for James Langley                                                                            |
| C6-7  | Letter dated June 11, 2021 - Sentinel Energy submitting extension request to file Information Requests                                                                                       |
| C6-8  | <b>CONFIDENTIAL</b> - Letter dated July 9, 2021 – Sentinel Energy submitting confidential Information Request No. 1 to FEI                                                                   |
| C6-9  | <b>CONFIDENTIAL</b> - Letter dated October 15, 2021 – Sentinel Energy submitting Information Request No. 2 to FEI                                                                            |
| C6-10 | Letter dated November 23, 2021 – Charles W. Bois, Miller Thomson LLP providing notice no longer act as counsel to Sentinel Energy                                                            |

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| C6-11  | Letter dated January 3, 2025 – Sentinel Energy confirming continued participation                                                        |
| C7-1   | <b>TSLEIL-WAUTUTH NATION (TWN)</b> – Letter dated May 7, 2021 Request to Intervene by Deanna Shrimpton                                   |
| C7-2   | Letter dated July 9, 2021 – TWN submitting Information Request No.1 to FEI                                                               |
| C7-3   | Letter dated October 6, 2021 – TWN submitting Information Request No. 2 to FEI                                                           |
| C7-4   | Letter dated November 22, 2021 – TWN confirming attendance at the Procedural Conference                                                  |
| C7-5   | Letter dated December 9, 2021 – TWN submitting intention to provide additional submissions at the Procedural Conference                  |
| C7-6   | Letter dated December 17, 2021 – TWN submitting request for Confidential Oral TWN Knowledge Evidence Hearing                             |
| C7-7   | Letter dated January 28, 2022 – TWN reply submission to Interveners regarding Oral Tsleil-Waututh Knowledge Hearing                      |
| C7-8   | Letter dated February 23, 2022 – TWN submitting extension request to file written evidence                                               |
| C7-9   | Letter dated March 25, 2022 – TWN submitting written evidence                                                                            |
| C7-9-1 | <b>CONFIDENTIAL</b> - Letter dated March 25, 2022 – TWN submitting confidential written evidence                                         |
| C7-10  | Letter dated April 5, 2022 – TWN submitting comments regarding the provided Oral Hearing Information                                     |
| C7-11  | Letter dated April 11, 2022 – TWN submitting extension request to file redactions to the Oral Evidence Hearing Transcript                |
| C7-12  | Letter dated April 21, 2022 – TWN submitting notice of filing redactions to the Oral Evidence Hearing Transcript April 22, 2022          |
| C7-13  | Letter dated April 22, 2022 – TWN submitting proposed redactions to the Oral Evidence Hearing Transcript                                 |
| C7-14  | Letter dated May 11, 2022 – TWN submitting reply to Intervener submissions regarding Confidentiality of Oral Evidence Hearing Transcript |
| C7-15  | Letter dated May 11, 2022 – TWN submitting responses to BCUC Information Request No. 1                                                   |

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| C7-16 | Letter dated May 11, 2022 – TWN submitting responses to CEC Information Request No. 1                                                                  |
| C7-17 | Letter dated May 11, 2022 – TWN submitting responses to RCIA Information Request No. 1                                                                 |
| C7-18 | Letter dated May 11, 2022 – TWN submitting responses to BCSEA Information Request No. 1                                                                |
| C7-19 | Letter dated May 17, 2022 – TWN submitting possible extension request to file responses to formation Requests on Oral Evidence                         |
| C7-20 | <b>CONFIDENTIAL</b> - Letter dated May 30, 2022 – TWN submitting confidential responses to FEI Confidential Information Request No. 1 on Oral Evidence |
| C7-21 | Letter dated June 23, 2022 – TWN submitting Information Request No. 3 to FEI                                                                           |
| C7-22 | Letter dated July 6, 2022 – TWN submission on further process                                                                                          |
| C7-23 | Letter dated August 5, 2022 – TWN submission on availability for Oral Final Argument                                                                   |
| C7-24 | Letter dated September 1, 2022 – TWN submitting Information Request No. 4 to FEI                                                                       |
| C7-25 | Letter dated October 7, 2022 – TWN submitting update on Final Arguments                                                                                |
| C8-1  | <b>MUSQUEAM INDIAN BAND (MUSQUEAM)</b> - Letter dated July 29, 2022 Request to Intervene by Chief Wayne Sparrow                                        |

#### INTERESTED PARTY DOCUMENTS

|       |                                                                                                            |
|-------|------------------------------------------------------------------------------------------------------------|
| D-1   | <b>ARMSTRONG, LYNN (ARMSTRONG)</b> - Submission dated January 12, 2021 request for Interested Party Status |
| D-2   | <b>HUTTON, JOHN (HUTTON)</b> - Submission dated February 17, 2021 request for Interested Party Status      |
| D-2-1 | Hutton – Letter of Comment dated February 12, 2021                                                         |
| D-3   | <b>REMOVED</b> – Now Exhibit C6-1                                                                          |
| D-4   | <b>DEROO, J. (DEROO)</b> - Submission dated March 9, 2021 request for Interested Party Status              |

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| D-5   | <b>VAN DER VELDEN, P. (VAN DER VELDEN)</b> - Submission dated August 5, 2021 request for Interested Party Status    |
| D-5-1 | van der Velden – Letter of Comment dated August 5, 2021                                                             |
| D-6   | <b>ROBERTSON ENVIRONMENTAL SERVICES LTD.</b> - Submission dated October 8, 2021 request for Interested Party Status |
| D-7   | <b>REV, M. (REV)</b> - Submission dated July 15, 2022 request for Interested Party Status                           |

## LETTERS OF COMMENT

|      |                                                                    |
|------|--------------------------------------------------------------------|
| E-1  | Reid, H. – Letter of Comment dated February 22, 2021               |
| E-2  | Ruthven, P. – Letter of Comment dated June 7, 2021                 |
| E-3  | Axwik, G. – Letter of Comment dated July 15, 2021                  |
| E-4  | Goldman, L. – Letter of Comment dated May 21, 2025                 |
| E-5  | Kiviste, M. – Letter of Comment dated May 21, 2025                 |
| E-6  | Gibson, C. – Letter of Comment dated May 21, 2025                  |
| E-7  | Johnson, E. L. – Letter of Comment dated May 22, 2025              |
| E-8  | Laven, W. – Letter of Comment dated May 23, 2025                   |
| E-9  | Dunn, P. – Letter of Comment dated May 23, 2025                    |
| E-10 | Labanic, P. – Letter of Comment dated May 25, 2025                 |
| E-11 | Holm, M. – Letter of Comment dated May 26, 2025                    |
| E-12 | Stevenson, A. – Letter of Comment dated May 26, 2025               |
| E-13 | Durston, C. – Letter of Comment dated May 27, 2025                 |
| E-14 | Engel, A. – Letter of Comment dated May 27, 2025                   |
| E-15 | First Things First Okanagan – Letter of Comment dated May 28, 2025 |
| E-16 | Johnson, G. – Letter of Comment dated May 28, 2025                 |
| E-17 | Crosby, K. – Letter of Comment dated May 28, 2025                  |
| E-18 | Sy, S. – Letter of Comment dated May 28, 2025                      |
| E-19 | Cross, S. – Letter of Comment dated May 28, 2025                   |

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| E-20 | Brook, J. – Letter of Comment dated May 28, 2025      |
| E-21 | Parkinson, L. – Letter of Comment dated May 29, 2025  |
| E-22 | Devonshire, J. – Letter of Comment dated May 29, 2025 |
| E-23 | Parkinson, G. – Letter of Comment dated May 29, 2025  |
| E-24 | Torrence, A. – Letter of Comment dated May 29, 2025   |

FortisBC Energy Inc.  
Application for a Certificate of Public Convenience and Necessity  
for the Tilbury Liquefied Natural Gas Storage Expansion Project

## PROJECT REPORTING

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The Panel directs FEI to file the following reports:

### 1. Semi-Annual Progress Reports

Each report is required to detail:

- Actual costs incurred to date compared to the TLSE Project cost estimate provided in Table 6-1 of Exhibit B-60, highlighting variances with an explanation and justification of significant variances;
- Updated forecast of costs, highlighting the reasons for significant changes in TLSE Project costs anticipated to be incurred; and
- The status of the TLSE Project risks, including those noted in section 5.4.4 of the Exhibit B-1 and confidential Appendix I of Exhibit B-60-1, 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 TLSE 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, 2026.

### 2. Material Change Reports

A material change is a change in FEI's plan that would reasonably be expected to have a significant effect on the schedule, cost or scope of that particular plan, such that:

- There is a schedule delay of greater than 6 months for the start, completion or in-service date of any of the five main sub-project components listed in section 5.5 of Exhibit B-60;
- The forecasted total TLSE Project cost at completion exceeds 30 percent of the estimated Project cost provided in Table 6-1 of Exhibit B-60; or
- There is a change to the TLSE Project scope detailed in section 5 of Exhibit B-60.

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 TLSE 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. If the material change occurs within 30 days of the date for filing a semi-annual progress report, FEI may include the material change information in the progress report.

### 3. Final Report

The Final Report must include a breakdown of the final costs of the TLSE Project compared to the cost estimates included in Table 6-1 in the Exhibit B-60 and provide an explanation and justification of any material cost variances of 10 percent or more. The Final Report must be filed within six months of the date all five main sub-project components listed in section 5.5 of Exhibit B-60 are substantially complete or in-service, whichever is earlier.